



### Consolidated Index of Selected Property Values: Physical Chemistry and Thermodynamics (1962)

Pages  
302

Size  
8.5 x 10

ISBN  
0309339677

Office of Critical Tables; National Research Council

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**CONSOLIDATED INDEX**  
**OF**  
**SELECTED PROPERTY VALUES**  
**PHYSICAL CHEMISTRY AND THERMODYNAMICS**





**CONSOLIDATED INDEX**  
**OF**  
**SELECTED PROPERTY VALUES**

**PHYSICAL CHEMISTRY AND THERMODYNAMICS**

*prepared by*

A.P.C. THE OFFICE OF CRITICAL TABLES

**Publication 976**  
**NATIONAL ACADEMY OF SCIENCES—NATIONAL RESEARCH COUNCIL**  
**Washington, D.C.**  
**1962**

OD 65  
135  
c 2

LIBRARY OF CONGRESS CATALOG CARD No. 62-60077

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## **COMPILATIONS INDEXED**

The Consolidated Index is a key to the contents of publications that present critically evaluated numerical property values. This initial volume contains in codified form the contents of the following six compilations of physicochemical and thermodynamic data:

### **Selected Values of Properties of Hydrocarbons and Related Compounds**

American Petroleum Institute Research Project 44

### **Selected Values of Properties of Chemical Compounds**

Manufacturing Chemists Association Research Project

### **Selected Values of Chemical Thermodynamic Properties**

NBS Circular 500

### **Thermodynamic Properties of the Elements**

D. R. Stull and G. C. Sinke

### **Contributions to the Data on Theoretical Metallurgy**

Bureau of Mines Bulletins 383, 384, 393, 406, 407, 477, 542, 584

### **Selected Values for the Thermodynamic Properties of Metals and Alloys**

Minerals Research Laboratory, University of California

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## FOREWORD

The publication in 1930 of Volume VII of the International Critical Tables completed the most comprehensive compilation of numerical data assembled to that time. It was greeted as a powerful aid by both industrial and research scientists. However, it had shortcomings of which two in particular have a bearing on the purposes of the present Consolidated Index. Initially it had no index, and for several years much grumbling was heard about this lack. In 1933 an index to the seven volumes of ICT appeared, thus removing one of the two most serious defects.

The second shortcoming was the lack of a mechanism for revision. The Academy—Research Council, which fostered the original ICT, now hopes to have the unified massive compendium replaced by an array of loosely coordinated smaller compilations. Each will cover an area of science, and each will be revised periodically. In general, each project will publish its results separately under the auspices of the sponsoring organization. An index that will point to the contents of these many publications is even more important than it was for the ICT. The number of publications to be indexed with their differing structures and frequent revisions makes the creation of a central index a formidable task.

The staff of OCT is to be congratulated on having taken this first step in the creation of a central index. The field of coverage is limited, but it is large enough to foreshadow the nature of the more comprehensive index to come and to provide a basis for improvements of methodology. It is offered to the scientific and engineering community in the expectation that from it will grow a comprehensive and useful tool for the retrieval of numerical data from sources of highest quality.

A. V. ASTIN, *Chairman*  
Executive Committee  
Office of Critical Tables  
National Academy of Sciences—  
National Research Council

15 May 1962



## PREFACE

In order to understand the several purposes of the index presented in this small volume, it is necessary to relate it to the over-all program of the Office of Critical Tables (OCT) of the National Academy of Sciences. The primary aims are: (1) to survey the needs for critical tables of numerical data; and (2) to stimulate and coordinate preparation and compilation of critical tables on a continuing basis. Supporting aims include the maintenance and periodic publication of information on numerical data projects (see *Directory of Continuing Numerical Data Projects*, Publication 837, National Academy of Sciences—National Research Council, Washington, D.C., 1961) and the establishment of a central index to the contents of those compilations that meet quality standards. The directory service will reveal the number, nature, and quality of continuing projects that disseminate numerical data. The central or consolidated index, when fully developed, will show the specific contents of all of those publications that are of suitable quality. Our primary concern here is with the development of such a central index.

The scope of this volume is limited to the contents of six important physicochemical and thermodynamic compilations. The choice of this area as a point of departure was determined by its relatively well developed state. This field affords the desired opportunity to develop simultaneously a methodology for the larger index and a valuable source book for scientists and engineers. The six compilations chosen are representative examples of critically evaluated data compilations of good quality. Their contents are reliable but diverse in subject matter and organization, thus providing a varied test of the indexing scheme.

The purposes of the OCT Consolidated Index are manifold. First, it will lead the user to publications of reliable, selected property values for well characterized substances. The user is spared the laborious task of searching and appraising the original literature. Second, gaps in knowledge and undesirable overlap of projects are revealed. Analysis of the coverage of science by existing projects is possible. Third, a codified central index to numerical data will provide a basis for varied mechanical search and storage systems. Fourth, when it can be brought to a state of currency for all available publications of good quality in the physical sciences and engineering, such an index will give a measure of coherence to the continuing data projects that serve science by producing tables of critically evaluated data.

The indexing of a single massive publication dealing with numerous substances and associated properties presents many problems. The difficulties are compounded when the contents of an increasing number of diverse publications are to be included in one expansible index. The main problems are twofold. First, it is necessary to decide on the content and arrangement of each *individual entry*; second, one must devise or accept an *ordering principle* for organization of the many entries.

The primary aim of the index entry is to designate a substance, an associated property, and a publication. To accomplish this, the many conventions regarding formula writing, nomenclature, designation of phases, and so on had to be examined. To save space, names of properties and of publications had to be coded. Finally, a compact, semi-tabular method had to be devised to condense under each substance entry the many property entries from one or more of the publications. Details regarding these matters are discussed in the INTRODUCTION.

The ordering system adopted is known as the Standard Order of Arrangement of the Chemical Elements and Compounds. This scheme, based on the periodic properties of the elements, is used in three of the six thermodynamic compilations indexed here. An early form, devised by



Edward W. Washburn, was employed in the International Critical Tables. The decision to use the Standard Order (SO) system was based on the following advantages that it provides: (1) Empirical formulas are listed in a systematic way and the total list may be subdivided into groups according to composition. (2) All compounds of an element with less electropositive elements are grouped together, e.g., all salts of a given metal. (3) All compounds of an element in a given column of the Periodic Table are adjacent in the index to compounds of related elements, e.g., compounds of Li, Na, K, etc. are grouped in sequence. From this fact it follows that an index may be divided into volumes (or sections) by substance class. (Compilations of numerical data may also be subdivided by table, section, or volume in the same manner.) (4) Organometallic compounds (except those of As, Sb, and Bi) are listed under the metal, not under carbon.

It is recognized that any ordering system for chemical compounds will not suit all users. The SO system, like all others, has imperfections. For instance, it provides no ordering scheme for isomers of organic compounds, for which secondary, arbitrary rules must be devised. It is more complex than necessary for the physicist, who may be interested in nuclides and not in complex chemical compounds. Some mineralogists, who think of substances in terms of mineralogical names, may not adjust easily to a formula-based ordering system. However, for an all-inclusive index, the ordering system must accommodate all classes of substances and therefore, from the point of view of specialists in particular limited areas of science, it will fall short of perfection.

The remarks thus far have dealt primarily with the form of the index. It is pertinent to ask what criteria have controlled the selection of content. All but one of the publications indexed may be classified as *continuing* compilations of carefully evaluated numerical property values, and thus qualify as critical tables. The one exception is a recent small book of good-quality tables that fills an interim need. All meet applicable criteria presented in the following paragraphs concerned with *quality, continuity, and availability*.

Among the more important criteria for judging the quality of a compilation are the following: All property values presented shall have been evaluated by experts. The evaluation procedures shall be explained. If several literature values exist for a property of a substance, a selection of the "best" shall have been made by appropriate combination or by selection of the one closest to the true value when this can be determined. Estimates of uncertainties shall be included. Inter-related values shall be given the proper internal consistency. *Generally available, primary* research reports shall be the main source of data to be evaluated. All literature references necessary for a re-examination of the evaluator's final result shall be given explicitly. All data from the literature shall have been conformed to currently accepted values of the units involved. All symbols and nomenclature shall follow good usages, preferably those recommended by international organizations. Tables shall be well designed; their arrangement shall be logical; and the index or other guide to location of facts shall be simple.

Ideally, a compilation should be current at all times. In practice, this ideal can be approached only imperfectly. Some compilations have semiannual loose-leaf revisions and additions. Others are completely revised at intervals of several (up to ten or more) years. The index will be oriented to publications that have a reasonable mechanism for periodic revision. As previously stated, single publications of good quality may be included because they fill special gaps.

Compilations prepared for limited circulation and not available to the public and to libraries will not be indexed. In recent years, a plethora of research reports and compilations have appeared that have not entered regular publication channels and may never do so. Obviously, if the index is to be useful, sources to which it refers must be accessible. Somewhat less fundamental difficulties are presented by out-of-print and infrequently revised publications. New editions of several of the six compilations indexed here are needed and have been planned.

A major requirement of the index is the possibility of easy and frequent revision. Deletion of old and insertion of new index entries must be possible. Adoption of a line-camera composition method has helped in meeting this requirement. In this process, the information is typed on cards, one line to a card, sorted into the desired sequence, and photographed with a sequential-card camera. The film produced, complete with required heads, rules, text, and page numbers, is used to make a printing plate. Revisions are relatively inexpensive to produce. The foregoing procedure, if found satisfactory, will permit maintenance of an ever-current deck of index cards that can be converted into book form at appropriate intervals.

For the index to achieve maximum usefulness, it must eventually include the contents of all continuing, numerical data compilations of high quality. Ideally, such compilations should be sufficient in number and coverage to keep abreast of the primary literature. For the near future, the effort will be (1) to keep the index current for fields already covered, and (2) to incorporate the contents of other available compilations in fields such as nuclear science, spectroscopy, and crystallography. For the long term, the contents of new critical compilations must be included as they become productive parts of the total compilation effort. The ultimate desiderata are a prompt evaluation of all numerical property values appearing in the primary literature, their incorporation in critical compilations, and their indexing in the Consolidated Index.

The present form of the index is but one of various possible ways in which the basic information may be presented. The core of the central index is, and will be, the deck of cards on which are recorded the units of information given in the central index. Better ways of presenting the totality of information may well be devised in the light of experience. The central card file can also be the path to other types of indexes. Sub-indexes, by fields, groups of properties, or classes of substances, are possibilities. Methods of dissemination other than the printed page, such as card, tape, or microfilm, can be devised. An appraisal of the future worth of the central-index concept must recognize that there are many possible ways in which the basic information can be stored and disseminated.

It is hoped that the present Index will prove a useful tool in its field of coverage. But, more important, it is hoped that it will develop, as planned, into a new and flexible basis for retrieval of reliable numerical data. Users are invited to report errors and to advance constructive comments and suggestions about the form and content of the Consolidated Index.

On behalf of the staff of OCT, I wish to acknowledge our debt to A. V. Astin, Francis Birch, Robert B. Brode, Frederick D. Rossini, and J. R. Townsend—the members of the Executive Committee. Their vision and encouragement are basically responsible for this indexing experiment. We are also grateful to the many members of the Advisory Board of the Office and other experts who have contributed constructive criticism and suggestions.

To the National Science Foundation we extend not only gratitude for financial support but also appreciation for the interest and encouragement of staff members of the Office of Science Information Service.

Finally, I wish to extend sincerest appreciation and thanks to Dr. Richard Wiebe, Assistant Director of OCT, Mrs. Senta Raizen, Research Assistant, Mrs. Carol Schiller, and other staff members for the devotion and unstinting use of their talents which have made this index possible.

11 May 1962

GUY WADDINGTON, *Director*  
Office of Critical Tables



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# INTRODUCTION

The index is a key to the contents of the six compilations listed on page XXII. Each element, compound, or system of pure substances appears as a separate index entry. For a given substance, all properties that appear in one or more of the compilations are listed separately under each. A given property, if appearing in several, is repeated under each publication. The make-up of individual index entries and conventions adopted for presentation of the necessary information are described under "The Index Entry" (below). The rules governing the ordering of substances according to the Standard Order System are discussed under "Arrangement of Entries" (p. XVI). A guide to the use of the index is provided in the section "To Use the Index" (p. XVIII).

## THE INDEX ENTRY

Each index entry is made up of three basic parts: (1) identification of substance by formula, name, and state of aggregation; (2) identification of the publication(s) in which property values are presented for the substance of interest; and (3) three-letter coded designations for each of the properties presented in each compilation for the given substance. Part (1) will be described under the headings "Formulas", "Nomenclature", and "Physical States". The coded designations for publications and properties used in parts (2) and (3) are given in lists on page XXII ("Key to Publications") and page XXIII ("Code Designations of Properties").

### Formulas

*Inorganic Compounds.* For inorganic substances, formulas are written as given by each compiler. For alloy systems, the compiler's order of listing symbols of constituent elements has been transposed when necessary to conform with the Standard Order System.

*Organic Compounds.* Empirical formulas are used to represent organic compounds, whether these are listed under carbon or under the appropriate metal in the case of organometallic compounds. The symbols of the constituent elements with appropriate numerical subscripts are arranged in order of descending Standard Order Finding Numbers (see p. XVI), i.e.: M-C-P-N-S-X-H-O where M may be any metal(s) except Bi, Sb, or As (these are inserted between C and P) and X may be one or more of the halogens.

### Nomenclature

*Inorganic Compounds.* (i) In assigning systematic names to ions and radicals, acids, salts and salt-like compounds, and coordination compounds, the rules followed are those recommended by the Commission on the Nomenclature of Inorganic Chemistry, International Union of Pure and Applied Chemistry [see *Nomenclature of Inorganic Chemistry, 1957*, Butterworths Scientific Publications, London, 1959, and *J. Am. Chem. Soc.*, **82**, 5517 (1960)].

(ii) Stock's system of indicating the oxidation number or stoichiometric valence of an element by Roman numerals placed in parentheses after the name is used when necessary [see rule 2.252, *op. cit.*].

(iii) In naming coordination compounds, Moeller, *Inorganic Chemistry*, John Wiley & Sons, Inc., New York, 1952, and Bailar, *The Chemistry of the Coordination Compounds*, Reinhold Publishing Corporation, New York, 1956, have been consulted when IUPAC recommendations are inadequate.

(iv) No names have been assigned to substances when: (a) definitive rules of nomenclature have not been established, e.g., for many ionized gaseous species; (b) structure is not clearly defined and no name is given by the compiler.

**Organic Compounds.** (i) In naming organic compounds, recommendations of the Commission on the Nomenclature of Organic Chemistry of the International Union of Pure and Applied Chemistry are followed [see *Nomenclature of Organic Chemistry*, 1957, Butterworths Scientific Publications, London, 1958, and *J. Am. Chem. Soc.*, **82**, 5545 (1960)]. For compounds not covered by IUPAC rules, usage cited in *The Naming and Indexing of Chemical Compounds by Chemical Abstracts* (Introduction to the 1945 Subject Index, including revisions in 1957) is followed.

(ii) When two or more side chains of different nature are present, they are cited in order of increasing complexity according to IUPAC rule 2.3a, *op. cit.*

(iii) Compounds with side chains and other nonfunctional substituents are listed under the "parent compound," the names of substituent radicals following in the same order they had in the systematic name before inversion. *Chemical Abstracts* usage is adopted in the formulation of "parent compound" names, e.g., 2-Methyl-3-ethylthiophene is written as Thiophene, 2-methyl-3-ethyl-

(iv) In naming organic boron compounds, the recommendations of the Committee on Nomenclature of the ACS Division of Organic Chemistry as cited in Patterson, *Words About Words*, American Chemical Society, Washington, D.C., 1957, p. 82, are followed.

### Physical States

Under each formula and name of substance, the physical state is indicated as crystalline (*c*), glassy (*gl*), amorphous (*amorph*), liquid (*liq*), gaseous (*g*), or in aqueous (*aq*) or other solution. Different crystalline phases of the same element or compound are designated by one or more of the following systems, according to the usage of each compiler: (1) (*c, IV*), (*c, III*), etc.; (2) (*c, α*), (*c, β*), etc.; (3) *mineral name*; (4) *crystal system or color*. Listing is in order of thermal stability. When a particular crystalline state is not specified unequivocally in a compilation, the pertinent properties are listed under the entry (*c*).

## THE ARRANGEMENT OF ENTRIES

The ordering of entries within the index is based primarily on the *Standard Order System*. Compounds not differentiated by the SO system are ordered according to secondary ordering conventions.

### The Standard Order System

(i) The 103 chemical elements are arranged in the "spread" formation of the periodic system and are assigned consecutive "Finding Numbers" from 1 to 103, with oxygen designated as 1, hydrogen as 2, the inert gases as 3-8, and the others in ascending sequence proceeding in a general way from the most electronegative to the most electropositive. The arrangement of the elements according to their Finding Numbers may be followed on the chart on page xx by beginning in the upper right corner, following the arrows on the connecting line, and ending at the lower left corner. To aid the user, two lists relating the elements to their Finding Numbers are given: That on page XXI presents the elements in order of Finding Numbers; that on page 273 presents them in alphabetical order.

(ii) Compounds containing two or more elements are assigned "Chemical Group Numbers" derived by arranging the Finding Numbers of the constituent elements in descending order. Thus



there are 103 main groups of compounds corresponding to the 103 elements. Each of these main groups is further subdivided into subgroups. The first subgroup contains species composed of the lead element only; the others contain species whose components consist of the same lead element combined with others of lower Finding Numbers. For example, all compounds containing sodium, and no element of higher Finding Number, have a Chemical Group Number beginning with 99. The compound  $\text{Na}_2\text{SO}_4$  has the Chemical Group Number 99-14-1, and all other compounds containing only Na, S, and O fall into the same subgroup.

(iii) The 103 possible main groups and subgroups are represented formally by the following scheme:

Group	Subgroups
1	1.
2	2; 2-1.
3	3; 3-1; 3-2, 3-2-1.
4	4; 4-1; 4-2, 4-2-1; 4-3, 4-3-1, 4-3-2, 4-3-2-1.
5	5; 5-1; 5-2, 5-2-1; 5-3, 5-3-1, 5-3-2, 5-3-2-1; 5-4, 5-4-1, etc.

Only group numbers of chemical significance are designated as Chemical Group Numbers.

A few samples will illustrate the grouping of substances according to composition. Group 1 denotes the group of species composed only of the element oxygen, as for example, O (monatomic oxygen),  $\text{O}_2$  (diatomic molecular oxygen),  $\text{O}_3$  (ozone), etc. Group 2 denotes all the species composed only of hydrogen or hydrogen and oxygen. Subgroup 2 denotes all the species composed only of hydrogen, and Subgroup 2-1 denotes all the compounds composed only of hydrogen and oxygen. Group 10 includes all the substances composed of the element chlorine alone and of chlorine with one or more of the elements having Finding Numbers less than 10. Subgroup 10-2-1 includes compounds composed of chlorine, hydrogen, and oxygen, as hypochlorous acid ( $\text{HClO}$ ) and perchloric acid ( $\text{HClO}_4$ ).

(iv) The order of listing compounds within a given subgroup is determined by the number of atoms of the component elements. For example, the order of compounds in the subgroup 23-2-1 (C-H-O) is determined: first, by ascending order of the number of carbon atoms; second, at constant C, by ascending order of the number of hydrogen atoms; third, at constant C and H, by ascending order of the number of oxygen atoms. The following partial list will elucidate the ordering scheme within subgroups:

$\text{CHO}_2^-$	formate ion
$\text{CHO}_3^-$	hydrogen carbonate ion
$\text{CH}_2\text{O}$	formaldehyde
$\text{CH}_2\text{O}_2$	formic acid
$\text{CH}_4\text{O}_2$	methyl hydrogen peroxide
$\text{C}_2\text{HO}_4^-$	hydrogen oxalate ion
$\text{C}_2\text{H}_2\text{O}$	ketene
$\text{C}_3\text{H}_6\text{O}$	n-propanal
$\text{C}_3\text{H}_6\text{O}_2$	n-propanoic acid
$\text{C}_3\text{H}_8\text{O}$	1-propanol



## Secondary Ordering Conventions

(i) Isomers are ordered alphabetically by systematic name. For substituted organic compounds, the "parent" name resulting from inversion of the non-functional substituents determines alphabetical order as in *Chemical Abstracts*.

(ii) In lists under a given "parent" name, the position of a particular isomer is determined alphabetically by the side chain or other substituent first mentioned in the name. Numerical prefixes and others such as *iso*, *cis* and *trans*, *sec* and *tert* are ignored for purposes of alphabetizing except as supplemental ordering determinants.

(iii) Ions are listed after the corresponding element or compound in numerical order of charge. Cations precede anions.

(iv) Isotopes are listed in order of increasing mass.

## THE USE OF THE INDEX

### The Meaning of the Index Entry

The following example illustrates the arrangement of a representative index entry:

	<b>26-10</b>				
SnCl	Tin monochloride				
(g)	E-XIII:	fae(t)	fai(t)	fal(t)	
SnCl <sub>2</sub>	Tin(II) chloride				
(c)	C:	eah	fab	fbf	fbg
	E-V:	eah	fbf	fbg	
	E-XIII:	fae(t)			
(liq)	C:	eag	fbj	fbk	
	E-III:	eag	eal(t)	fbi(t)	fbj(t) fbk
(in aq hydrogen chloride)	C:	fab			

The number 26-10 is the "Chemical Group Number" under which all compounds composed of tin (Finding Number 26) and chlorine (Finding Number 10) are entered. Formula, name, and phase designations are self-explanatory. The designations C, E-III, E-V, and E-XIII refer to the compilations (see p. XXII for Key) in which are listed properties of tin(II) chloride. Letters such as "eah, fab, fbf, fbg, fae(t)," etc. that follow after the designation for each compilation indicate the properties (see p. XXIII for Code Designations) for which values are given in the particular compilation. Thus, "C: eah fab fbf fbg" listed under the phase (*c*) indicates that the melting temperature (eah), heat of formation (fab), heat of fusion (fbf), and entropy of fusion (fbg) of tin(II) chloride are given in *NBS Circular 500*; "E-V: eah fbf fbg" indicates that values for the same properties except heat of formation may also be found in Volume V of *Contributions to the Data on Theoretical Metallurgy*; "E-III: eag eal(t) . . ." listed under the phase (*liq*) indicates that boiling temperature (eag) and vapor pressure of the liquid as a function of temperature (eal(t)) are listed in Volume III of *Contributions to the Data on Theoretical Metallurgy*.

### To Locate Information

(i) To locate a substance of interest, the Chemical Group Number is determined by arranging Finding Numbers of the constituent elements in descending order (see p. XXI for a List of Elements in Order of Finding Numbers or p. 273 for an Alphabetical List of Elements with Finding Numbers and Page Guide to Chemical Groups). The substance will be found under the main group represented by the Finding Number of the lead element and under the subgroup represented by the Chemical Group Number. Within the subgroup, if numerous entries exist, the number of atoms

of the lead element will generally reveal the compound of interest. Water of hydration and solvents are ignored for purposes of formulating Chemical Group Numbers.

(ii) To find the code equivalent of a given property, the relevant section of "Code Designations of Properties Indexed," page XXIII, is consulted.

(iii) The identity of the compilation designated by a capital letter in the index entry is determined from "Key to the Publications Indexed," page XXII.

Thus, a user who wishes to find values for the heat of formation of ammonium aluminum sulfate,  $\text{NH}_4\text{Al}(\text{SO}_4)_2$ , would take the following steps:

1. Determine from page XXI or page 273 the Finding Numbers of the elements that make up  $\text{NH}_4\text{Al}(\text{SO}_4)_2$ : 18 for nitrogen, 2 for hydrogen, 29 for aluminum, 14 for sulfur, 1 for oxygen. Arrangement of these Finding Numbers in descending order yields the Chemical Group Number 29-18-14-2-1 under which the desired compound is to be found. Note that the compound is listed under aluminum, the element of highest Finding Number.
2. Determine the code designation of the desired property (or properties) from page XXIII. Heat of formation is given as "fab" in section f (*Thermodynamic and Thermochemical Properties*) under subsection fa (*One component, single phase*).
3. In the index entry for  $\text{NH}_4\text{Al}(\text{SO}_4)_2$  on page 142, "fab" is listed for the crystalline state (*c*) under compilation C and for the aqueous solution (*aq*) as a function of concentration ( $\text{fab}(x)$ ) also under compilation C.
4. The Compilation Key on page XXII shows that C designates *NBS Circular 500*. Hence, values for the heat of formation of ammonium aluminum sulfate may be found, both for the crystalline state and for aqueous solutions, in *NBS Circular 500*.

## THE CHEMICAL ELEMENTS IN ORDER OF FINDING NUMBERS

<i>Finding Number</i>	<i>Element</i>	<i>Symbol</i>	<i>Page Number</i>	<i>Finding Number</i>	<i>Element</i>	<i>Symbol</i>	<i>Page Number</i>	<i>Finding Number</i>	<i>Element</i>	<i>Symbol</i>	<i>Page Number</i>
1	Oxygen	O	1	35	Mercury	Hg	157	67	Dysprosium	Dy	207
2	Hydrogen	H	2	36	Copper	Cu	160	68	Terbium	Tb	207
3	Helium	He	3	37	Silver	Ag	165	69	Gadolinium	Gd	207
4	Neon	Ne	3	38	Gold	Au	169	70	Europium	Eu	208
5	Argon	Ar	4	39	Platinum	Pt	171	71	Samarium	Sm	208
6	Krypton	Kr	4	40	Iridium	Ir	173	72	Promethium	Pm	209
7	Xenon	Xe	4	41	Osmium	Os	173	73	Neodymium	Nd	209
8	Radon	Rn	5	42	Palladium	Pd	174	74	Praseodymium	Pr	210
9	Fluorine	F	5	43	Rhodium	Rh	175	75	Cerium	Ce	211
10	Chlorine	Cl	6	44	Ruthenium	Ru	175	76	Lanthanum	La	213
11	Bromine	Br	7	45	Nickel	Ni	176	77	———	—	——
12	Iodine	I	8	46	Cobalt	Co	178	78	Nobelium	No	——
13	Astatine	At	10	47	Iron	Fe	182	79	Mendelevium	Md	——
14	Sulfur	S	10	48	Manganese	Mn	187	80	Fermium	Fm	——
15	Selenium	Se	13	49	Technetium	Tc	190	81	Einsteinium	Es	——
16	Tellurium	Te	15	50	Rhenium	Re	190	82	Californium	Cf	——
17	Polonium	Po	16	51	Chromium	Cr	191	83	Berkelium	Bk	——
18	Nitrogen	N	17	52	Molybdenum	Mo	194	84	Curium	Cm	——
19	Phosphorus	P	23	53	Tungsten	W	195	85	Americium	Am	214
20	Arsenic	As	28	54	Vanadium	V	196	86	Plutonium	Pu	214
21	Antimony	Sb	29	55	Niobium	Nb	198	87	Neptunium	Np	215
22	Bismuth	Bi	31	56	Tantalum	Ta	198	88	Uranium	U	215
23	Carbon	C	32	57	Titanium	Ti	199	89	Protactinium	Pa	217
24	Silicon	Si	124	58	Zirconium	Zr	201	90	Thorium	Th	217
25	Germanium	Ge	128	59	Hafnium	Hf	203	91	Actinium	Ac	218
26	Tin	Sn	130	60	Scandium	Sc	203	92	Beryllium	Be	219
27	Lead	Pb	132	61	Yttrium	Y	204	93	Magnesium	Mg	220
28	Boron	B	136	62	Lutetium	Lu	205	94	Calcium	Ca	226
29	Aluminum	Al	140	63	Ytterbium	Yb	205	95	Strontium	Sr	232
30	Gallium	Ga	144	64	Thulium	Tm	205	96	Barium	Ba	236
31	Indium	In	145	65	Erbium	Er	206	97	Radium	Ra	241
32	Thallium	Tl	147	66	Holmium	Ho	206	98	Lithium	Li	241
33	Zinc	Zn	150					99	Sodium	Na	246
34	Cadmium	Cd	154					100	Potassium	K	256
								101	Rubidium	Rb	266
								102	Cesium	Cs	269
								103	Francium	Fr	272

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- A** Selected Values of Properties of Hydrocarbons and Related Compounds, American Petroleum Institute Research Project 44, Chemical Thermodynamic Properties Center, A. and M. College of Texas, College Station, Texas (Loose-leaf data sheets, extant October 1960).
- B** Selected Values of Properties of Chemical Compounds, Manufacturing Chemists Association Research Project, Chemical Thermodynamic Properties Center, A. and M. College of Texas, College Station, Texas (Loose-leaf data sheets, extant December 1960).
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- D** Thermodynamic Properties of the Elements, D. R. Stull and G. C. Sinke, American Chemical Society, Washington, D.C., 1956.
- E** Contributions to the Data on Theoretical Metallurgy, K. K. Kelley et al., U.S. Government Printing Office, Washington, D.C.
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- XIII "High-Temperature Heat-Content, Heat Capacity, and Entropy Data for the Elements and Inorganic Compounds," Bureau of Mines Bulletin 584, 1960.
- F** Selected Values for the Thermodynamic Properties of Metals and Alloys, Minerals Research Laboratory, Institute of Engineering Research, University of California, Berkeley, California (Loose-leaf data sheets).‡

\* Since the Consolidated Index went to press, Bulletins 383, 384, 393, and 406 have been reprinted in one volume as Bureau of Mines Bulletin 601, 1962.

† Since the Consolidated Index went to press, Bulletin 477 has been revised and superseded by Bulletin 592, 1961.

‡ To be published in book form by John Wiley and Sons, Inc.

## CODE DESIGNATIONS OF PROPERTIES INDEXED\*

### e Physicochemical Properties

#### ea General

ea	<b>General</b>
ea	Cryoscopic constant
eab	Density or specific gravity
eac	(dt/dp) at boiling point
ead	Refractive index, also molal refraction, specific refraction, refractivity intercept
ea	Specific dispersion
ea	Surface tension
eag	Boiling point
eah	Freezing point
ea	Sublimation temperature
ea	Transition temperature
ea	Vapor pressure
eam	Solubility
ean	Viscosity
ea	Volume, molal or specific

#### eb Cases

eb	<b>Cases</b>
eba	Activity coefficient
ebb	Compressibility factor
ebc	Critical compressibility factor
ebd	Critical density
ebe	Critical pressure
ebf	Critical temperature
ebg	Critical volume

### f Thermodynamic and Thermochemical Properties

#### fa One component, single phase

fa	<b>One component, single phase</b>
faa	Free energy of formation
fab	Heat of formation
fac	Entropy, standard
fad	Logarithm of equilibrium constant of formation
fae	Heat capacity
faf	Free energy function
fag	Heat content function
fai	Heat content (enthalpy)
fal	Entropy $S_T - S_{298.15}$
fam	Free energy of reaction, dissociation, decomposition, etc.
fan	Heat of reaction, dissociation, decomposition, etc.
fao	Heat of combustion
fap	Dissociation constant

#### Gases

fafa	Free energy function $(F - F^\circ)/T$
fafb	Free energy $F - F^\circ$ and/or $F - F_{ideal}$
faga	Heat content function $(H - H)/T$
faia	Heat content (enthalpy)
fak	Entropy $S - S^\circ$ and/or $S - S_{ideal}$

#### fb One component, phase changes

fb	<b>One component, phase changes</b>
fba	Transition, free energy of
fbb	“ heat of
fb	“ entropy of
fbd	“ $\Delta C_p$ of
fbe	Fusion, free energy of
fbf	“ heat of
fbg	“ entropy of
fbh	“ $\Delta C_p$ of

#### fb One component, phase changes, con't.

fb	<b>One component, phase changes, con't.</b>
fbi	Vaporization, free energy of
fbj	“ heat of
fbk	“ entropy of
fbl	“ $\Delta C_p$ of
fbm	Sublimation, free energy of
fbn	“ heat of
fbo	“ entropy of
fbp	“ $\Delta C_p$ of

#### fc Multi component systems

fc	<b>Multi component systems</b>
fca	Free energy of formation
fc	excess integral
fcc	relative partial molar
fc	relative partial molar excess
fce	Free energy function
fcf	Heat of formation
fcg	relative partial molar
fch	Heat content (enthalpy)
fcl	Entropy of formation
fc	excess integral
fc	relative partial molar
fco	relative partial molar excess
fcp	Entropy $S_T - S_{298.15}$
fcr	Heat capacity
fcs	relative partial molar
fct	deviation from Kopp-Neumann rule of additivity
fcv	Activity
fcw	Activity coefficient

*Additional symbols to indicate range of variables:*

(-t), (t), (+t) 0-273°K, 273-2000°K, >2000°K respectively; (p) pressure; (x) composition

\* FOR DEFINITIONS OF PROPERTIES INDEXED SEE THE PERTINENT COMPILATIONS AS LISTED ON PAGE XXII.

# CONSOLIDATED INDEX OF SELECTED PROPERTY VALUES

## PHYSICAL CHEMISTRY AND THERMODYNAMICS

E <sup>-</sup>	Electron gas E-XI: fac		(c, II)	C: eaj fbb fbc fbd D: eaj fbb E-III: fbn(-t) fbn(-t) E-XI: eaj fbb
<b>1 - Oxygen - O</b>				
O	1 Monoxygen (g) A: faa(t) fab(t) fac(t) fad(t) fae(t) faf(t) faq(t) fai(t) C: faa fab fac fad fae D: faa(t, +t) fab(t, +t) fac(t, +t) fad(t, +t) fae(t, +t) faf(t, +t) fai(t, +t) E-XI: fac E-XIII: fae(t, +t) fai(t, +t) fal(t, +t)		(c, I)	B: eah C: eah fbf fbq fbh D: eah fbf E-III: eal(-t) fbn(-t) fbn(-t) E-V: eah fbf fbq E-XI: eah fac fae(-t) fbf
O <sup>+</sup>	(g) C: fab		(liq)	B: eac eaq eal(-t) C: eaq fbj fbk fbl D: eaq fbj E-III: eaq eal(-t) fbi(-t) fbj(-t) E-XI: eaq fbj
O <sup>2+</sup>	(g) C: fab		(g)	A: fac(t) fae(t) fai(t) faq(t) fai(t) B: eab ead ebc ebd ebe ebf ebg C: fac fae D: ebe ebf fac(t, +t) fae(t, +t) fai(t, +t) fai(t, +t) E-XI: fac fae(-t) E-XIII: fae(t, +t) fai(t, +t) fal(t, +t)
O <sup>3+</sup>	(g) C: fab		(aq)	C: fab
O <sup>4+</sup>	(g) C: fab		O <sub>2</sub> <sup>+</sup>	(g) C: fab
O <sup>5+</sup>	(g) C: fab		O <sub>3</sub>	Trixygen (Ozone) (c) B: eah (liq) B: eac eaq eal(-t) C: eaq fbj fbk E-III: eaq eal(-t) fbi(-t) fbj fbk
O <sup>6+</sup>	(g) C: fab		(g)	B: eab ebc ebd ebe ebf ebg faa fab fac fad fae E-XI: fac E-XII: faa(t) fab(t) E-XIII: fae(t) fai(t) fal(t)
O <sup>-</sup>	(g) C: fab		(aq)	C: fab
O <sub>2</sub>	Oxygen (c, III) C: eaj fbb fbc fbd D: eaj fbb E-III: fbn(-t) fbn(-t) E-XI: eaj fbb		O <sub>4</sub>	Tetraoxygen (g) C: fab

2 - Hydrogen - H

	2	
H	Monohydrogen	
	(g) A: faa(t) fab(t) fac(t) fad(t) fae(t) faf(t)	
	faq(t) fai(t)	
	C: faa fab fac fad fae	
	D: faa(t,+t) fab(t,+t) fac(t,+t)	
	fad(t,+t) fae(t,+t) faf(t,+t)	
	fai(t,+t)	
	E-XI: fac	
	E-XIII: fae fai(t,+t) fal(t,+t)	
H <sup>+</sup>	Hydrogen ion	
	(g) C: fab	
	(aq) C: faa fab fac fad fae	
	E-XI: fac	
<sup>1</sup> H	Monohydrogen-1	
	(g) C: faa fab fac fad fae	
<sup>1</sup> H <sup>+</sup>		
	(g) C: fab	
<sup>1</sup> H <sup>-</sup>		
	(g) C: fab	
<sup>2</sup> H	Monodeuterium	
	(g) C: faa fab fac fad fae	
	E-XI: fac	
<sup>2</sup> H <sup>+</sup>		
	(g) C: fab	
<sup>2</sup> H <sup>-</sup>		
	(g) C: fab	
H <sub>2</sub>	Hydrogen	
	(c) C: eah fbf fbq fbh	
	D: eah fbf	
	E-III: eal(-t)	
	E-V: eah fbf fbq	
	E-XI: eah fbf	
	(liq) C: eaq fbj fbk	
	D: eaq fbj	
	E-III: eaq eal(-t)	
	E-XI: eaq fbj	
	(g) A: fac(t) fae(t) faf(t) faq(t) fai(t) faj	
	C: fac fae	
	D: ebe ebf fac(t,+t) fae(t,+t)	
	faf(t,+t) fai(t,+t)	
	E-XI: fac	
	E-XIII: fae(t,+t) fai(t,+t) fal(t,+t)	
	Hydrogen, normal, 25% para	
	(c) B: eah eai eal(-t)	
	(liq) B: eac eaq eal(-t)	
	(g) B: eab ead ebc ebd ebe ebf	
	ebq	
	Hydrogen, equilibrium, 99.8% para	
	(c) B: eah eai eal(-t)	
	(liq) B: eac eaq eal(-t)	
	E-III: eal	
	(g) B: ebc ebd ebe ebf ebq	
<sup>1</sup> H <sub>2</sub>	Hydrogen ( <sup>1</sup> H <sub>2</sub> )	
	(c) C: eah fbf fbq fbh	
	(liq) C: eaq fbj fbk	
	(g) C: faa fab fac fad fae	

<sup>1</sup> H <sub>2</sub> <sup>+</sup>		
	(g) C: fab	
H <sup>2</sup> H	Deuterium hydride	
	(c) B: eah eai eal(-t)	
	E-XI: eah fbf	
	(liq) B: eac eaq eal(-t)	
	E-XI: eaq fbj	
	(g) B: eab ead ebc ebd ebe ebf	
	ebq	
	E-XI: fac	
	E-XIII: fae(t) fai(t) fal(t)	
<sup>1</sup> H <sup>2</sup> H	Deuterium hydride-1	
	(c) C: eah fbf fbq fbh	
	(liq) C: eaq fbj fbk	
	(g) C: faa fab fac fad fae	
<sup>2</sup> H <sub>2</sub>	Deuterium	
	(c) C: eah fbf fbq fbh	
	E-XI: eah fbf	
	(liq) C: eaq	
	E-XI: eaq fbj	
	(g) C: faa fab fac fad fae	
	E-XI: fac	
	E-XIII: fae(t) fai(t) fal(t)	
	Deuterium, normal, 66.7% ortho	
	(c) B: eah eai eal(-t)	
	(liq) B: eac eaq eal(-t)	
	(g) B: eab ead ebe ebf	
	Deuterium, equilibrium, 97.8% ortho	
	(c) B: eah eai eal(-t)	
	(liq) B: eac eaq eal(-t) ebc ebd ebe	
	ebf ebq	
<sup>3</sup> H <sub>2</sub>	Tritium, normal, 25% para	
	(c) B: eah eai eal(-t)	
	(liq) B: eac eaq eal(-t)	
	(g) E-XIII: fae(t,+t) fai(t,+t) fal(t,+t)	
	2-1	
OH	Hydroxyl	
	(g) A: faa(t) fab(t) fac(t) fad(t) fae(t) faf(t)	
	faq(t) fai(t)	
	C: faa fab fac fad fae	
	E-XI: fac	
	E-XII: faa(t,+t) fab(t,+t)	
	E-XIII: fae(t,+t) fai(t,+t) fal(t,+t)	
OH <sup>-</sup>	Hydroxide ion	
	(g) C: fab	
	(aq) C: faa fab fac fad fae	
	E-XI: fac	
<sup>2</sup> HO	Deuterium monoxide	
	(g) E-XIII: fae(t,+t) fai(t,+t) fal(t,+t)	
<sup>3</sup> HO	Tritium monoxide	
	(g) E-XIII: fae(t,+t) fai(t,+t) fal(t,+t)	
H <sub>2</sub> O	Water	
	(c) B: eah	
	C: eah fbf fbq fbh	
	E-III: eal(-t) fbm(-t) fbn(-t)	
	E-V: eah fbf fbq	
	E-XI: eah fae(-t) fbf	
	(liq) A: faa fab fac	
	B: eab eac ead eaq eal(t)	
	C: eaq faa fab fac fad fae	
	fbj fbk fbl	

E-III: eal(t) fbi(t) fbj(t)  
 E-IV: faa fab  
 E-XI: eag fac fae fbj  
 E-XII: faa(t) fab(t)  
 E-XIII: fae fai(t) fal  
 (g) A: faa(t) fab(t) fac(t) fad(t) fae(t) faf(t)  
       faq(t) fal(t)  
 B: ebc ebd ebe ebf ebq  
 C: faa fab fac fad fae  
 E-IV: faa(t) fab(t)  
 E-XI: fac  
 E-XII: faa(t,+t) fab(t,+t)  
 E-XIII: fae(t,+t) fai(t,+t) fal(t,+t)

<sup>1</sup>H<sub>2</sub>O Water (<sup>1</sup>H<sub>2</sub>O)  
 (liq) C: faa fab fac fad fae  
 (g) C: faa fab fac fad fae

H<sub>2</sub><sup>16</sup>O Dihydrogen oxide (<sup>16</sup>O)  
 (liq) B: eac eag eal(t)

H<sup>2</sup>HO Hydrogen deuterium oxide  
 (liq) B: eag  
 (g) E-XI: fac  
 E-XIII: fae(t,+t) fai(t,+t) fal(t,+t)

<sup>1</sup>H<sup>2</sup>HO Hydrogen-1 deuterium oxide  
 (liq) C: faa fab fac fad fae fbj  
       fbk  
 (g) C: faa fab fac fad fae

<sup>2</sup>H<sub>2</sub>O Dideuterium oxide  
 (c) B: eah  
       C: eah fbf fbq fbh  
       E-V: eah fbf fbq  
       E-XI: eah eai fae(-t) fbf fbn  
 (liq) B: eab eac ead eag eal(t)  
       C: faa fab fac fad fae fbj  
       fbk  
       E-III: eag eal(-t,t)  
       E-XI: fac fae  
       E-XII: faa(t) fab(t)  
 (g) B: ebc ebd ebe ebf ebq  
       C: faa fab fac fad fae  
       E-XI: fac  
       E-XII: faa(t,+t) fab(t,+t)  
       E-XIII: fae(t,+t) fai(t,+t) fal(t,+t)

H<sup>3</sup>HO Hydrogen tritium oxide  
 (g) E-XIII: fae(t,+t) fai(t,+t) fal(t,+t)

<sup>2</sup>H<sup>3</sup>HO Deuterium tritium oxide  
 (g) E-XIII: fae(t,+t) fai(t,+t) fal(t,+t)

<sup>3</sup>H<sub>2</sub>O Ditrutium oxide  
 (c) B: eah  
 (g) E-III: fae(t,+t) fai(t,+t) fal(t,+t)

H<sub>2</sub>O<sub>2</sub> Hydrogen peroxide  
 (c) B: eah  
       C: eah fbf fbq  
 (liq) B: eab eac ead eag eal(t) fbj  
       fbk  
       E-III: eag eal(t) fbi(t) fbj(t) fbk  
       E-XII: faa(t) fab(t)  
       E-XIII: fae(t) fai(t) fal(t)  
 (g) C: fab  
       E-XI: fac  
       E-XII: faa(t) fab(t)  
       E-XIII: fae(t) fai(t) fal(t)  
 (aq) C: fab(x)

H<sub>2</sub>O<sub>2</sub>-2H<sub>2</sub>O Hydrogen peroxide-2-Water  
 (c) B: eah

H<sup>2</sup>HO<sub>2</sub> Hydrogen deuterium dioxide  
 (g) E-XIII: fae(t) fai(t) fal(t)

<sup>2</sup>H<sub>2</sub>O<sub>2</sub> Dideuterium dioxide  
 (c) B: eah  
 (liq) B: eab ead  
 (g) E-XIII: fae(t) fai(t) fal(t)

<sup>2</sup>H<sub>2</sub>O<sub>2</sub>-2<sup>2</sup>H<sub>2</sub>O Dideuterium dioxide-2-Dideuterium oxide  
 (c) B: eah

### 3 - Helium - He

3  
 He Helium  
 (c) B: eah  
       C: eah fbf fbq  
       D: eah fbb fbf  
 (liq, II) C: eaj fbb fbc fbd  
       D: eaj  
       E-III: eal(-t)  
 (liq, I) B: eac eag eal(-t)  
       C: eag fbj fbk  
       D: eag fbj  
       E-III: eag eal(-t)  
 (g) B: eab ead ebc ebd ebe ebf  
       ebq  
       C: fac fae  
       D: ebe ebf fac(t,+t) fae(t,+t)  
       faf(t,+t) fai(t,+t)  
       E-XI: fac  
       E-XIII: fae fai(t,+t) fal(t,+t)

<sup>3</sup>He Helium-3  
 (c) B: eah  
 (liq) B: eac eag eal(-t)  
 (g) B: eab ead ebc ebd ebe ebf  
       ebq

He<sup>+</sup>  
 (g) C: fab

He<sup>2+</sup>  
 (g) C: fab

He<sub>2</sub> Dihelium  
 (g) E-XI: fac

### 4 - Neon - Ne

4  
 Ne Neon  
 (c) B: eag eah eai eal(-t)  
       C: eah fbf fbq fbh  
       D: eah fbf  
       E-III: eal(-t)  
       E-V: eah fbf fbq  
       E-XI: eai fae fbn



(liq) B: eac eaq eal(-t)  
 C: eaq fbj fbk fbl  
 D: eaq fbj  
 E-III: eaq eal(-t)  
 (g) B: eab ead ebc ebd ebe ebf  
 ebg  
 C: fac fae  
 D: ebe ebf fac(t,+t) fae(t,+t)  
 faf(t,+t) fai(t,+t)  
 E-XI: fac fae  
 E-XIII: fae fai(t,+t) fal(t,+t)

Ne<sup>+</sup>

(g) C: fab

Ne<sup>2+</sup>

(g) C: fab

Ne<sup>3+</sup>

(g) C: fab

Ne<sup>4+</sup>

(g) C: fab

Ne<sup>5+</sup>

(g) C: fab

Ne<sup>6+</sup>

(g) C: fab

### 5 - Argon - Ar

Ar

5  
 Argon  
 (c) B: eah eai eal(-t)  
 C: eah fbf fbq fbh  
 D: eah fbf  
 E-III: eal(-t) fbm(-t) fbn  
 E-V: eah fbf fbq  
 E-XI: eah eai fae(-t) fbf fbn  
 (liq) B: eac eaq eal(-t)  
 C: eaq fbj fbk fbl  
 D: eaq fbj  
 E-III: eaq eal fbi(-t) fbj fbk  
 E-XI: eaq fbj  
 (g) B: eab ead ebc ebd ebe ebf  
 ebg  
 C: fac fae  
 D: ebe ebf fac(t,+t) fae(t,+t)  
 faf(t,+t) fai(t,+t)  
 E-XI: fac fae(-t)  
 E-XIII: fae fai(t,+t) fal(t,+t)

Ar<sup>+</sup>

(g) C: fab

Ar<sup>2+</sup>

(g) C: fab

Ar<sup>3+</sup>

(g) C: fab

Ar<sup>4+</sup>

(g) C: fab

Ar<sup>5+</sup>

(g) C: fab

Ar<sup>6+</sup>

(g) C: fab

4

Ar<sup>7+</sup>

(g) C: fab

Ar<sup>8+</sup>

(g) C: fab

Ar·5H<sub>2</sub>O

Argon-5-Water

(c) C: fab

### 6 - Krypton - Kr

Kr

6  
 Krypton  
 (c) B: eah eai eal(-t)  
 C: eah fbf fbq fbh  
 D: eah fbf  
 E-III: eal(-t) fbm(-t) fbn  
 E-XI: eah fae(-t) fbf  
 (liq) B: eac eaq eal(-t)  
 C: eaq fbj fbk  
 D: eaq fbj  
 E-III: eal  
 E-XI: eaq fbj  
 (g) B: eab ead ebc ebd ebe ebf  
 ebg  
 C: fac fae  
 D: ebe ebf fac(t,+t) fae(t,+t)  
 faf(t,+t) fai(t,+t)  
 E-XI: fac fae(-t)  
 E-XIII: fae fai(t,+t) fal(t,+t)

Kr<sup>+</sup>

(g) C: fab

Kr<sup>2+</sup>

(g) C: fab

Kr<sup>3+</sup>

(g) C: fab

Kr·5H<sub>2</sub>O

Krypton-5-Water

(c) C: fab

### 7 - Xenon - Xe

Xe

7  
 Xenon  
 (c) B: eah eai eal(-t)  
 C: eah fbf fbq fbh  
 D: eah fbf  
 E-III: eal(-t) fbm(-t) fbn  
 E-V: eah fbf fbq  
 E-XI: eah fae(-t) fbf  
 (liq) B: eac eaq eal(-t)  
 C: eaq fbj fbk fbl  
 D: eaq fbj  
 E-III: eaq eal fbi fbj fbk  
 E-XI: eaq fbj  
 (g) B: eab ead ebc ebd ebe ebf  
 ebg  
 C: fac fae

D: ebe ebf fac(t,+t) fae(t,+t)  
faf(t,+t) fai(t,+t)  
E-XI: fac fae(-t)  
E-XIII: fae fai(t,+t) fal(t,+t)

Xe<sup>+</sup>  
(g) C: fab

Xe<sup>2+</sup>  
(g) C: fab

Xe<sup>3+</sup>  
(g) C: fab

Xe<sup>4+</sup>  
(g) C: fab

Xe·6H<sub>2</sub>O Xenon-6-Water  
(c) C: fab

### 8 - Radon - Rn

8  
Radon

Rn  
(c) B: eaq eah eai eal(-t)  
C: eah fbf fbq  
D: eah fbf

(liq) B: eac eaq eal(-t)  
C: eaq fbj fbk  
D: eaq fbj  
E-III: eaq eal(-t) fbi(-t,t)  
fbj fbk

(g) B: eab ead ebc ebd ebe ebf  
ebq  
C: fac fae  
D: fac(t,+t) fae(t,+t) faf(t,+t)  
fai(t,+t)  
E-XI: fac  
E-XIII: fae fai(t,+t) fal(t,+t)

Rn<sup>+</sup>  
(g) C: fab

### 9 - Fluorine - F

9  
Monofluorine

F  
(g) C: faa fab fac fad fae  
D: faa(t,+t) fab(t,+t) fac(t,+t)  
fad(t,+t) fae(t,+t) faf(t,+t)  
fai(t,+t)  
E-XI: fac  
E-XIII: fae(t,+t) fai(t,+t) fal(t,+t)

F<sup>+</sup>  
(g) C: fab

F<sup>2+</sup>  
(g) C: fab

F<sup>3+</sup>  
(g) C: fab

F<sup>4+</sup>  
(g) C: fab

F<sup>+</sup>  
(g) C: fab

F<sup>2+</sup>  
(g) C: fab

F<sup>3+</sup>  
(g) C: fab

F<sup>4+</sup>  
(g) C: fab

F<sup>-</sup>  
Fluoride ion  
(g) C: fab  
(aq) C: faa fab fac fad fae  
E-XI: fac

F<sub>2</sub>  
Fluorine  
(c) B: eah  
C: eah fbf fbq fbh  
D: eah eaj fbb fbj

(liq) B: eac eaq eal(-t)  
C: eaq fbj fbk fbl  
D: eaq fbj  
E-III: eaq eal(-t) fbi fbj fbk  
(g) B: eab ead ebc ebd ebe ebf  
ebq  
C: fac fae  
D: ebe ebf fac(t,+t) fae(t,+t)  
faf(t,+t) fai(t,+t)  
E-XI: fac  
E-XIII: fae(t,+t) fai(t,+t) fal(t,+t)

9-1  
Oxygen difluoride  
(c) B: eah  
(liq) B: eac eaq eal(-t)  
C: eaq fbj fbk  
E-III: eaq eal(-t) fbi(-t) fbj fbk

(g) B: eab ebc ebd ebe ebf ebq  
C: faa fab fac fad  
E-XI: fac  
E-XII: faa(t,+t) fab(t,+t)  
E-XIII: fae(t) fai(t) fal(t)

F<sub>2</sub>O<sub>2</sub>  
Dioxygen difluoride  
(c) B: eah  
(liq) B: eab eac eaq eal(-t)

9-2  
Hydrogen fluoride  
(c) B: eah  
C: eah fbf fbq fbh  
E-V: eah fbf fbq  
E-XI: eah fbf

(liq) B: eab eac eaq eal(-t,t)  
C: eaq fbj fbk fbl  
E-III: eaq eal(-t) fbi(-t,t) fbj

(g) B: eab ebc ebd ebe ebf ebq  
C: faa fab fac fad fae  
E-XI: fac  
E-XIII: fae(t,+t) fai(t,+t) fal(t,+t)

(aq) C: faa fab(x) fac fad fae

HF·H<sub>2</sub>O  
Hydrogen fluoride-Water  
(c) B: eah

**FLUORINE**  
9-2 <sup>19</sup>F

<sup>2</sup> HF	Deuterium fluoride			
	(c) B: eah			
	(liq) B: eac eaq eal(-t,t)			
	(g) E-XI: fac			
	E-XIII: fae(t,+t)	fai(t,+t)	fai(t,+t)	fai(t,+t)
<sup>3</sup> HF	Tritium fluoride			
	(g) E-XIII: fae(t,+t)	fai(t,+t)	fai(t,+t)	fai(t,+t)
HF <sub>2</sub> <sup>-</sup>	Hydrogen difluoride ion			
	(aq) C: fab			
(HF) <sub>6</sub>	Hexa(hydrogen fluoride)			
	(liq) E-III: fbi(-t,t)	fbj		
	(g) C: fab			

**10 - Chlorine - Cl**

	<b>10</b>			
	Monochlorine			
Cl	(g) C: faa fab fac fad fae			
	D: faa(t,+t) fab(t,+t) fac(t,+t)			
	fad(t,+t) fae(t,+t) fai(t,+t)			
	fai(t,+t)			
	E-XI: fac			
	E-XIII: fae(t,+t) fai(t,+t) fai(t,+t)			
Cl <sup>+</sup>	(g) C: fab			
Cl <sup>2+</sup>	(g) C: fab			
Cl <sup>3+</sup>	(g) C: fab			
Cl <sup>4+</sup>	(g) C: fab			
Cl <sup>5+</sup>	(g) C: fab			
Cl <sup>-</sup>	Chloride ion			
	(g) C: fab			
	(aq) C: faa fab fac fad fae			
	E-XI: fac			
Cl <sub>2</sub>	Chlorine			
	(c) B: eah eai eal(-t)			
	C: eah fbf fbq fbh			
	D: eah fbf			
	E-III: eai eal(-t) fbm(-t) fbn(-t)			
	E-V: eah fbf fbq			
	E-XI: eah fae(-t) fbf			
(liq)	B: eac eaq eal(-t)			
	C: eaq fbj fbk fbl			
	D: eaq fbj			
	E-III: eaq eal(-t) fbi(-t,t) fbj(-t,t)			
	E-XI: eaq fae fbj			
(g)	B: eab ead ebc ebd ebe ebf			
	ebg			
	C: fac fae			
	D: ebe ebf fac(t,+t) fae(t,+t)			
	fai(t,+t) fai(t,+t)			
	E-XI: fac fae			
	E-XIII: fae(t,+t) fai(t,+t) fai(t,+t)			
(aq)	C: fab			
	(in tetrachloromethane) C: fab			

Cl <sub>2</sub> ·8H <sub>2</sub> O	Chlorine-8-Water			
	(c) C: fab			
Cl <sub>3</sub>	Trichlorine			
	(g) C: fab			
	<b>10-1</b>			
ClO	Chlorine monoxide			
	(g) C: fab			
	E-XII: faa(t) fab(t)			
ClO <sup>-</sup>	Hypochlorite ion			
	(aq) C: fac			
	E-XI: fac			
ClO <sub>2</sub>	Chlorine dioxide			
	(c) B: eah			
(liq)	B: eab eac eaq eal(-t,t)			
	C: eaq fbj fbk			
	E-III: eaq eal(-t) fbi(-t) fbj fbk			
(g)	C: faa fab fac fad			
	E-XI: fac			
	E-XII: faa(t,+t) fab(t,+t)			
	E-XIII: fae(t) fai(t) fai(t)			
(aq)	C: fab			
ClO <sub>2</sub> <sup>-</sup>	Chlorite ion			
	(aq) C: faa fab fac fad			
	E-XI: fac			
ClO <sub>3</sub>	Chlorine trioxide			
	(g) C: fab			
	E-XII: faa(t) fab(t)			
ClO <sub>3</sub> <sup>-</sup>	Chlorate ion			
	(aq) C: faa fab fac fad fae			
	E-XI: fac			
ClO <sub>4</sub> <sup>-</sup>	Perchlorate ion			
	(aq) C: faa fab fac fad			
	E-XI: fac			
Cl <sub>2</sub> O	Dichlorine oxide			
	(c) B: eah			
(liq)	B: eac eaq eal(-t,t)			
	C: eaq fbj fbk			
	E-III: eaq eal(-t) fbi(-t) fbj fbk			
(g)	C: faa fab fac fad			
	E-XI: fac			
	E-XII: faa(t,+t) fab(t,+t)			
	E-XIII: fae(t) fai(t) fai(t)			
(aq)	C: fab			
Cl <sub>2</sub> O <sub>6</sub>	Dichlorine hexoxide			
	(c) B: eah			
(liq)	B: eab eaq			
Cl <sub>2</sub> O <sub>7</sub>	Dichlorine heptoxide			
	(c) B: eah			
(liq)	B: eab eac eaq eal(t)			
	C: eaq fbj fbk			
	E-III: eaq eal(-t,t) fbi(-t,t)			
	fbj fbk			
(g)	C: fab			
	E-XII: faa(t) fab(t)			
	<b>10-2</b>			
HCl	Hydrogen chloride			
	(c, ll) C: eaj fbb fbc fbd			
	E-III: fbm(-t) fbn(-t)			
	E-XI: eaj fae(-t) fbb			

(c, l) B: eah eai eal(-t)  
 C: eah fbf fbg fbh  
 E-III: eal(-t) fbn(-t) fbn(-t)  
 E-V: eah fbf fbg  
 E-XI: eah fae fbf  
 (liq) B: eac eaq eal(-t)  
 C: eaq fbj fbk fbl  
 E-III: eaq eal fbi(-t,t) fbj(-t,t)  
 E-XI: eaq fbj  
 (g) B: eab ead ebc ebd ebe ebf  
 ebg  
 C: faa fab fac fad fae  
 E-XI: fac fae(-t)  
 E-XIII: fae(t) fai(t) fal(t)  
 (aq) C: faa fab(x) fac fad fae

HCl·H<sub>2</sub>O Hydrogen chloride-Water

(c) B: eah

HCl·2H<sub>2</sub>O Hydrogen chloride-2-Water

(c) B: eah

C: eah fbf fbg

HCl·3H<sub>2</sub>O Hydrogen chloride-3-Water

(c) B: eah

<sup>2</sup>HCl Deuterium chloride

(c) B: eah eai eal(-t)

(liq) B: eac eaq eal(-t)

(g) B: eab ead ebf

E-XI: fac

E-XIII: fae(t) fai(t) fal(t)

<sup>3</sup>HCl Tritium chloride

(g) E-XIII: fae(t) fai(t) fal(t)

10-2-1

HClO Hypochlorous acid

(g) E-XIII: fae(t) fai(t) fal(t)

(aq) C: fab

<sup>2</sup>HClO Deuterium hypochlorite

(g) E-XIII: fae(t) fai(t) fal(t)

HClO<sub>2</sub> Chlorous acid

(aq) C: fab

HClO<sub>3</sub> Chloric acid

(aq) C: fab

HClO<sub>4</sub> Perchloric acid

(c) B: eah

(liq) B: eab ead

C: fab

(aq) C: fab(x)

HClO<sub>4</sub>·H<sub>2</sub>O Perchloric acid-Water

(c) B: eah

C: fab

(liq) B: eab eaq

HClO<sub>4</sub>·2H<sub>2</sub>O Perchloric acid-2-Water

(liq) B: eah

C: fab

HClO<sub>4</sub>·2½H<sub>2</sub>O Perchloric acid-2½-Water

(liq) B: eah

HClO<sub>4</sub>·3H<sub>2</sub>O α-Perchloric acid-3-Water

(liq) B: eah

β-Perchloric acid-3-Water

(c) B: eah

HClO<sub>4</sub>·3½H<sub>2</sub>O Perchloric acid-3½-Water

B: eah

10-9  
 ClF Chlorine monofluoride

(c) B: eah

(liq) B: eab eac eaq eal(-t)

C: eaq fbj fbk

E-III: eaq eal(-t)

(g) B: ead faa fab fac fad fae

E-XI: fac

E-XIII: fae(t) fai(t) fal(t)

ClF<sub>3</sub> Chlorine trifluoride

(c) B: eah

(liq) B: eab eac eaq eal(-t,t)

C: eaq fbj fbk

E-III: eaq eal(-t) fbi(-t) fbj fbk

(g) B: ead

C: faa fab fac fad fae

E-XIII: fae(t) fai(t) fal(t)

10-9-1

ClO<sub>2</sub>F Chloryl fluoride

(c) B: eah

(liq) B: eac eaq eal(-t)

C: eaq fbj fbk

ClO<sub>3</sub>F Perchloryl fluoride

(c) B: eah

(liq) B: eac eaq eal(-t)

(g) B: ebc ebd ebe ebf ebg

ClO<sub>4</sub>F Fluorine perchlorate

(c) B: eah

(liq) B: eaq

(g) B: eab

11 - Bromine - Br

11

Br Monobromine

(g) C: faa fab fac fad fae

D: faa(t,+t) fab(t,+t) fac(t,+t)

fad(t,+t) fae(t,+t) faf(t,+t)

fai(t,+t)

E-XI: fac

E-XIII: fae(t,+t) fai(t,+t) fal(t,+t)

Br<sup>+</sup>

(g) C: fab

Br<sup>2+</sup>

(g) C: fab

Br<sup>3+</sup>

(g) C: fab

Br<sup>4+</sup>

(g) C: fab

Br<sup>-</sup> Bromide ion

(g) C: fab

(aq) C: faa fab fac fad fae

E-XI: fac

**BROMINE**  
11 Br<sub>2</sub>

**Br<sub>2</sub>** Bromine  
(c) B: eah eai eal(-t)  
C: eah fbf fbg fbh  
D: eah fbf  
E-III: eal(-t) fbn(t) fbn(t)  
E-V: eah fbf fbg  
E-XI: eah fae(-t) fbf  
(liq) B: eab eac ead eag eal(-t,t)  
C: eaq fac fbj fbk  
D: eaq fac fae faf fai fbj  
E-III: eaq eal(-t,t) fbi(-t,t)  
fbj(-t,t) fbk  
E-XI: fac fae  
(g) B: ebc ebd ebe ebf ebq  
C: faa fab fac fad fae  
D: ebe ebf faa(t,+t) fab(t,+t)  
fac(t,+t) fad(t,+t) fae(t,+t)  
faf(t,+t) fai(t,+t)  
E-XI: fac  
E-XIII: fae(t,+t) fai(t,+t) fal(t,+t)  
(aq) C: fab  
(in tetrachloromethane) C: fab  
(in trichloromethane) C: fab  
(in carbon disulfide) C: fab

**Br<sub>2</sub>·10H<sub>2</sub>O** Bromine-10-Water  
(c) C: fab

**Br<sub>3</sub><sup>-</sup>** Tribromide ion  
(aq) C: fab

**Br<sub>5</sub><sup>-</sup>** Pentabromide ion  
(aq) C: fab

**BrO** Bromine monoxide  
(g) E-XIII: fae(t) fai(t) fal(t)

**BrO<sub>3</sub><sup>-</sup>** Bromate ion  
(aq) C: faa fab fac fad fae  
E-XI: fac

**Br<sub>2</sub>O** Dibromine oxide  
(c) B: eah

**(Br<sub>3</sub>O<sub>8</sub>)<sub>n</sub>** Poly(tribromine octaoxide)  
(c) B: eah

**11-2**  
**HBr** Hydrogen bromide  
(c) B: eah eai eal(-t)  
C: eah fbf fbg fbh  
E-III: eal(-t) fbn(-t) fbn(-t)  
E-V: eah fbf fbg  
E-XI: eah eaj fae(-t) fbb fbf  
(liq) B: eac eaq eal(-t)  
C: eaq fbj fbk fbl  
E-III: eal fbi(-t,t) fbj(-t,t)  
E-XI: eaq fae fbj  
(g) B: eab ead ebe ebf  
C: faa fab fac fad fae  
E-XI: fac fae  
E-XIII: fae(t) fai(t) fal(t)  
(aq) C: faa fab(x) fac fad fae

**HBr·H<sub>2</sub>O** Hydrogen bromide-Water  
(c) C: eah fbf fbg

**HBr·2H<sub>2</sub>O** Hydrogen bromide-2-Water  
(c) B: eah

**HBr·3H<sub>2</sub>O** Hydrogen bromide-3-Water  
(c) B: eah

**HBr·4H<sub>2</sub>O** Hydrogen bromide-4-Water  
(c) B: eah

**<sup>2</sup>HBr** Deuterium bromide  
(c) B: eah eai eal(-t)  
(liq) B: eac eaq eal(-t)  
(g) B: eab ead ebf  
E-XI: fac  
E-XIII: fae(t) fai(t) fal(t)

**<sup>3</sup>HBr** Tritium bromide  
(g) E-XIII: fae(t) fai(t) fal(t)

**11-2-1**  
**HBrO<sub>3</sub>** Bromic acid  
(aq) C: fab

**11-9**  
**BrF** Bromine monofluoride  
(c) B: eah  
(liq) B: eaq  
(g) E-XI: fac  
E-XIII: fae(t) fai(t) fal(t)

**BrF<sub>3</sub>** Bromine trifluoride  
(c) B: eah  
(liq) B: eab eac ead eag eal(t)  
(g) E-XIII: fae(t) fai(t) fal(t)

**BrF<sub>5</sub>** Bromine pentafluoride  
(c) B: eah  
C: eah fbf fbg  
E-III: eal fbn(-t) fbn  
E-V: eah fbf fbg  
(liq) B: eab eac ead eag eal(t)  
C: eaq fbj fbk  
E-III: eaq eal(-t,t) fbi(-t,t)  
fbj fbk  
(g) E-XIII: fae(t) fai(t) fal(t)

**11-10**  
**BrCl** Bromine monochloride  
(g) C: faa fab fac fad  
E-XI: fac  
E-XIII: fae(t) fai(t) fal(t)  
(in tetrachloromethane) C: fab

**12 - Iodine - I**

**12**  
**I** Moniodine  
(g) C: faa fab fac fad fae  
D: faa(t,+t) fab(t,+t) fac(t,+t)  
fad(t,+t) fae(t,+t) fai(t,+t)  
fal(t,+t)  
E-XI: fac  
E-XIII: fae(t,+t) fai(t,+t) fal(t,+t)  
**I<sup>+</sup>**  
(g) C: fab  
**I<sup>2+</sup>**  
(g) C: fab



	(g) C: faa fab fac fad fae
	E-XI: fac
	E-XIII: fae(t) fai(t) fal(t)
ICl <sub>3</sub>	(in tetrachlorometbane) C: fab
	Iodine trichloride
	(c) B: eah
	C: faa fab fac fad
	E-XI: fac
IBr	12-11
	Iodine monobromide
	(c) B: eah
	E-XI: fac
	(g) C: faa fab fac fad fae
	E-XI: fac
	E-XIII: fae(t) fai(t) fal(t)
	(in tetrachlorometbane) C: faa fab fac
	fad

### 13 – Astatine – At

At	13
	Monoastatine
	(g) D: faa(t,+t) fab(t,+t) fac(t,+t)
	fad(t,+t) fae(t,+t) faf(t,+t)
	fai(t,+t)
	E-XIII: fae fai(t,+t) fal(t,+t)
At <sub>2</sub>	Diastatine
	(c) D: eah fac(t) fae(t) faf(t) fai(t) fbf
	E-XIII: fae fai(t) fal(t) fbf
	(liq) D: eaq fac fae faf fai fbj
	E-XIII: fae fai(t) fal(t)
	(g) D: faa(t,+t) fab(t,+t) fac(t,+t)
	fad(t,+t) fae(t,+t) faf(t,+t)
	fai(t,+t)
	E-XIII: fae(t,+t) fai(t,+t) fal(t,+t)

### 14 – Sulfur – S

S	14
	Sulfur
	(o-rb.) C: eai eaj fac fae fbb fbc
	fbf fbn fbo
	D: eaj fac fae faf fai fbb
	E-III: fbm(t) fbn(t)
	E-VII: fba(t) fbb(t) fbe(t) fbf fbm(t)
	fbn(t)
	E-XI: fac fae(-t)
	E-XIII: fae fai fal fbb
	(mon.) C: eah eai faa fab fac fad
	fae fbf fbg fbh fbn fbo
	D: eah fbf
	E-V: eah fbf fbg
	E-VII: fbe(t) fbf
	E-XI: fac fae(-t)
	E-XIII: fae fai fal fbf

	(liq, μ) C: fab fae
	(liq, λ) C: eab eae
	(liq, λ, μ) B: eaq eal(t)
	C: eaq fbj fbk
	(liq) D: eaq fac(t) fae(t) faf(t) fai(t) fbj
	E-III: eaq eal(t)
	E-XIII: fae fai(t) fal(t)
	(g) C: faa fab fac fad fae
	D: faa(t,+t) fab(t,+t) fac(t,+t)
	fad(t,+t) fae(t,+t) faf(t,+t)
	fai(t,+t)
	E-XI: fac
	E-XIII: fae(t,+t) fai(t,+t) fal(t,+t)
	(in carbon disulfide) C: fab
S <sup>+</sup>	(g) C: fab
S <sup>++</sup>	(g) C: fab
S <sup>+++</sup>	(g) C: fab
S <sup>++++</sup>	(g) C: fab
S <sup>+++++</sup>	(g) C: fab
S <sup>++++++</sup>	(g) C: fab
S <sup>+++++++</sup>	(g) C: fab
S <sup>+++++++</sup>	(g) C: fab
S <sup>+++++++</sup>	(g) C: fab
S <sup>+++++++</sup>	(g) C: fab
S <sup>+++++++</sup>	(g) C: fab
S <sup>+++++++</sup>	(g) C: fab
S <sup>+++++++</sup>	(g) C: fab
S <sup>+++++++</sup>	(g) C: fab
S <sub>2</sub>	Disulfur
	(g) C: fab
	D: faa(t,+t) fab(t,+t) fac(t,+t)
	fad(t,+t) fae(t,+t) faf(t,+t)
	fai(t,+t)
	E-III: fac
	E-VII: fam(t) fan(t)
	E-XI: fac
	E-XIII: fae(t,+t) fai(t,+t) fal(t,+t)
S <sub>2</sub> <sup>2-</sup>	Disulfide(2-) ion
	(aq) C: fab
S <sub>3</sub> <sup>2-</sup>	Trisulfide(2-) ion
	(aq) C: fab
S <sub>4</sub> <sup>2-</sup>	Tetrasulfide(2-) ion
	(aq) C: fab
S <sub>6</sub>	Hexasulfur
	(g) C: fab
	E-VII: fam(t) fan(t)
	E-XI: fac
S <sub>8</sub>	Octasulfur
	(g) C: fab
	D: faa(t) fab(t) fac(t) fad(t) fae(t) faf(t)
	fai(t)
	E-VII: fam(t) fan(t)
	E-XI: fac
	E-XIII: fae(t) fai(t) fal(t)

	14-1				
SO	Sulfur monoxide				
	(g) C: faa	fab	fac	fad	
	E-VII:	faa(t)	fab(t)		
	E-XI:	fac			
	E-XII:	faa(t,+t)	fab(t,+t)		
	E-XIII:	fae(t,+t)	fai(t,+t)	fal(t,+t)	
SO <sub>2</sub>	Sulfur dioxide				
	(c) B: eai	eal(-t)			
	C: eah	fbf	fbg	fbh	
	E-III:	eal	fbm(-t)	fbn	
	E-V:	eah	fbf	fbg	
	E-XI:	eah	fae(-t)	fbf	
	(liq) B: eaq	eal(-t,t)			
	C: eaq	fbj	fbk	fbf	
	E-III:	eaq	eal(-t)	fbf(-t,t)	fbj
		fbk			
	E-XI:	eaq	fae	fbj	
	(g) C: faa	fab	fac	fad	fae
	E-VII:	faa(t)	fab(t)	fam(t)	fam(t)
	E-XI:	fac	fae		
	E-XII:	faa(t)	fab(t)		
	E-XIII:	fae(t)	fai(t)	fai(t)	
	(aq) C: faa				
	E-VII:	fab			
SO <sub>2</sub> ·7H <sub>2</sub> O	Sulfur dioxide-7-Water				
	(c) B: eah	fab			
SO <sub>3</sub>	Sulfur trioxide				
	(c, III, α, ice-like) B: eai	eal(-t,t)			
	C: eah	eai	fbf	fbg	fbn
	E-III:	eal(-t)	fbm(-t)	fbn	fbn
	E-V:	eah	fbf	fbg	
	E-VII:	faa	fab		
	(c, II, β, wool-like) B: eai	eal(-t,t)			
	C: eah	eai	fab	fbf	fbg
		fbn			
	E-III:	eal(-t,t)	fbm(-t)	fbn	
	E-V:	eah	fbf	fbg	
	E-VII:	faa	fab		
	E-XII:	faa	fab		
	(c, I, γ, wool-like) B: eai	eal(t)			
	C: eah	eai	fab	fbf	fbg
		fbn			
	E-III:	eal(-t,t)	fbm(-t)	fbn	
	E-V:	eah	fbf	fbg	
	E-VII:	faa	fab		
	E-XII:	faa	fab		
	(liq, α) E-III:	eal			
	(liq, β) E-III:	eal			
	(liq) B: eaq	eal(t)			
	C: eaq	fab	fbj	fbk	
	E-III:	eaq	fbf(-t,t)	fbj	fbk
	E-VII:	faa	fab		
	E-XI:	fac			
	E-XII:	faa	fab		
	(g) C: faa	fab	fac	fad	fae
	E-VII:	faa(t)	fab(t)		
	E-XI:	fac			
	E-XII:	faa(t)	fab(t)		
	E-XIII:	fae(t)	fai(t)	fai(t)	
SO <sub>3</sub> <sup>-</sup>	Trioxosulfate(1-) ion				
	(aq) E-VII:	faa	fam		

SO <sub>3</sub> <sup>2-</sup>	Sulfite ion				
	(aq) C: faa	fab	fac	fad	
	E-XI:	fac			
SO <sub>4</sub> <sup>2-</sup>	Sulfate ion				
	(aq) C: faa	fab	fac	fad	fae
	E-VII:	faa			
	E-XI:	fac			
S <sub>2</sub> O <sub>3</sub> <sup>2-</sup>	Thiosulfate ion				
	(liq) C: faa	fab	fac	fad	
	(aq) E-XI:	fac			
S <sub>2</sub> O <sub>4</sub> <sup>2-</sup>	Dithionite ion				
	(aq) C: faa	fab	fac	fad	
	E-XI:	fac			
S <sub>2</sub> O <sub>5</sub> <sup>2-</sup>	Disulfite ion (Pyrosulfite ion)				
	(aq) C: fab				
S <sub>2</sub> O <sub>6</sub> <sup>2-</sup>	Dithionate ion				
	(aq) C: fab				
S <sub>2</sub> O <sub>7</sub>	Disulfur heptoxide				
	(c) C: eah	fab			
S <sub>2</sub> O <sub>8</sub> <sup>2-</sup>	Peroxydisulfate ion				
	(aq) C: fab				
	E-XI:	fac			
S <sub>3</sub> O <sub>6</sub> <sup>2-</sup>	Trithionate ion				
	(aq) C: fab				
S <sub>4</sub> O <sub>6</sub> <sup>2-</sup>	Tetrathionate ion				
	(aq) C: faa	fab	fac	fad	
	E-XI:	fac			
S <sub>5</sub> O <sub>6</sub> <sup>2-</sup>	Pentathionate ion				
	(aq) C: fab				
	14-2				
HS	Sulfhydryl				
	(g) E-XIII:	fae(t,+t)	fai(t,+t)	fai(t,+t)	fai(t,+t)
HS <sup>-</sup>	Hydrogen sulfide ion				
	(aq) C: faa	fab	fac	fad	
	E-VII:	faa	fam		
	E-XI:	fac			
<sup>2</sup> HS	Deuterium monosulfide				
	(g) E-XIII:	fae(t,+t)	fai(t,+t)	fai(t,+t)	fai(t,+t)
<sup>3</sup> HS	Tritium monosulfide				
	(g) E-XIII:	fae(t,+t)	fai(t,+t)	fai(t,+t)	fai(t,+t)
H <sub>2</sub> S	Hydrogen sulfide				
	(c, III) C: eaj	fbf	fbg	fbh	
	E-XI:	eaj	fae(-t)	fbf	
	(c, II) C: eaj	fbf	fbg	fbh	
	E-XI:	eaj	fbf		
	(c, I) B: eai	eal(-t)			
	C: eah	fbf	fbg	fbh	
	E-III:	eal(-t)	fbm(-t)	fbn(-t)	
	E-V:	eah	fbf	fbg	
	E-XI:	eah	fae	fbf	
	(liq) B: eaq	eal(-t)			
	C: eaq	fbj	fbk	fbf	
	E-III:	eaq	eal	fbf(-t)	fbj(-t)
	E-XI:	eaq	fae	fbj	
	(g) C: faa	fab	fac	fad	fae
	E-VII:	faa(t)	fab(t)		
	E-XI:	fac	fae		
	E-XIII:	fae(t,+t)	fai(t,+t)	fai(t,+t)	fai(t,+t)
	(aq) C: faa	fab	fac	fad	
	E-VII:	faa	fam(t)	fam(t)	
	E-XI:	fac			



**SULFUR**  
14-2 H<sub>2</sub>S·6H<sub>2</sub>O

H <sub>2</sub> S·6H <sub>2</sub> O	Hydrogen sulfide-6-Water			
	(c) C: fab			
H <sup>3</sup> HS	Hydrogen deuterium sulfide			
	(g) E-XIII: fae(t,+t) fai(t,+t) fal(t,+t)			
<sup>1</sup> H <sup>3</sup> HS	Hydrogen-1 deuterium sulfide			
	(c, III) C: eaj fbb fbc fbd			
	(c, II) C: eaj fbb fbc fbd			
	(c, I) C: eah fbf fbq fbh			
H <sup>3</sup> HS	Hydrogen tritium sulfide			
	(g) E-XIII: fae(t,+t) fai(t,+t) fal(t,+t)			
<sup>2</sup> H <sup>3</sup> HS	Deuterium tritium sulfide			
	(g) E-XIII: fae(t,+t) fai(t,+t) fal(t,+t)			
<sup>2</sup> H <sub>2</sub> S	Deuterium sulfide			
	(c, III) C: eaj fbb fbc fbd			
	(c, II) C: eaj fbb fbc fbd			
	(c, I) C: eah fbf fbq fbh			
	(g) E-XIII: fae(t,+t) fai(t,+t) fal(t,+t)			
<sup>3</sup> H <sub>2</sub> S	Tritium sulfide			
	(g) E-XIII: fae(t,+t) fai(t,+t) fal(t,+t)			
H <sub>2</sub> S <sub>2</sub>	Dihydrogen disulfide			
	(c) C: eah fbf fbq fbh			
	E-V: eah fbf fbq			
	(liq) B: eaq eal(t)			
	C: eaq fab fbj fbk			
	E-III: eaq eal(-t,t)			
	E-XIII: fae			
H <sub>2</sub> S <sub>3</sub>	Dihydrogen trisulfide			
	(c) C: eah			
	(liq) B: eaq eal(t)			
	C: eaq			
H <sub>2</sub> S <sub>4</sub>	Dihydrogen tetrasulfide			
	(liq) B: eaq eal(t)			
H <sub>2</sub> S <sub>5</sub>	Dihydrogen pentasulfide			
	(liq) B: eaq eal(t)			
	C: fab			
<b>14-2-1</b>				
HSO <sub>3</sub>	Hydrogen trioxosulfate			
	(aq) E-VII: fam			
HSO <sub>3</sub> <sup>-</sup>	Hydrogen sulfite ion			
	(aq) C: faa fab fac fad			
	E-VII: faa			
	E-XI: fac			
HSO <sub>4</sub> <sup>-</sup>	Hydrogen sulfate ion			
	(aq) C: faa fab fac fad			
	E-VII: faa			
	E-XI: fac			
H <sub>2</sub> SO <sub>3</sub>	Sulfurous acid			
	(aq) C: fab(x)			
	E-VII: faa fam(t) fan(t)			
	E-XI: fac			
H <sub>2</sub> SO <sub>4</sub>	Sulfuric acid			
	(c) B: eah			
	C: eah fbf fbq fbh			
	E-V: eah fbf fbq			
	(liq) B: eab ead			
	C: fab fae			
	E-XIII: fae			
	(aq) C: faa fab(x) fac fad fae			
	E-XI: fac			
	E-VII: faa			
	(in ethyl ether) C: fab(x)			

H <sub>2</sub> SO <sub>4</sub> ·H <sub>2</sub> O	Sulfuric acid-Water			
	(c) B: eah			
	C: eah			
	(liq) C: fab fbf fbq fbh			
	E-XIII: fae			
H <sub>2</sub> SO <sub>4</sub> ·2H <sub>2</sub> O	Sulfuric acid-2-Water			
	(c) B: eah			
	C: eah			
	(liq) E-XIII: fae			
H <sub>2</sub> SO <sub>4</sub> ·3H <sub>2</sub> O	Sulfuric acid-3-Water			
	(c) B: eah			
	(liq) E-XIII: fae			
H <sub>2</sub> SO <sub>4</sub> ·4H <sub>2</sub> O	Sulfuric acid-4-Water			
	(c) B: eah			
	C: eah			
	(liq) E-XIII: fae			
H <sub>2</sub> SO <sub>4</sub> ·6H <sub>2</sub> O	Sulfuric acid-6-Water			
	(c) B: eah			
	(liq) E-XIII: fae			
H <sub>2</sub> SO <sub>4</sub> ·6½H <sub>2</sub> O	Sulfuric acid-6½-Water			
	(liq) E-XIII: fae			
H <sub>2</sub> SO <sub>4</sub> ·8H <sub>2</sub> O	Sulfuric acid-8-Water			
	(c) B: eah			
	(liq) E-XIII: fae			
H <sub>2</sub> SO <sub>5</sub>	Peroxsulfuric acid			
	(c) C: eah			
H <sub>2</sub> S <sub>2</sub> O <sub>4</sub>	Dithionous acid			
	(aq) C: fab			
H <sub>2</sub> S <sub>2</sub> O <sub>6</sub>	Dithionic acid			
	(aq) C: fab			
H <sub>2</sub> S <sub>2</sub> O <sub>7</sub>	Disulfuric acid (Pyrosulfuric acid)			
	(c) B: eah			
	C: eah fbf fbq fbh			
	E-XIII: fae fbk			
	(liq) B: eab			
	C: fab			
	E-XIII: fae			
H <sub>2</sub> S <sub>2</sub> O <sub>8</sub>	Peroxydisulfuric acid			
	(c) C: eah			
	(aq) C: fab			
	E-XI: fac			
H <sub>2</sub> S <sub>4</sub> O <sub>8</sub>	Tetrathionic acid			
	(aq) C: fab			
<b>14-9</b>				
SF <sub>4</sub>	Sulfur tetrafluoride			
	(c) C: eah			
	(liq) B: eaq eal(-t)			
	C: eaq fbj fbk			
SF <sub>6</sub>	Sulfur hexafluoride			
	(c, II) C: eaj fbb fbc fbd			
	E-XI: eaj fae(-t) fbb			
	(c, I) B: eai eal(-t)			
	C: eah eai fbf fbq fbh fbn			
	fbo			
	E-III: eai eal(-t) fbn(-t) fbn fbo			
	E-XI: eai fae(-t) fbn			
	(liq) C: eaq faa fab fac fad fbj			
	fbk			
	(g) E-XI: fac fae			
	E-XIII: fae(t) fai(t) fal(t)			

$S_2F_2$	Disulfur difluoride (c) C: eah (liq) B: eaq eal(-t) C: eaq	$SO_2Cl_2$	Sulfonyl chloride (Sulfuryl chloride) (c) C: eah (liq) B: eaq eal(-t,t) C: eaq fab fae fbj fbk E-III: eaq eal(-t,t) fbi(-t,t) fbj fbk E-VII: faa fab E-XI: fac (g) E-VII: faa(t) fab(t) fam(t) fan(t) E-XI: fac E-XIII: fae(t) fai(t) fal(t)
$S_2F_{10}$	Disulfur decafluoride (c) C: eah (liq) B: eaq eal(-t,t) C: eaq fbj fbk	$S_2O_5Cl_2$	Pyrosulfuryl chloride (c) C: eah (liq) B: eaq eal(t) C: eaq fab fae fbj fbk
	<b>14-9-1</b>		<b>14-10-2-1</b>
$SOF_2$	Sulfinyl fluoride (Thionyl fluoride) (c) C: eah (liq) B: eaq eal(-t) C: eaq fbj fbk	$HSO_3Cl$	Chlorosulfuric acid (liq) B: eaq eal(t) C: fab
$SO_2F_2$	Sulfonyl fluoride (Sulfuryl fluoride) (c) C: eah (liq) B: eaq eal(-t) C: eaq (g) E-XIII: fae(t) fai(t) fal(t)		<b>14-10-9-1</b>
$SOF_4$	Sulfinyl tetrafluoride (Sulfur oxide tetrafluoride) (liq) B: eaq eal(-t)	$SOCIF$	Sulfinyl chloride fluoride (Thionyl chloride fluoride) (c) C: eah (liq) B: eaq eal(-t,t) C: eaq fbj fbk
$S_2O_3F_2$	Pyrosulfuryl difluoride (liq) B: eaq eal(-t,t)	$SO_2ClF$	Sulfonyl chloride fluoride (Sulfuryl chloride fluoride) (c) C: eah (liq) B: eaq eal(-t,t) C: eaq fbj fbk
$S_2O_3F_4$	Pyrosulfuryl tetrafluoride (Disulfur pentoxide tetrafluoride) (liq) B: eaq eal(-t,t)	$S_2O_5ClF$	Pyrosulfuryl chloride fluoride (liq) B: eaq eal(t)
$S_2O_2F_{10}$	Thiosulfuryl decafluoride (liq) B: eaq eal(-t,t)		<b>14-11</b>
$S_3O_8F_2$	Trisulfur octaoxide difluoride (liq) B: eaq eal(t)	$S_2Br_2$	Disulfur dibromide (c) C: eah (liq) B: eaq eal(t) C: eaq fab
	<b>14-9-2-1</b>		<b>14-11-1</b>
$HSO_3F$	Fluorosulfuric acid (liq) B: eaq eal(t) C: eaq	$SOBr_2$	Sulfinyl bromide (Thionyl bromide) (c) C: eah (liq) B: eaq eal(t) C: eaq fbj fbk E-III: eaq eal(-t,t) fbi(t) fbj fbk (g) E-XIII: fae(t) fai(t) fal(t)
	<b>14-10</b>		<b>14-11-9-1</b>
$SCL_2$	Sulfur dichloride (liq) B: eaq eal(t) (g) E-XI: fac E-XIII: fae(t) fai(t) fal(t)	$SO_2BrF$	Sulfonyl bromide fluoride (Sulfuryl bromide fluoride) (liq) B: eaq eal(-t,t)
$SCL_4$	Sulfur tetrachloride (liq) C: fab		
$S_2Cl_2$	Disulfur dichloride (c) C: eah (liq) B: eaq eal(t) C: eaq fab fae fbj fbk E-III: eal(-t,t) fbi(t) fbj(t) fbk (g) E-XIII: fae(t) fai(t) fal(t)		
$S_2Cl_4$	Disulfur tetrachloride (liq) C: fab		
	<b>14-10-1</b>		
$SOCl_2$	Sulfinyl chloride (Thionyl chloride) (c) C: eah (liq) B: eaq eal(t) C: eaq fab fae fbj fbk E-III: eaq eal(-t,t) fbi(t) fbj fbk (g) E-XIII: fae(t) fai(t) fal(t)		

**15 - Selenium - Se****15**

Se  
Selenium  
(c, III, red, mono.) B: eab  
C: eaj fab fbb fbc fbd



$H_2SeO_4 \cdot 4H_2O$  Selenic acid—4-Water  
(c) C: eah

## 15-9

$SeF_4$  Selenium tetrafluoride  
(c) B: eah  
C: eah  
(liq) B: eab eac eaq eal(t)  
C: eaq

$SeF_6$  Selenium hexafluoride  
(c) B: eac eah eai eal(-t)  
C: eah eai fbf fbq fbn fbo  
E-III: eai eal(-t) fbm(-t) fbn fbo  
(liq) C: eaq fbj fbk  
(g) C: faa fab fac fad  
E-XI: fac  
E-XIII: fae(t) fai(t) fal(t)

## 15-9-1

$SeOF_2$  Seleninyl difluoride  
(c) B: eah  
C: eah  
(liq) B: eab eac eaq eal(t)  
C: eaq

## 15-10

$SeCl_2$  Selenium dichloride  
(g) C: fab

$SeCl_4$  Selenium tetrachloride  
(c) B: eac eah eai eal(t)  
C: eah eai fab

$Se_2Cl_2$  Diselenium dichloride  
(c) B: eah  
(liq) B: eab eac ead eaq  
C: fab

## 15-10-1

$SeOCl_2$  Seleninyl dichloride  
(c) B: eah  
C: eah fbf fbq  
E-V: eah fbf fbq  
(liq) B: eab eac eaq eal(t)  
C: eaq fbj fbk  
E-III: eal(t)

$SeOCl_2 \cdot H_2O$  Seleninyl dichloride—Water  
(liq) B: eab ead

## 15-10-2-1

$Se(OH)_3ClO_4$  Trihydroxoselenium(IV) perchlorate  
(c) C: eah fab

## 15-11-1

$SeOBr_2$  Seleninyl dibromide  
(c) C: eah  
(liq) C: eaq

## 15-14-1

$SeO_2 \cdot SO_3$  Selenium dioxide—Sulfur trioxide  
(c) C: fab

## 15-14-2-1

$SeO_3 \cdot H_2SO_4$  Selenium trioxide—Sulfuric acid  
(c) B: eah

$SeO_2(HSO_4)_2$  Selenonyl dihydrogen disulfate  
(c) B: eah

## 15-14-10

$SeSCl_2$  Selenium thiodichloride  
(liq) B: eaq

$SSeCl_2$  Sulfur selenodichloride  
(liq) B: eab ead eaq

## 15-14-10-1

$SeCl_4 \cdot SO_3$  Selenium tetrachloride—Sulfur trioxide  
(c) B: eah  
(liq) B: eaq

$2SeCl_4 \cdot 3SO_3$  2-Selenium tetrachloride—3-Sulfur trioxide  
(c) B: eah

## 15-14-11-1

$SeOBr_2 \cdot SO_3$  Seleninyl dibromide—Sulfur trioxide  
(c) B: eah

## 16 — Tellurium — Te

## 16

Te Tellurium

(c, II) C: eaj fac fae fbb fbc  
(c, I) C: eah fbf fbq fbh  
(c) B: eab eah  
D: eah fac(t) fae(t) faf(t) fai(t) fbf  
E-V: eah fbf fbq  
E-XI: fac fae(-t)  
E-XIII: fae(t) fai(t) fal(t) fbf  
(amorph.) C: fab  
(liq) B: eac eaq eal(t)  
C: eaq fbj fbk  
D: eaq fac(t) fae(t) faf(t) fai(t) fbj  
E-III: eal(t)  
E-XIII: fae fai(t) fal(t)  
(g) C: faa fab fac fad fae  
D: faa(t, +t) fab(t, +t) fac(t, +t)  
fad(t, +t) fae(t, +t) faf(t, +t)  
fai(t, +t)  
E-XI: fac  
E-XIII: fae(t, +t) fai(t, +t) fal(t, +t)

Te<sup>+</sup>

(g) C: fab

Te<sup>++</sup>

(g) C: fab

Te<sup>+++</sup>

(g) C: fab

Te<sup>++++</sup>

(g) C: fab

Te<sup>+++++</sup>

(g) C: fab

Te<sup>++++++</sup>

(g) C: fab

**TELLURIUM**  
16 Te<sup>7+</sup>

**Te<sup>7+</sup>**  
(g) C: fab

**Te<sub>2</sub>** Ditetellurium  
(g) C: faa fab fac fad fae  
D: faa(t) fab(t) fac(t,+t) fad(t) fae(t,+t)  
faf(t,+t) fai(t,+t)  
E-XI: fac  
E-XIII: fae(t,+t) fai(t,+t) fal(t,+t)

**16-1**  
**TeO** Tellurium monoxide  
(g) C: fab  
E-XII: faa(t) fab(t)  
E-XIII: fae(t,+t) fai(t,+t) fal(t,+t)

**TeO<sub>2</sub>** Tellurium dioxide  
(c) C: faa fab fac fad fae  
E-XI: fac  
E-XII: faa(t) fab(t)  
(liq) E-XII: faa(t) fab(t)

**TeO<sub>3</sub><sup>2-</sup>** Trioxotellurate(IV) ion (Tellurite ion)  
(aq) C: fab

**TeO<sub>4</sub>** Tellurium tetroxide  
(aq) C: fab

**16-2**  
**H<sub>2</sub>Te** Hydrogen telluride  
(c) B: eah  
C: eah fbf fbq  
E-III: eal(-t) fbm(-t) fbn  
E-V: eah fbf fbq  
(liq) B: eac eaq eal(-t,t)  
C: eaq fbj fbk  
E-III: eal fbi(-t) fbj fbk  
(g) C: faa fab fac fad  
E-XI: fac  
E-XIII: fae(t,+t) fai(t,+t) fal(t,+t)

**16-2-1**  
**H<sub>2</sub>TeO<sub>3</sub>** Trioxotelluric(IV) acid  
(c) C: faa fab fac fad

**H<sub>2</sub>TeO<sub>4</sub>** Tetraoxotelluric(VI) acid  
(aq) C: fab

**H<sub>2</sub>TeO<sub>4</sub>·2H<sub>2</sub>O** Tetraoxotelluric(VI) acid-2-Water  
(c) C: faa fab fac fad

**16-9**  
**TeF<sub>4</sub>** Tellurium tetrafluoride  
(c) B: eah

**TeF<sub>6</sub>** Tellurium hexafluoride  
(c, II) C: eaj fbb fbc  
(c, I) C: eah eai fbf fbq fbn fbo  
(c) B: eac eah eai eal(-t)  
E-III: eal(+t) fbm(-t) fbn fbo  
(liq) B: eaq eal(-t)  
C: eaq fbj fbk  
(g) C: faa fab fac fad  
E-XI: fac  
E-XIII: fae(t,+t) fai(t,+t) fal(t,+t)

**Te<sub>2</sub>F<sub>10</sub>** Ditetellurium decafluoride  
(c) B: eah  
(liq) B: eab eac eaq eal(-t,t)

**16-10**  
**TeCl<sub>4</sub>** Tellurium tetrachloride  
(c) B: eah  
C: eah fab fbf fbq fbh  
E-XIII: fae fai(t) fal(t) fbf  
(liq) B: eac eaq eal(t)  
C: eaq fbj fbk  
E-III: eaq eal(t) fbi(t) fbj(t) fbk  
E-XIII: fae fai(t) fal(t)

**16-11**  
**TeBr<sub>4</sub>** Tellurium tetrabromide  
(c) C: fab

**16-14-1**  
**2TeO<sub>2</sub>·SO<sub>3</sub>** 2-Tellurium dioxide-Sulfur trioxide  
(c) C: fab

**16-14-10-1**  
**TeCl<sub>4</sub>·SO<sub>3</sub>** Tellurium tetrachloride-Sulfur trioxide  
(c) B: eah

**TeCl<sub>4</sub>·2SO<sub>3</sub>** Tellurium tetrachloride-2-Sulfur trioxide  
(c) B: eah

**17 — Polonium — Po**

**17**  
**Po** Polonium  
(c) D: eah eaj fac(t) fae(t) faf(t) fai(t)  
fbf  
E-XIII: fae(t) fai(t) fal(t) fbf  
(liq) B: eal(t)  
D: eaq fac(t) fae(t) faf(t) fai(t) fbj  
E-XIII: fae fai(t) fal(t)  
(g) D: faa(t,+t) fab(t,+t) fac(t,+t)  
fad(t,+t) fae(t,+t) faf(t,+t)  
fai(t,+t)  
E-XIII: fae fai(t,+t) fal(t,+t)

**Po<sup>2+</sup>** Polonium(II) cation  
(aq) C: faa fad

**Po<sub>2</sub>** Dipolonium  
(g) D: faa(t) fab(t) fac(t) fad(t) fae(t) faf(t)  
fai(t)  
E-XIII: fae fai(t) fal(t)

**17-1**  
**PoO<sub>2</sub>** Polonium dioxide  
(c) C: faa fad  
E-XII: faa(t) fab(t)

**17-10**  
**PoCl<sub>4</sub>** Polonium tetrachloride  
(liq) B: eal(t)

18 - Nitrogen - N

**18**  
Mononitrogen

**N** (g) A: faa(t,+t) fab(t,+t) fac(t,+t)  
fad(t,+t) fae(t,+t) faf(t,+t)  
faq(t,+t) fai(t,+t)  
C: faa fab fac fad fae  
D: faa(t,+t) fab(t,+t) fac(t,+t)  
fad(t,+t) fae(t,+t) faf(t,+t)  
fai(t,+t)  
E-XI: fac  
E-XIII: fae(t,+t) fai(t,+t) fal(t,+t)

**N<sup>+</sup>** (g) C: fab

**N<sup>2+</sup>** (g) C: fab

**N<sup>3+</sup>** (g) C: fab

**N<sup>4+</sup>** (g) C: fab

**N<sup>5+</sup>** (g) C: fab

**N<sup>6+</sup>** (g) C: fab

**N<sup>7+</sup>** (g) C: fab

**N<sub>2</sub>** Nitrogen  
(c, II) B: eaj fbb fbc fbd  
C: eaj fbb fbc  
D: eaj fbb  
E-III: fbm fbn  
E-XI: eaj fae fbb  
(c, I) B: eaa eah eai eal(-t) fbf fbg  
fbh fbp  
C: eah fbf fbg  
D: eah fbf  
E-III: eal fbm fbn  
E-V: eah fbf fbg  
E-XI: eah fae fbf  
(liq) B: eac eaq eal(-t) fbj fbk fbl  
C: eaq fbj fbk  
D: eaq fbj  
E-III: eaq eal(-t) fbi(-t) fbj(-t)  
E-XI: eaq  
(g) A: fac(-t,t+t) fae(-t,t+t) faf(-t,t+t)  
faq(-t,t+t) fai(-t,t+t)  
B: eab ead ebc ebd ebe ebf  
ebg  
C: fac fae  
D: ebe ebf fac(t,+t) fae(t,+t)  
faf(t,+t) fai(t,+t)  
E-XI: fac fae(-t)  
E-XIII: fae(t,+t) fai(t,+t) fal(t,+t)

**<sup>14</sup>N<sup>14</sup>N** Nitrogen, 100% <sup>14</sup>N<sup>14</sup>N  
(c) B: eah eal(-t)  
(liq) B: eaq eal(-t)  
(g) B: eab ead ebc ebd ebe ebf  
ebg

**<sup>15</sup>N<sub>2</sub>** Nitrogen, 100% <sup>15</sup>N<sub>2</sub>  
(c) B: eah eal(-t)

(liq) B: eaq eal(-t)  
(g) B: eab ead ebc ebd ebe ebf  
ebg

**N<sub>2</sub><sup>+</sup>**

(g) C: fab

**N<sub>2</sub><sup>2+</sup>**

(g) C: fab

**N<sub>3</sub><sup>-</sup>**

Azide ion  
(aq) C: fab

18-1

**NO**

Nitrogen monoxide (Nitric oxide)

(c) B: eaa eah eai eal(-t) fbf fbg  
fbh

C: eah fbf fbg fbh

E-III: eal fbm(-t) fbn(-t)

E-V: eah fbf fbg

E-XI: eah fae(-t) fbf

(liq) B: eac eaq eal(-t) fbj fbk fbl

C: eaq fbj fbk fbl

E-III: eaq eal(t) fbi fbj

E-XI: eaq fbj

(g) A: faa(-t,t,+t) fab(-t,t,+t) fac(-t,t,+t)

B: eab ead ebc ebd ebe ebf  
ebg

C: faa fab fac fad fae

E-XI: fac fae(-t)

E-XII: faa(t) fab(t)

E-XIII: fae(t,+t) fai(t,+t) fal(t,+t)

**<sup>14</sup>N<sup>16</sup>O**

Nitrogen monoxide, 100% <sup>14</sup>N<sup>16</sup>O

(c) B: eah eal(-t)

(liq) B: eaq eal(-t)

(g) B: eab ead ebc ebd ebe ebf  
ebg

**<sup>15</sup>N<sup>16</sup>O**

Nitrogen monoxide, 100% <sup>15</sup>N<sup>16</sup>O

(c) B: eah eal(-t)

(liq) B: eaq eal(-t)

(g) B: eab ead ebc ebd ebe ebf  
ebg

**NO<sub>2</sub>**

Nitrogen dioxide

(c) E-III: fbm(-t) fbn

(liq) E-III: fbi fbj fbk

(g) C: faa fab fac fad fae

E-XI: fac

E-XII: faa(t) fab(t)

E-XIII: fae(t,+t) fai(t,+t) fal(t,+t)

**NO<sub>2</sub><sup>-</sup>**

Nitrite ion

(aq) C: fab

E-XI: fac

**NO<sub>3</sub>**

Nitrogen trioxide

(g) C: fab

**NO<sub>3</sub><sup>-</sup>**

Nitrate ion

(aq) C: faa fab fac fad

E-XI: fac

**N<sub>2</sub>O**

Dinitrogen oxide (Nitrous oxide)

(c) B: eaa eah eai eal(-t) fbf fbg  
fbh

C: eah fbf fbg fbh

E-III: eaq eal(-t) fbm(-t) fbn(-t)

E-V: eah fbf fbg

E-XI: eah fae(-t) fbf

**NITROGEN**  
18-1 N<sub>2</sub>O

	(liq) B: eac eaq eal(-t) fbj fbk fbl
	C: eaq fbj fbk fbl
	E-III: eal fbi(-t) fbj(-t)
	E-XI: eaq fbj
(g) B: eab ead ebc ebd ebe ebf	
	ebg
	C: faa fab fac fad fae
	E-XI: fac fae(-t)
	E-XII: faa(t) fab(t)
	E-XIII: fae(t, +t) fai(t, +t) fal(t, +t)
N <sub>2</sub> O <sub>2</sub> <sup>-</sup>	Hyponitrite ion
	(aq) C: faa fab fac fad
	E-XI: fac
N <sub>2</sub> O <sub>3</sub>	Dinitrogen trioxide
(c, II) B: eaj	
(c, I) B: eah eai	
(c) C: eah	
(liq) B: eab eaq fbj	
	C: eaq fbj fbk
(g) C: fab	
	E-XII: faa(t) fab(t)
	Equilibrium mixt. of NO, NO <sub>2</sub> , N <sub>2</sub> O <sub>3</sub> and N <sub>2</sub> O <sub>4</sub>
(liq) B: eaq fbj fbk	
N <sub>2</sub> O <sub>4</sub>	Dinitrogen tetroxide
(c) B: eaa eah eal(-t) fbf fbq fbh	
	C: eah fbf fbq fbh
	E-III: fbm(-t) fbn
	E-V: eah fbf fbq
	E-XI: eah fae(-t) fbf
	E-XIII: eal(-t)
(liq) B: eab eac eaq eal(-t, t) fbj	
	fbk fbl
	C: eaq fbj fbk
	E-III: eaq eal(t) fbi(-t, t) fbj
	fbk
	E-XI: eaq fbj
(g) B: eab ebc ebd ebe ebf ebg	
	C: faa fab fac fad fae
	E-XI: fac fae
	E-XII: faa(t) fab(t)
	E-XIII: fae(t) fai(t) fal(t)
	Equilibrium mixt. of NO <sub>2</sub> and N <sub>2</sub> O <sub>4</sub>
(c) B: eah eal(-t) fbf fbq fbh	
(liq) B: eaq eal(-t, t) fbj fbk fbl	
N <sub>2</sub> O <sub>5</sub>	Dinitrogen pentoxide
(c) B: eah eai eal(-t, t) fbn fbo	
	C: eai fab fbn fbo
	E-III: eal(-t, t) fbm(-t, t) fbn
	E-XI: fac fae(-t)
	E-XII: faa(t) fab(t)
	E-XIII: fae
(liq) B: eac eaq	
	E-III: eaq eal
(g) C: fab	
	E-XI: fac
	E-XII: faa(t) fab(t)
NON <sub>3</sub>	Nitrosyl azide
(liq) B: eaq	

**18-2**

NH	Nitrogen monohydride
(g) C: fab fae	
	E-XI: fac

NH <sub>3</sub>	Ammonia
(c) B: eaa eah eai eal(-t) fbf fbq	
	fbh
	C: eah fbf fbq
	E-III: eal fbm(-t) fbn(-t)
	E-V: eah fbf fbq
	E-XI: eah fae(-t) fbf
(liq) B: eac eaq eal(-t) fbj fbk fbl	
	C: eaq fbj fbk
	E-III: eaq eal(-t) fbi(-t, t) fbj(-t, t)
	fbk
	E-IV: fam(t) fan(t)
	E-XI: eaq fae fbj
(g) B: eab ead ebc ebd ebe ebf	
	ebg faa fab fac fad fae
	E-IV: fab fam(t) fan(t)
	E-VIII: faa(t) fab(t)
	E-XI: fac fae
	E-XIII: fae(t, +t) fai(t, +t) fal(t, +t)
(aq) C: faa fab(x) fac fad	
N <sup>3</sup> H <sub>3</sub>	Ammonia, 98% N <sup>3</sup> H <sub>3</sub> + 2% NH <sub>3</sub>
(c) B: eah eal(-t)	
(liq) B: eac eaq eal(-t)	
(g) B: eab ead ebc ebd ebe ebf	
	ebg
<sup>15</sup> NH <sub>3</sub>	Ammonia, 70.6% <sup>15</sup> NH <sub>3</sub> + 29.4% <sup>14</sup> NH <sub>3</sub>
(c) B: eah eal(-t)	
(liq) B: eac eaq eal(-t)	
(g) B: eab ead ebc ebd ebe ebf	
	ebg
NH <sub>3</sub> ·½H <sub>2</sub> O	Ammonia-½Water
(c) C: eah	
NH <sub>3</sub> ·H <sub>2</sub> O	Ammonia-Water
(c) C: eah	
NH <sub>4</sub> <sup>+</sup>	Ammonium ion
(g) C: fab	
	E-XIII: fae(t) fai(t) fal(t)
(aq) C: faa fab fac fad	
	E-XI: fac
N <sub>2</sub> H <sub>4</sub>	Hydrazine
(c) B: eah fbf fbq fbh	
	C: eah
(liq) B: eab eac ead eaq eal(t) fbj	
	fbk
	C: eaq fab fbj fbk
N <sub>2</sub> H <sub>4</sub> ·H <sub>2</sub> O	Hydrazine-Water
(c) B: eah	
	C: eah
(liq) B: eab ead eaq	
	C: eaq fab
N <sub>2</sub> H <sub>4</sub> ·H <sup>+</sup>	Hydrazinium(1+) ion
(aq) C: fab	
N <sub>2</sub> H <sub>4</sub> ·H <sub>2</sub> <sup>2+</sup>	Hydrazinium(2+) ion
(aq) C: fab	
NN <sub>3</sub>	Hydrogen azide
(c) B: eah	
	C: eah
(liq) B: eab eac eaq eal(-t, t) fbj	
	fbk
	C: eaq fbj fbk

(g) C: faa fab fac fad fae  
E-XI: fac  
E-XIII: fae(t, +t) fai(t, +t) fal(t, +t)  
(aq) C: fab(x)  
N<sub>2</sub>H<sub>4</sub>·NH<sub>3</sub> Hydrazine—Ammonia  
(c) B: eah  
NH<sub>4</sub>N<sub>3</sub> Ammonium azide  
(c) B: eab eah eai eal(t) fbn fbo  
C: eah eai fab fbn fbo  
(aq) C: fab  
N<sub>2</sub>H<sub>5</sub>N<sub>3</sub> Hydrazinium azide  
(c) B: ead eah  
C: eah  
(liq) B: eaq  
N<sub>2</sub>H<sub>5</sub>N<sub>3</sub>·N<sub>2</sub>H<sub>4</sub> Hydrazinium azide—Hydrazine  
(c) B: ead eah  
(liq) B: eaq

18-2-1

HNO<sub>2</sub> Nitrous acid  
(g, cis) E-XIII: fae(t, +t) fai(t, +t) fal(t, +t)  
(g, trans) E-XIII: fae(t, +t) fai(t, +t) fal(t, +t)  
(aq) C: fab  
HNO<sub>3</sub> Nitric acid  
(c) B: eah  
C: eah fbf fbq fbh  
E-V: eah fbf fbq  
E-XI: eah fae(-t) fbf  
(liq) B: eab eac ead eaq eal(-t, t)  
C: eaq faa fab fac fad fae  
fbj fbk  
E-XI: eaq fac fae fbj  
E-XIII: fae  
(g) C: fac  
E-XI: fac  
E-XIII: fae(t) fai(t) fal(t)  
(aq) C: faa fab(x) fac fad  
HNO<sub>3</sub>·H<sub>2</sub>O Nitric acid—Water  
(c) B: eah  
C: eah fbf fbq fbh  
E-XI: eah fae(-t) fbf  
(liq) C: faa fab fac fad fae  
E-XI: fac fae  
E-XIII: fae  
HNO<sub>3</sub>·3H<sub>2</sub>O Nitric acid—3-Water  
(c) B: eah  
C: eah fbf fbq fbh  
E-XI: eah fae(-t) fbf  
(liq) C: faa fab fac fad fae  
E-XI: fac fae  
E-XIII: fae  
<sup>2</sup>HNO<sub>3</sub> Deuterium nitrate  
(g) E-XIII: fae(t) fai(t) fal(t)  
NH<sub>2</sub>OH Hydroxylamine  
(c) B: eah  
C: eah fab  
(liq) B: eab eaq  
C: eaq  
(aq) C: fab

NH<sub>2</sub>OH·H<sup>+</sup> Hydroxylammonium ion  
(aq) C: fab  
NH<sub>4</sub>OH Ammonium hydroxide  
(c) B: eah  
(liq) E-XIII: fae  
(aq) C: fab(x)  
E-IV: eam  
E-XI: fac  
HN<sub>2</sub>O<sub>2</sub><sup>-</sup> Hydrogen hyponitrite ion  
(aq) C: faa fab fac fad  
E-XI: fac  
H<sub>2</sub>N<sub>2</sub>O<sub>2</sub> Hyponitrous acid  
(aq) C: faa fab fac fad  
E-XI: fac  
NH<sub>2</sub>NO<sub>2</sub> Nitryl amide (Nitramide)  
(c) B: eah  
NH<sub>4</sub>NO<sub>2</sub> Ammonium nitrite  
(c) C: fab  
(aq) C: fab  
NH<sub>4</sub>NO<sub>3</sub> Ammonium nitrate  
(c, VI) C: eaj fbb fbc  
(c, V) C: eaj fbb fbc  
(c, IV, α) C: eaj fab fae fbb fbc  
E-XIII: fae fai(t) fal fbb  
(c, III, β) C: eaj fbb fbc  
E-XIII: fae fai(t) fal(t) fbb  
(c, II, γ) C: eaj fbb fbc  
E-XIII: fae fai(t) fal(t) fbb  
(c, I, δ) B: eab eah  
C: eah fbf fbq  
E-V: eah fbf fbq  
E-XIII: fae fai(t) fal(t) fbf  
(liq) E-XIII: fae fai(t) fal(t)  
(aq) C: fab(x)  
NH<sub>2</sub>OH·HNO<sub>2</sub> Hydroxylamine—Nitric acid  
(c) C: fab  
(aq) C: fab  
NH<sub>4</sub>NO<sub>3</sub>·1½NH<sub>3</sub> Ammonium nitrate—1½-Ammonia  
(liq) C: fab  
NH<sub>4</sub>NO<sub>3</sub>·2HNO<sub>3</sub> Ammonium nitrate—2-Nitric acid  
(c) B: eah  
C: eah  
(NH<sub>4</sub>)<sub>2</sub>O Ammonium oxide  
(c) B: eah  
(liq) E-XIII: fae  
N<sub>2</sub>H<sub>4</sub>·HNO<sub>2</sub> Hydrazine—Nitrous acid (Hydrazinium(1+) nitrite)  
(c) B: eah  
C: eah  
N<sub>2</sub>H<sub>4</sub>·HNO<sub>3</sub> Hydrazine—Nitric acid (Hydrazinium(1+) nitrate)  
(c, II, metastable) B: eah  
C: eah  
(c, I) B: eah  
C: eah  
(aq) C: fab  
N<sub>2</sub>H<sub>4</sub>·2HNO<sub>3</sub> Hydrazine—2-Nitric acid  
(c) B: eah  
C: eah  
(aq) C: fab

18-9

NF<sub>2</sub> Nitrogen difluoride  
(liq) B: eaq



**NITROGEN**  
18-9 NF<sub>3</sub>

**NF<sub>3</sub>** Nitrogen trifluoride  
(c, II) C: eaj  
(c, I) B: eah  
C: eah  
(liq) B: eac eaq eal(-t)  
C: eaq fbj fbk  
E-III: eal(-t) fbi(-t) fbj fbk ebe  
ebf  
(g) B: eab ead ebe ebf  
C: fab  
E-XIII: fae(t) fai(t) fal(t)

**N<sub>2</sub>F<sub>2</sub>** Dinitrogen difluoride  
(liq) B: eaq

**N<sub>3</sub>F** Trinitrogen fluoride  
(c) B: eah  
(liq) B: eaq

**18-9-1**  
**NOF** Nitrosyl fluoride  
(c) B: eah  
C: eah  
(liq) B: eac eaq eal(-t)  
C: eaq fbj fbk  
(g) E-XIII: fae(t) fai(t) fal(t)

**NO<sub>2</sub>F** Nitryl fluoride  
(c) B: eah  
C: eah  
(liq) B: eac eaq eal(-t)  
C: eaq fbj fbk  
(g) B: eab ebf

**NO<sub>3</sub>F** Nitrogen trioxide fluoride (Fluorine nitrate)  
(c) B: eah  
C: eah  
(liq) B: eac eaq eal(-t)  
C: eaq

**18-9-2**  
**NH<sub>2</sub>F** Fluoramine  
(c) B: eai  
C: eai

**NH<sub>4</sub>F** Ammonium fluoride  
(c) B: eab ead  
C: fab  
E-XIII: fae  
(aq) C: fab

**NHF<sub>2</sub>** Difluoramine  
(c) B: eah  
C: eah  
(liq) B: eaq  
C: eaq  
(g) B: eab

**NH<sub>4</sub>F·HF** Ammonium fluoride-Hydrogen fluoride  
(c) B: eah  
C: eah

**N<sub>2</sub>H<sub>6</sub>F<sub>2</sub>** [N<sub>2</sub>H<sub>4</sub>·2HF] Hydrazinium(2+) difluoride  
(Hydrazine difluoride)  
(c) B: eah  
C: eah

**18-10**  
**NCl<sub>3</sub>** Nitrogen trichloride  
(c) B: eah

(liq) B: eac eaq eal(-t,t)  
C: eaq  
(in tetrachloromethane) C: fab  
**N<sub>3</sub>Cl** Trinitrogen chloride  
(c) B: eah  
(liq) B: eaq

**18-10-1**  
**NOCl** Nitrosyl chloride  
(c) B: eah eai eal(-t)  
C: eah  
(liq) B: eac eaq eal(-t,t)  
C: eaq fbj fbk  
E-III: eal(-t) fbi(-t) fbj fbk  
(g) B: eab ebc ebd ebe ebf ebq  
C: faa fab fac fad  
E-XI: fac  
E-XIII: fae(t) fai(t) fal(t)

**NO<sub>2</sub>Cl** Nitryl chloride  
(c) B: eah  
C: eah  
(liq) B: eac eaq eal(-t)  
C: eaq fbj fbk  
(g) E-XIII: fae(t) fai(t) fal(t)

**NOCIO<sub>4</sub>** Nitrosyl perchlorate  
(liq) B: eab

**18-10-2**  
**NH<sub>2</sub>Cl** Chloramine  
(c) B: eah  
C: eah  
**NH<sub>4</sub>Cl** Ammonium chloride  
(c, II, α) C: eaj faa fab fac fad fae  
fbb fbc  
E-XIII: fae(t) fai(t) fal(t) fbb  
(c, I, β) C: eah  
E-XIII: fae(t) fai(t) fal(t)  
(c) B: eab ead eai eal(t)  
E-XI: fac fae(-t)  
(liq) C: eaq  
(aq) C: fab(x)

**NH<sub>4</sub>Cl·3NH<sub>3</sub>** Ammonium chloride-3-Ammonia  
(c) B: eah  
C: eah  
(liq) C: fab

**NH<sub>4</sub>Cl·6NH<sub>3</sub>** Ammonium chloride-6-Ammonia  
(liq) C: fab

**N<sub>2</sub>H<sub>5</sub>Cl** [N<sub>2</sub>H<sub>4</sub>·HCl] Hydrazinium(1+) chloride (Hydrazine chloride)  
(c) B: eah  
C: eah fab fbf fbg  
(aq) C: fab

**N<sub>2</sub>H<sub>6</sub>Cl<sub>2</sub>** [N<sub>2</sub>H<sub>4</sub>·2HCl] Hydrazinium(2+) dichloride  
(Hydrazine dichloride)  
(c) B: eab eah  
C: eah fab  
(aq) C: fab

**18-10-2-1**  
**NH<sub>2</sub>OH·HCl** Hydroxylamine-Hydrogen chloride  
(c) B: eab eah  
C: eah fab fae  
(aq) C: fab

**NH<sub>4</sub>ClO<sub>4</sub>** Ammonium perchlorate  
(*c, II*) C: eaj fab  
(*c*) B: eab ead  
(*aq*) C: fab(x)  
**N<sub>2</sub>H<sub>5</sub>ClO<sub>3</sub>** [N<sub>2</sub>H<sub>4</sub>·HClO<sub>3</sub>] Hydrazinium(1+) chlorate  
(*c*) B: eah  
**N<sub>2</sub>H<sub>5</sub>ClO<sub>4</sub>** [N<sub>2</sub>H<sub>4</sub>·HClO<sub>4</sub>] Hydrazinium(1+) perchlorate  
(*c*) B: eab eah  
**N<sub>2</sub>H<sub>5</sub>ClO<sub>4</sub>·½H<sub>2</sub>O** Hydrazinium(1+) perchlorate-½-Water  
(*c*) B: eah

**18-11**

**N<sub>3</sub>Br** Trinitrogen bromide  
(*c*) B: eah  
C: eah

**18-11-1**

**NOBr** Nitrosyl bromide  
(*c*) B: eah  
C: eah  
(*g*) C: faa fab fac fad  
E-XI: fac  
E-XIII: fae(t) fai(t) fal(t)

**NOBr<sub>3</sub>** Nitrosyl tribromide  
(*c*) B: eah  
C: eah  
(*liq*) B: eab eaq

**18-11-2**

**NH<sub>4</sub>Br** Ammonium bromide  
(*c, II*) B: eab ead  
C: eaj fab fbb fbc  
E-XIII: fae  
(*c, I*) B: eai eal(t)  
C: eah  
(*aq*) C: fab

**NH<sub>4</sub>Br·NH<sub>3</sub>** Ammonium bromide-Ammonia  
(*liq*) C: fab

**NH<sub>4</sub>Br·3NH<sub>3</sub>** Ammonium bromide-3-Ammonia  
(*c*) B: eah  
C: eah  
(*liq*) C: fab

**NH<sub>4</sub>Br·6NH<sub>3</sub>** Ammonium bromide-6-Ammonia  
(*liq*) C: fab

**N<sub>2</sub>H<sub>5</sub>Br** [N<sub>2</sub>H<sub>4</sub>·HBr] Hydrazinium(1+) bromide (Hydrazine bromide)  
(*c*) B: eah  
C: eah

**N<sub>2</sub>H<sub>6</sub>Br<sub>2</sub>** [N<sub>2</sub>H<sub>4</sub>·2HBr] Hydrazinium(2+) dibromide (Hydrazine dibromide)  
(*c*) B: eah  
C: eah

**18-12-2**

**NH<sub>4</sub>I** Ammonium iodide  
(*c, II*) C: eaj fbb fbc  
(*c, I*) B: eab ead eai eal(t)  
C: eah fab  
E-XIII: fae  
(*aq*) C: fab

**NH<sub>4</sub>I·NH<sub>3</sub>** Ammonium iodide-Ammonia  
(*liq*) C: fab

**NH<sub>4</sub>I·2NH<sub>3</sub>** Ammonium iodide-2-Ammonia  
(*c*) B: eah

**NH<sub>4</sub>I·3NH<sub>3</sub>** Ammonium iodide-3-Ammonia  
(*c*) C: eah  
(*liq*) C: fab

**NH<sub>4</sub>I·4NH<sub>3</sub>** Ammonium iodide-4-Ammonia  
(*c*) B: eah  
C: eah  
(*liq*) C: fab

**N<sub>2</sub>H<sub>6</sub>I** [N<sub>2</sub>H<sub>4</sub>·HI] Hydrazinium(1+) iodide (Hydrazine iodide)  
(*c*) B: eah  
C: eah

**N<sub>2</sub>H<sub>6</sub>I<sub>2</sub>** [N<sub>2</sub>H<sub>4</sub>·2HI] Hydrazinium(2+) di-iodide (Hydrazine di-iodide)  
(*c*) B: eah  
C: eah

**N<sub>2</sub>H<sub>6</sub>I<sub>2</sub>·2H<sub>2</sub>O** Hydrazinium(2+) di-iodide-2-Water  
(*c*) B: eah

**(N<sub>2</sub>H<sub>5</sub>I)<sub>2</sub>·N<sub>2</sub>H<sub>4</sub>** Bis[hydrazinium(1+) iodide]-Hydrazine  
(*c*) B: eah

**18-12-10-2**

**NH<sub>4</sub>ICl<sub>2</sub>** Ammonium dichloroiodide  
(*c*) B: eah  
C: eah

**NH<sub>4</sub>ICl<sub>4</sub>** Ammonium tetrachloroiodide  
(*c*) B: eah  
C: eah

**18-12-11-2**

**NH<sub>4</sub>IBr<sub>2</sub>** Ammonium dibromoiodide  
(*c*) C: eah

**18-12-11-10-2**

**NH<sub>4</sub>IBrCl** Ammonium chlorobromoiodide  
(*c*) B: eah

**18-14**

**NS** Nitrogen monosulfide  
(*g*) E-XIII: fae(t, +t) fai(t, +t) fal(t, +t)

**N<sub>2</sub>S<sub>4</sub>** Dinitrogen tetrasulfide  
(*c*) B: eah

**N<sub>2</sub>S<sub>5</sub>** Dinitrogen pentasulfide  
(*c*) B: eah  
C: eah  
(*liq*) B: eab

**N<sub>4</sub>S<sub>4</sub>** Tetranitrogen tetrasulfide  
(*c*) B: eah  
C: eah fab  
(*liq*) B: eaq

**18-14-1**

**N<sub>2</sub>O<sub>3</sub>·2SO<sub>3</sub>** Dinitrogen trioxide-2-Sulfur trioxide  
(*c*) C: eah  
(*liq*) C: eaq

**(NO)<sub>2</sub>S<sub>2</sub>O<sub>7</sub>** Dinitrosyl pyrosulfate  
(*c*) B: eah  
(*liq*) B: eaq

**N<sub>2</sub>S<sub>3</sub>O<sub>2</sub>** Cyclo dinitrogen trisulfur dioxide  
(*c*) B: eah

**NITROGEN**  
**18-14-1 (NO)<sub>2</sub>S<sub>3</sub>O<sub>10</sub>**

(NO)<sub>2</sub>S<sub>3</sub>O<sub>10</sub> Dinitrosyl trisulfate  
 (c) B: eah

(NO)(NO<sub>2</sub>)S<sub>3</sub>O<sub>10</sub> Nitrosyl nitryl trisulfate  
 (c) B: eah

(NO<sub>2</sub>)<sub>2</sub>S<sub>3</sub>O<sub>10</sub> Dinitryl trisulfate  
 (c) B: eah  
 (liq) B: eaq

**18-14-2**

NH<sub>4</sub>HS Ammonium hydrogen sulfide  
 (c) C: fab  
 E-VII: faa fab fam(t) fan(t)  
 E-XI: fac  
 (aq) C: fab

NHS<sub>7</sub> Cycloheptasulfur imide  
 (c) B: eah  
 (liq) B: eab

(NH<sub>4</sub>)<sub>2</sub>S Ammonium sulfide  
 (c) C: fab

(NH<sub>4</sub>)<sub>2</sub>S<sub>4</sub> Ammonium tetrasulfide  
 (c) C: fab  
 (aq) C: fab

(NH<sub>4</sub>)<sub>2</sub>S<sub>5</sub> Ammonium pentasulfide  
 (c) C: fab  
 (aq) C: fab

**18-14-2-1**

NHSO Sulfanyl imide  
 (c) B: eah

NO<sub>2</sub>SO<sub>2</sub>OH Nitrosulfuric acid  
 (c) C: eah

NOHSO<sub>4</sub> Nitrosyl hydrogen sulfate  
 (c) B: eah

NH<sub>2</sub>SO<sub>3</sub>H Amidosulfuric acid (Sulfamidic acid)  
 (c) B: eab eah

NHOHSO<sub>3</sub>H Hydroxylamidisulfuric acid (Hydroxylamine-O-sulfonic acid)  
 (c) B: eah

NH<sub>4</sub>HSO<sub>3</sub> Ammonium hydrogen sulfite  
 (c) C: fab  
 (aq) C: fab

NH<sub>4</sub>HSO<sub>4</sub> Ammonium hydrogen sulfate  
 (c, III) C: eaj  
 (c, II) C: eaj  
 (c, I) B: eah  
 C: eah eaj fab fae fbf fbq  
 E-XIII: fae(t) fai(t) fal(t) fbf  
 (liq) E-XIII: fae(t) fai(t) fal(t)  
 (aq) C: fab(x)

NH<sub>2</sub>OH·H<sub>2</sub>SO<sub>4</sub> Hydroxylamine-Sulfuric acid  
 (c) C: eah fab  
 (aq) C: fab

NO<sub>2</sub>HS<sub>2</sub>O<sub>7</sub> Nitryl hydrogen disulfate  
 (c) B: eab eah

(NH<sub>2</sub>)<sub>2</sub>SO<sub>2</sub> Sulfonyl diamide  
 (c) B: eah

N<sub>2</sub>H<sub>4</sub>SO<sub>3</sub> Hydrazinium(1+) trioxosulfate  
 (c) B: eah

NH<sub>4</sub>SO<sub>3</sub>NH<sub>2</sub> Ammonium amidotrioxosulfate (Ammonium sulfamate)  
 (c) B: eah

N<sub>2</sub>H<sub>4</sub>·H<sub>2</sub>SO<sub>4</sub> Hydrazine-Sulfuric acid (Hydrazinium(2+) sulfate)  
 (c) B: eah  
 C: eah fab  
 (aq) C: fab

(NH<sub>4</sub>)<sub>2</sub>SO<sub>3</sub> Ammonium sulfite  
 (c) C: fab  
 (aq) C: fab

(NH<sub>4</sub>)<sub>2</sub>SO<sub>3</sub>·H<sub>2</sub>O Ammonium sulfite-Water  
 (c) C: fab

(NH<sub>4</sub>)<sub>2</sub>SO<sub>4</sub> Ammonium sulfate  
 (c) B: eah  
 C: eah faa fab fac fad fae  
 E-XI: fac fae(-t)  
 E-XIII: fae(t) fai(t) fal(t)  
 (aq) C: fab(x)

(N<sup>14</sup>H<sub>4</sub>)<sub>2</sub>SO<sub>4</sub> Bis(nitrogen tetradeuteride) sulfate  
 (c) E-XIII: fae

(NH<sub>2</sub>OH)<sub>2</sub>·H<sub>2</sub>SO<sub>4</sub> 2-Hydroxylamine-Sulfuric acid  
 (c) C: eah fab  
 (aq) C: fab

(NH<sub>4</sub>)<sub>2</sub>S<sub>2</sub>O<sub>5</sub> Ammonium disulfite  
 (aq) C: fab

(NH<sub>4</sub>)<sub>2</sub>S<sub>2</sub>O<sub>7</sub> Ammonium pyrosulfate  
 (c) B: eah  
 (liq) B: eaq

(NH<sub>4</sub>)<sub>2</sub>S<sub>2</sub>O<sub>8</sub> Ammonium peroxydisulfate  
 (c) C: fab  
 (aq) C: fab

(H<sub>2</sub>NSO<sub>2</sub>)<sub>2</sub>NH Diamidosulfonyl imide  
 (c) B: eah  
 C: eah

(N<sub>2</sub>H<sub>4</sub>)<sub>2</sub>·H<sub>2</sub>SO<sub>4</sub> 2-Hydrazine-Sulfuric acid (Dihydrazinium(1+) sulfate)  
 (c) B: eah  
 C: eah  
 (aq) C: fab

(H<sub>2</sub>NSO<sub>2</sub>NH)<sub>2</sub> Disulfonyl diamide (μ-Hydrazido-bis [sulfonylamide])  
 (c) B: eah

(NH<sub>4</sub>)<sub>2</sub>S<sub>2</sub>O<sub>5</sub>(NH)<sub>2</sub> Diammonium di-imidopyrosulfate  
 (c) B: eah

(NH<sub>4</sub>SO<sub>3</sub>)<sub>3</sub>N μ-Nitrido-tris [ammonium trioxosulfate]  
 (c) B: eab

**18-14-9**

NSF Thionitrosyl fluoride  
 (c) B: eah  
 (liq) B: eac eaq eal(-t,t)

NSF<sub>3</sub> Thionitrosyl trifluoride  
 (c) B: eah  
 (liq) B: eac eaq eal(-t)

N<sub>2</sub>SF<sub>2</sub> Dinitrogen sulfur difluoride  
 (c) B: eah  
 (liq) B: eac eaq eal(-t,t)

N<sub>4</sub>S<sub>4</sub>F<sub>4</sub> Tetranitrogen tetrasulfur tetrafluoride  
 (c) B: eab eah

**18-14-9-1**

NOSO<sub>2</sub>F Nitrosyl sulfonyl fluoride  
 (c) B: eah

NOSO<sub>3</sub>F Nitrosyl fluorosulfate  
(c) B: eah  
C: eah

NO<sub>2</sub>SO<sub>3</sub>F Nitryl fluorosulfate  
(c) B: eah

**18-14-9-2-1**

NH<sub>4</sub>SO<sub>3</sub>F Ammonium fluorosulfate  
(c) B: eah

**18-14-10-1**

NO<sub>2</sub>ClS<sub>2</sub>O<sub>6</sub> Nitryl chloropyrosulfate  
(c) B: eah

(NSOCl)<sub>2</sub> Cyclotrinitrogenosulfanyl chloride (Sulfanuryl chloride)  
(c, II) B: eah  
(c, I) B: eah

**18-14-10-2-1**

NH<sub>2</sub>SO<sub>2</sub>Cl Amidosulfonyl chloride  
(c) B: eah

NH<sub>2</sub>SO<sub>2</sub>ClNH Amidosulfonyl chloroimide  
(c) B: eah

**18-15**

N<sub>4</sub>Se<sub>4</sub> Tetranitrogen tetraselenide  
(c) C: fab

**18-15-2**

NH<sub>4</sub>HSe Ammonium hydrogen selenide  
(aq) C: fab(x)

(NH<sub>4</sub>)<sub>2</sub>Se Ammonium selenide  
(aq) C: fab

**18-15-2-1**

NOHSeO<sub>4</sub> Nitrosyl hydrogen selenate  
(c) B: eah

(NH<sub>4</sub>)<sub>2</sub>SeO<sub>4</sub> Diammonium selenate  
(c) B: eab ead

19 – Phosphorus – P

P  
19  
Phosphorus  
(c, IV, white) B: eab  
C: eaj fbb fbc  
(c, III, white, cub., α) B: eab ead eah  
C: eah eaj fac fae fbb fbf  
fbg  
D: eah faa(t) fab(t) fac(t) fad(t) fae(t)  
faf(t) fai(t) fbf  
E-III: eal  
E-XI: fac  
(c, yellow) E-III: fbm(t) fbn  
(c, II, red, violet, triclinic) B: eab eac  
eah eal eal(t)  
C: eah fab fbf fbg  
D: eah eai fac(t) fae(t) faf(t) fai(t)  
fbn

E-III: eal(t) fbm(t) fbn fbo  
E-XI: fac  
E-XIII: fae(t) fai(t) fal(t)  
(c, red, amorph.) B: eab eah eai  
(c, I, black) B: eab eac eah eal eal(t)  
C: fab  
E-III: eal(t) fbm(t) fbn fbo  
E-XI: fac  
(c, black, amorph.) B: eab  
(liq) B: eac eaq eal(t)  
C: eaq fbj fbk  
D: eaq fbj  
E-III: eal(t) fbi(t) fbj fbk  
(g) C: faa fab fac fad fae  
D: faa(t,+t) fab(t,+t) fac(t,+t)  
fad(t,+t) fae(t,+t) faf(t,+t)  
fai(t,+t)  
E-XI: fac  
E-XIII: fae fai(t,+t) fal(t,+t)

P<sup>+</sup>  
(g) C: fab

P<sup>2+</sup>  
(g) C: fab

P<sup>3+</sup>  
(g) C: fab

P<sup>4+</sup>  
(g) C: fab

P<sup>5+</sup>  
(g) C: fab

P<sub>2</sub>  
Diphosphorus  
(g) C: faa fab fac fad fae  
D: faa(t,+t) fab(t,+t) fac(t,+t)  
fad(t,+t) fae(t,+t) faf(t,+t)  
fai(t,+t)  
E-XI: fac  
E-XIII: fae(t,+t) fai(t,+t) fal(t,+t)

P<sub>4</sub>  
Tetraphosphorus  
(c, white) E-XIII: fae fai(t) fal fbf  
(c, yellow) E-V: eah fbi fbg  
(liq) C: fab fae  
E-XIII: fae fai(t) fal(t)  
(g) C: faa fab fac fad fae  
D: faa(t) fab(t) fac(t) fad(t) fae(t) faf(t)  
fai(t)  
E-XI: fac  
E-XIII: fae(t,+t) fai(t,+t) fal(t,+t)

19-1  
Phosphorus monoxide  
(g) C: fab  
E-XI: fac  
E-XII: faa(t) fab(t)  
E-XIII: fae(t,+t) fai(t,+t) fal(t,+t)

PO<sup>3-</sup>  
Metaphosphate ion  
(aq) C: fab  
E-XI: fac

PO<sub>4</sub><sup>3-</sup>  
Orthophosphate ion  
(aq) C: faa fab fac fad

P<sub>2</sub>O<sub>4</sub>  
Diphosphorus tetroxide  
(c) B: eab

P<sub>2</sub>O<sub>7</sub><sup>4-</sup>  
Diphosphate ion  
(aq) C: fab

**PHOSPHORUS**  
19-1 P<sub>4</sub>O<sub>6</sub>

P <sub>4</sub> O <sub>6</sub>	Tetraphosphorus hexoxide			
(c)	B:	eah		
	C:	eah		
	E-V:	eah	fbf	fbg
(liq)	B:	eab	eac	ead
	C:	eaq	fbj	fbk
	E-III:	eal(-t)	fbi(t)	fbj
				fbk
P <sub>4</sub> O <sub>10</sub>	Tetraphosphorus decaoxide			
(c, hex.)	E-XII:	faa(t)	fab(t)	
(c, metastable, hex.)	B:	eab	eac	ead
		eah	eai	eal(t)
	C:	eah	eai	fab
			fbf	fbg
				fbn
	E-III:	eai	eal(t)	
	E-XIII:	fae(t)	fai(t)	fal(t)
(c, II, metastable, o-rb.)	B:	eab	ead	eah
(c, I, α)	C:	eah	fbf	fbg
	E-III:	eai	eal(t)	fbm(t)
	E-V:	eah	fbf	fbg
(c, I, metastable, o-rb.)	B:	eab	eac	ead
		eah	eai	eal(t)
(amorph.)	C:	fab		
(liq)	B:	eaq	eal(t)	
	C:	eaq	fbj	fbk
	E-III:	eaq	eal(t)	fbi(t)
				fbj
				fbk
(g)	E-XII:	faa(t)	fab(t)	
	E-XIII:	fae	fai(t)	fal(t)

	<b>19-2</b>			
PH	Phosphorus monohydride			
(g)	E-XI:	fac		
PH <sub>3</sub>	Phosphine			
(c, IV)	C:	eam	fbf	fbg
	E-XI:	eam	fbf	
(c, III)	C:	eam	fbf	fbg
	E-XI:	eam	fbf	
(c, II)	C:	eam	fbf	fbg
	E-XI:	eam	fbf	
(c, I)	B:	eah	eai	eal(-t)
	C:	eah	fbf	fbg
	E-XI:	eah	fae(-t)	fbf
(liq)	B:	eac	eaq	eal(-t)
	C:	eaq	fbj	fbk
	E-III:	eal	fbi(-t)	fbj
	E-XI:	eaq	fae	fbj
(g)	B:	eab	ead	
	C:	faa	fab	fac
	E-XI:	fac	fae(-t)	
	E-XIII:	fae(t, +t)	fai(t, +t)	fal(t, +t)

PH <sub>3</sub> ·6H <sub>2</sub> O	Phosphine-6-Water			
(c)	C:	fab		
(g)	E-XIII:	fae(t)	fai(t)	fal(t)

P <sub>2</sub> H	Diphosphorus hydride			
(c)	C:	fab		

P <sub>2</sub> H <sub>4</sub>	Diphosphine			
(c)	B:	eah		
(liq)	B:	eab	eac	eaq
	C:	eaq		eal(-t, t)

	<b>19-2-1</b>			
HPO <sub>3</sub>	Metaphosphoric acid			
(c)	C:	fab		
(aq)	C:	fab		
HPO <sub>3</sub> <sup>3-</sup>	Phosphite ion			
(aq)	C:	fab		
HPO <sub>4</sub> <sup>3-</sup>	Hydrogen phosphite ion			
(aq)	C:	faa	fab	fac
			fad	
	E-XI:	fac		
H <sub>2</sub> PO <sub>3</sub> <sup>-</sup>	Hydrogen phosphite ion			
(aq)	C:	fab		
H <sub>2</sub> PO <sub>4</sub> <sup>-</sup>	Dihydrogen phosphate ion			
(aq)	C:	faa	fab	fac
			fad	
	E-XI:	fac		
H <sub>3</sub> PO <sub>2</sub>	Hypophosphorous acid			
(c)	B:	eah		
	C:	eah	fab	fbf
	E-V:	eah	fbf	fbg
(liq)	B:	eab		
	C:	fab		
(aq)	C:	fab		
H <sub>3</sub> PO <sub>3</sub>	Phosphorous acid			
(c)	B:	eah		
	C:	eah	fab	fbf
	E-V:	eah	fbf	fbg
(liq)	B:	eab		
	C:	fab		
(aq)	C:	fab		
H <sub>3</sub> PO <sub>4</sub>	Phosphoric acid			
(c)	B:	eab	eah	
	C:	eah	fab	fbf
	E-V:	eah	fbf	fbg
	E-XIII:	fae		
(liq)	B:	eac	eaq	
(aq)	C:	fab		
	E-XI:	fac		
H <sub>3</sub> PO <sub>4</sub> ·½H <sub>2</sub> O	Phosphoric acid-½-Water			
(c)	B:	eah		
	C:	eah	fab	fbf
	fbg			
(liq)	C:	fab		
2H <sub>3</sub> PO <sub>4</sub> ·H <sub>2</sub> O	2-Phosphoric acid-Water			
(c)	E-XIII:	fae		
HP <sub>2</sub> O <sub>7</sub> <sup>3-</sup>	Hydrogen diphosphate ion			
(aq)	C:	fab		
H <sub>2</sub> P <sub>2</sub> O <sub>7</sub> <sup>3-</sup>	Dihydrogen diphosphate ion			
(aq)	C:	fab		
H <sub>3</sub> P <sub>2</sub> O <sub>7</sub> <sup>-</sup>	Trihydrogen diphosphate ion			
(aq)	C:	fab		
H <sub>4</sub> P <sub>2</sub> O <sub>6</sub>	Diphosphorous acid			
(aq)	C:	fab		
H <sub>4</sub> P <sub>2</sub> O <sub>6</sub>	Hypophosphoric acid			
(c)	B:	eah		
	C:	eah		
	E-V:	eah	fbf	fbg
H <sub>4</sub> P <sub>2</sub> O <sub>6</sub> ·2H <sub>2</sub> O	Hypophosphoric acid-2-Water			
(c)	B:	eab	eah	
	C:	eah	fbf	fbg
H <sub>4</sub> P <sub>2</sub> O <sub>7</sub>	Diphosphoric acid			
(c)	B:	eah		
	C:	eah	fab	fbf
	fbg			
(aq)	C:	fab		

**H<sub>4</sub>P<sub>2</sub>O<sub>7</sub>·1½H<sub>2</sub>O** Diphosphoric acid-1½-Water  
(c) B: eah  
C: eah fab fbf fbq  
(liq) C: fab

**H<sub>6</sub>P<sub>4</sub>O<sub>13</sub>** Tetraphosphoric acid  
(c) B: eab eah  
C: eah

**19-9**

**PF<sub>3</sub>** Phosphorus trifluoride  
(c) B: eah  
C: eah  
(liq) B: eac eaq eal(-t)  
C: eaq fbj fbk  
(g) B: eab  
C: fac  
E-XI: fac  
E-XIII: fae(t) fai(t) fal(t)

**PF<sub>5</sub>** Phosphorus pentafluoride  
(c) B: eah eal(-t)  
C: eah eai fbf fbq fbn fbo  
(liq) B: eac eaq eal(-t)  
C: eaq fbj fbk  
(g) B: eab ead

**19-9-1**

**POF<sub>3</sub>** Phosphoryl trifluoride  
(c) B: eac eah eai eal(-t)  
C: eah eai fbf fbq fbn fbo  
(liq) B: eaq eal(-t)  
C: eaq fbj fbk  
(g) E-XIII: fae(t) fai(t) fal(t)

**19-9-2-1**

**PO(OH)<sub>2</sub>F** Fluorophosphoric acid  
(liq) B: eab

**PO(OH)F<sub>2</sub>** Difluorophosphoric acid  
(c) B: eah  
(liq) B: eab eac eaq eal(t)  
C: eaq

**19-10**

**PCl<sub>3</sub>** Phosphorus trichloride  
(c) B: eah  
C: eah  
(liq) B: eab eac ead eaq eal(-t,t)  
C: eaq fab fbj fbk  
E-III: eal(-t,t) fbi(-t,t) fbj(-t,t)  
fbk  
E-XI: fac  
(g) C: faa fab fac fad  
E-XI: fac  
E-XIII: fae(t) fai(t) fal(t)

**PCl<sub>5</sub>** Phosphorus pentachloride  
(c) B: eab eac eah eai eal(t)  
C: eah eai fab fbn fbo  
(liq) B: eal(t)  
(g) C: faa fab fac fad  
E-XI: fac  
E-XIII: fae(t) fai(t) fal(t)

**P<sub>2</sub>Cl<sub>4</sub>** Diphosphorus tetrachloride  
(c) B: eah  
C: eah  
(liq) B: eac eaq

**19-10-1**

**POCl<sub>3</sub>** Phosphoryl trichloride  
(c) B: eah  
C: eah fbf fbq  
E-V: eah fbf fbq  
(liq) B: eab eac ead eaq eal(t)  
C: eaq fab fbj fbk  
E-III: eal(t) fbi(t) fbj fbk  
(g) C: faa fab fac fad  
E-XI: fac  
E-XIII: fae(t) fai(t) fal(t)

**P<sub>2</sub>O<sub>3</sub>Cl<sub>4</sub>** Pyrophosphoryl tetrachloride  
(liq) B: eab eaq

**P<sub>4</sub>O<sub>4</sub>Cl<sub>10</sub>** Dipyrophosphoryl decachloride  
(c) B: eah  
(liq) B: eab

**19-10-2**

**PH<sub>4</sub>Cl** Phosphonium chloride  
(c, II) C: eaj  
(c, I) C: eah  
(g) C: fab

**19-10-9**

**PClF<sub>2</sub>** Phosphorus chloride difluoride  
(c) B: eah  
C: eah  
(liq) B: eac eaq eal(-t)  
C: eaq fbj fbk

**PCl<sub>2</sub>F** Phosphorus dichloride fluoride  
(c) B: eah  
C: eah  
(liq) B: eac eaq eal(-t,t)  
C: eaq fbj fbk

**PCl<sub>2</sub>F<sub>3</sub>** Phosphorus dichloride trifluoride  
(liq) B: eaq

**PCL<sub>4</sub>F** Phosphorus tetrachloride fluoride  
(c) B: eah  
(liq) B: eaq  
[(PCl<sub>4</sub>)<sup>+</sup>F<sup>-</sup>] Tetrachlorophosphonium fluoride  
(c) B: eah eai

**P<sub>2</sub>Cl<sub>4</sub>F<sub>6</sub>** [(PCl<sub>4</sub>)<sup>+</sup>(PF<sub>6</sub>)<sup>-</sup>] Tetrachlorophosphonium hexafluorophosphate  
(c) B: eai

**19-10-9-1**

**POClF<sub>2</sub>** Phosphoryl chloride difluoride  
(c) B: eah  
C: eah  
(liq) B: eab eac eaq eal(-t,t)  
C: eaq fbj fbk

**POCl<sub>2</sub>F** Phosphoryl dichloride fluoride  
(c) B: eah  
C: eah  
(liq) B: eab eac eaq eal(-t,t)  
C: eaq fbj fbk

**PHOSPHORUS**  
19-11 PBr<sub>3</sub>

**19-11**  
PBr<sub>3</sub> Phosphorus tribromide  
(c) B: eah  
C: eah  
(liq) B: eab eac ead eaq eal(t)  
C: eaq fab fbj fbk  
(g) C: faa fab fac fad  
E-XI: fac  
E-XIII: fae(t) fai(t) fal(t)  
(in carbon disulfide) C: fab

PBr<sub>5</sub> Phosphorus pentabromide  
(c) B: eab eah eal(t)  
C: eai fab fbn fbo  
(liq) B: eal(t)

**19-11-1**  
POBr<sub>3</sub> Phosphoryl tribromide  
(c) B: eab eah  
C: eah fab  
(liq) B: eac eaq eal(t)  
C: eaq fbj fbk

**19-11-2**  
PH<sub>4</sub>Br Phosphonium bromide  
(c) C: fab

**19-11-9**  
PBrF<sub>2</sub> Phosphorus bromide difluoride  
(c) B: eah  
C: eah  
(liq) B: eac eaq eal(-t)  
C: eaq fbj fbk

PBr<sub>2</sub>F Phosphorus dibromide fluoride  
(c) B: eah  
C: eah  
(liq) B: eab eac eaq eal(-t,t)  
C: eaq fbj fbk

PBr<sub>2</sub>F<sub>3</sub> Phosphorus dibromide trifluoride  
(c) B: eah  
C: eah

**19-11-9-1**  
POBrF<sub>2</sub> Phosphoryl bromide difluoride  
(c) B: eah  
C: eah  
(liq) B: eab eac eaq eal(-t,t)  
C: eaq fbj fbk

POBr<sub>2</sub>F Phosphoryl dibromide fluoride  
(c) B: eah  
C: eah  
(liq) B: eab eac eaq eal(t)  
C: eaq fbj fbk

**19-11-10**  
PBrCl<sub>2</sub> Phosphorus bromide dichloride  
(liq) B: eab  
PBr<sub>2</sub>Cl Phosphorus dibromide chloride  
(liq) B: eab  
PBr<sub>4</sub>Cl<sub>3</sub> Phosphorus tetrabromide trichloride  
(c) B: eah  
PBr<sub>18</sub>Cl<sub>3</sub> Phosphorus 18-bromide trichloride  
(c) B: eah

**19-11-10-1**  
POBrCl<sub>2</sub> Phosphoryl bromide dichloride  
(c) B: eah  
C: eah  
(liq) B: eab eac eaq eal(t)  
POBr<sub>2</sub>Cl Phosphoryl dibromide chloride  
(c) B: eah  
C: eah  
(liq) B: eab eac eaq

**19-11-10-9-1**  
POBrClF Phosphoryl bromide chloride fluoride  
(liq) B: eab eac eaq eal(-t,t)  
C: eaq

**19-12**  
PI<sub>3</sub> Phosphorus tri-iodide  
(c) B: eab eah  
C: eah fab  
(g) E-XIII: fae(t) fai(t) fal(t)  
P<sub>2</sub>I<sub>4</sub> Diphosphorus tetraiodide  
(c) B: eah  
C: eah fab  
(liq) B: eaq

**19-12-2**  
PH<sub>4</sub>I Phosphonium iodide  
(c) C: fab fae  
E-XI: fac fae(-t)

**19-12-10**  
PICl<sub>6</sub> [(PCL<sub>4</sub>)<sup>+</sup>(ICl<sub>2</sub>)<sup>-</sup>] Tetrachlorophosphonium  
iododichloride  
(c) B: eah eai

**19-12-11**  
PIBr<sub>6</sub> [(PBr<sub>4</sub>)<sup>+</sup>(IBr<sub>2</sub>)<sup>-</sup>] Tetrabromophosphonium  
iododibromide  
(c) B: eah

**19-12-11-10**  
PIBrCl<sub>5</sub> [(PCL<sub>4</sub>)<sup>+</sup>(IBrCl)<sup>-</sup>] Tetrachlorophosphonium  
iodobromochloride  
(c) B: eah

PIBr<sub>5</sub>Cl [(PBr<sub>4</sub>)<sup>+</sup>(IBrCl)<sup>-</sup>] Tetrabromophosphonium  
iodobromochloride  
(c) B: eah

**19-14**  
P<sub>2</sub>S<sub>3</sub> Diphosphorus trisulfide  
(c) C: eah  
P<sub>4</sub>S<sub>3</sub> Tetraphosphorus trisulfide  
(c) C: eah  
(liq) C: eaq  
P<sub>4</sub>S<sub>7</sub> Tetraphosphorus heptasulfide  
(c) C: eah  
P<sub>4</sub>S<sub>10</sub> Tetraphosphorus decasulfide  
(c) C: eah

**19-14-1**  
P<sub>4</sub>O<sub>6</sub>S<sub>4</sub> Tetraphosphorus hexoxide tetrasulfide  
(c) C: eah  
(liq) C: eaq

**19-14-9**  
PSF<sub>3</sub> Thiophosphoryl trifluoride  
(c) C: eah  
(liq) C: eaq fbj fbk  
(g) E-XIII: fae(t) fai(t) fal(t)

**19-14-10**  
PSCl<sub>3</sub> Thiophosphoryl trichloride  
(c, II) C: eah  
(c, I) C: eah  
(liq) C: eaq  
(g) C: fac  
E-XI: fac  
E-XIII: fae(t) fai(t) fal(t)

**19-14-10-9**  
PSClF<sub>2</sub> Thiophosphoryl chloride difluoride  
(c) C: eah  
(liq) C: eaq fbj fbk

PSCl<sub>2</sub>F Thiophosphoryl dichloride fluoride  
(c) C: eah  
(liq) C: eaq fbj fbk

**19-14-11**  
PSBr<sub>3</sub> Thiophosphoryl tribromide  
(c) C: eah

**19-14-11-9**  
PSBrF<sub>2</sub> Thiophosphoryl bromide difluoride  
(c) C: eah  
(liq) C: eaq fbj fbk

PSBr<sub>2</sub>F Thiophosphoryl dibromide fluoride  
(c) C: eah  
(liq) C: eaq fbj fbk

**19-14-11-10**  
PSBrCl<sub>2</sub> Thiophosphoryl bromide dichloride  
(c) C: eah  
(liq) C: eaq

PSBr<sub>2</sub>Cl Thiophosphoryl dibromide chloride  
(c) C: eah  
(liq) C: eaq

**19-18**  
PN Phosphorus mononitride  
(g) C: faa fab fac fad fae  
E-XI: fac  
E-XIII: fae(t) fai(t) fal(t)

h(PN)<sub>n</sub> Poly(phosphorus mononitride)  
(c) C: fab

P<sub>3</sub>N<sub>5</sub> Triphosphorus pentanitride  
(c) C: fab fae

**19-18-2-1**  
NH<sub>2</sub>OH·H<sub>3</sub>PO<sub>2</sub> Hydroxylamine—Hypophosphorous acid  
(c) C: eah

NH<sub>4</sub>H<sub>2</sub>PO<sub>3</sub> Ammonium hydrogen phosphite  
(c) C: eah

NH<sub>4</sub>H<sub>2</sub>PO<sub>4</sub> Ammonium dihydrogen phosphate  
(c) C: faa fab fac fad fae  
E-XI: fac fae(-t)  
E-XIII: fae

(aq) C: fab(x)  
NH<sub>4</sub>NH<sub>2</sub>HPO<sub>3</sub> Ammonium amidophosphite  
(c) C: eah  
N<sub>2</sub>H<sub>4</sub>·H<sub>3</sub>PO<sub>3</sub> Hydrazine—Phosphorous acid  
(c) C: eah  
N<sub>2</sub>H<sub>4</sub>·H<sub>3</sub>PO<sub>4</sub> Hydrazine—Phosphoric acid  
(c) C: eah  
(NH<sub>4</sub>)<sub>2</sub>HPO<sub>4</sub> Diammonium hydrogen phosphate  
(c) C: fab fae  
E-XIII: fae  
(aq) C: fab(x)  
(NH<sub>4</sub>)<sub>3</sub>PO<sub>4</sub> Triammonium phosphate  
(c) C: fab  
(aq) C: fab  
(NH<sub>4</sub>)<sub>3</sub>PO<sub>4</sub>·3H<sub>2</sub>O Triammonium phosphate—3-Water  
(c) fab  
N<sub>2</sub>H<sub>4</sub>·H<sub>4</sub>P<sub>2</sub>O<sub>6</sub> Hydrazine—Hypophosphoric acid  
(c) C: eah  
N<sub>2</sub>H<sub>4</sub>·(H<sub>3</sub>PO<sub>3</sub>)<sub>2</sub> Hydrazine—2-Phosphorous acid  
(c) C: eah  
(NH<sub>4</sub>)<sub>2</sub>H<sub>2</sub>P<sub>2</sub>O<sub>6</sub> Diammonium dihydrogen hypophosphate  
(c) C: eah  
(NH<sub>4</sub>)<sub>3</sub>PO<sub>4</sub>·H<sub>3</sub>PO<sub>4</sub> Ammonium phosphate—Phosphoric acid  
(c) E-XIII: fae

**19-18-9-2**  
N<sub>3</sub>P<sub>3</sub>F<sub>8</sub>H<sub>2</sub>·2H<sub>2</sub>O  
(c) C: eah

**19-18-9-2-1**  
NH<sub>4</sub>HPO<sub>3</sub>F Ammonium hydrogen fluorophosphate  
(c) C: eah  
NH<sub>4</sub>PO<sub>2</sub>F<sub>2</sub> Ammonium difluorophosphate  
(c) C: eah

**19-18-10**  
(PNCl<sub>2</sub>)<sub>h</sub>  
(c) C: eah fbj fbq  
(liq) C: eaq fbj fbk  
(PNCl<sub>2</sub>)<sub>k</sub>  
(c) C: eah  
(liq) C: eaq fbj fbk  
(PNCl<sub>2</sub>)<sub>h</sub>  
(c) C: eah  
(liq) C: eaq  
(PNCl<sub>2</sub>)<sub>h</sub>  
(c) C: eah  
(liq) C: eaq

**19-18-10-9**  
N<sub>4</sub>P<sub>4</sub>Cl<sub>2</sub>F<sub>8</sub>  
(c) C: eah  
(liq) C: eaq fbj fbk

**19-18-11**  
PNBr<sub>2</sub>  
(c) C: eah



20 - Arsenic - As

As	20 Arsenic				
	( <i>c</i> , cubic, yellow, $\alpha$ )	C:	fab		
	( <i>amorp.</i> , $\beta$ )	C:	fab		
	( <i>c</i> , metallic, gray, $\gamma$ )	C:	eah eai fac		
			fae fbn fbo		
	D:	eah eai	fac(t) fae(t) faf(t) fai(t)		
			fbf fbn		
	E-III:	eal(t) fbm(t) fbn	fbo		
	E-V:	eah fbf fbq			
	E-XI:	fac fae(-t)			
	E-XIII:	fae(t) fai(t) fal(t)			
	( <i>liq</i> ) C:	eaq			
	( <i>g</i> ) C:	faa fab fac fad fae			
	D:	faa(t,+t) fab(t,+t) fac(t,+t)			
		fad(t,+t) fae(t,+t) faf(t,+t)			
		fai(t,+t)			
	E-XI:	fac			
	E-XIII:	fae(t,+t) fai(t,+t) fal(t,+t)			
As <sup>+</sup>	( <i>g</i> ) C:	fab			
As <sup>2+</sup>	( <i>g</i> ) C:	fab			
As <sup>3+</sup>	( <i>g</i> ) C:	fab			
As <sup>4+</sup>	( <i>g</i> ) C:	fab			
As <sup>5+</sup>	( <i>g</i> ) C:	fab			
As <sup>6+</sup>	( <i>g</i> ) C:	fab			
As <sub>2</sub>	Diarsenic				
	( <i>g</i> ) C:	faa fab fac fad fae			
	D:	faa(t) fab(t) fac(t,+t) fad(t) fae(t,+t)			
		faf(t,+t) fai(t,+t)			
	E-XI:	fac			
	E-XIII:	fae(t,+t) fai(t,+t) fal(t,+t)			
As <sub>4</sub>	Tetra-arsenic				
	( <i>g</i> ) C:	faa fab fac fad			
	D:	faa(t) fab(t) fac(t) fad(t) fae(t) faf(t)			
		fai(t)			
	E-XI:	fac			
	E-XIII:	fae(t) fai(t) fal(t)			
	20-1				
AsO	Arsenic(II) oxide				
	( <i>g</i> ) C:	fab			
	E-XIII:	fae(t) fai(t) fal(t)			
AsO <sup>+</sup>	Monoxoarsenic(III) ion				
	( <i>aq</i> ) C:	faa fad			
AsO <sub>2</sub> <sup>-</sup>	Dioxoarsenate(III) ion				
	( <i>aq</i> ) C:	faa fad			
AsO <sub>4</sub> <sup>3-</sup>	Arsenate ion				
	( <i>aq</i> ) C:	faa fab fac fad			
	E-XI:	fac			
As <sub>2</sub> O <sub>3</sub>	Arsenic(III) oxide				
	( <i>c</i> , <i>o-rb.</i> )	E-XI:	fac fae(-t)		
		E-XII:	faa(t) fab(t)		
		E-XIII:	fae(t)		

	( <i>c</i> , <i>mon.</i> )	E-XII:	faa(t) fab(t)		
	( <i>liq</i> )	E-XII:	faa(t) fab(t)		
As <sub>2</sub> O <sub>4</sub>	Arsenic(IV) tetroxide				
	( <i>c</i> )	E-XII:	faa(t) fab(t)		
As <sub>2</sub> O <sub>5</sub>	Arsenic(V) oxide				
	( <i>c</i> )	C:	faa fab fac fad fae		
		E-XI:	fac fae(-t)		
		E-XII:	faa(t) fab(t)		
		E-XIII:	fae		
	( <i>aq</i> )	C:	fab		
As <sub>2</sub> O <sub>5</sub> ·4H <sub>2</sub> O	Arsenic(V) oxide-4-Water				
	( <i>c</i> )	C:	fab		
3As <sub>2</sub> O <sub>5</sub> ·5H <sub>2</sub> O	3-Arsenic(V) oxide-5-Water				
	( <i>c</i> )	C:	fab		
As <sub>4</sub> O <sub>6</sub>	Arsenic(III) hexoxide				
	( <i>c</i> , <i>o-rb.</i> , <i>octahedral</i> )	C:	eah eai faa		
			fab fac fad fae fbf fbq		
			fbn fbo		
		E-III:	eal fbm(t) fbn		
	( <i>c</i> , <i>mon.</i> )	C:	eah eai fab fbf fbq fbn		
			fbo		
		E-III:	eal fbm(t) fbn		
		E-V:	eah fbf fbq		
	( <i>liq</i> )	C:	eaq fbj fbk		
		E-III:	eal(t) fbi(t) fbj fbk		
	( <i>g</i> )	E-XI:	fac		
		E-XII:	faa(t) fab(t)		
	( <i>aq</i> )	C:	fab		
As <sub>2</sub> O <sub>3</sub> ·As <sub>2</sub> O <sub>5</sub>	Arsenic(III) oxide-Arsenic(V) oxide				
	( <i>c</i> )	C:	fab		
	20-2				
AsH <sub>3</sub>	Arsine				
	( <i>c</i> )	C:	eah fbf fbq		
	( <i>liq</i> )	C:	eaq fbj fbk		
	( <i>g</i> )	C:	fab		
		E-XIII:	fae(t) fai(t) fal(t)		
As <sup>3</sup> H <sub>3</sub>	Arsenic(III) deuteride				
	( <i>g</i> )	E-XIII:	fae(t) fai(t) fal(t)		
AsH <sub>3</sub> ·6H <sub>2</sub> O	Arsine-6-Water				
	( <i>c</i> )	C:	fab		
	20-2-1				
HAAsO <sub>2</sub>	Hydrogen dioxoarsenate(III)				
	( <i>aq</i> )	C:	faa fab fac fad		
HAAsO <sub>3</sub> <sup>2-</sup>	Hydrogen arsenite ion				
	( <i>aq</i> )	C:	fab		
HAAsO <sub>4</sub> <sup>3-</sup>	Hydrogen arsenate ion				
	( <i>aq</i> )	C:	faa fab fac fad		
		E-XI:	fac		
H <sub>2</sub> AsO <sub>2</sub>	Dihydrogen dioxoarsenate				
	( <i>aq</i> )	E-XI:	fac		
H <sub>2</sub> AsO <sub>3</sub> <sup>-</sup>	Dihydrogen arsenite ion				
	( <i>aq</i> )	C:	fab		
H <sub>2</sub> AsO <sub>4</sub> <sup>-</sup>	Dihydrogen arsenate ion				
	( <i>aq</i> )	C:	faa fab fac fad		
		E-XI:	fac		
H <sub>3</sub> AsO <sub>3</sub>	Arsenious acid				
	( <i>aq</i> )	C:	faa fab fac fad		
		E-XI:	fac		

**H<sub>3</sub>AsO<sub>4</sub>** Arsenic acid  
(c) C: fab  
(aq) C: faa fab fac fad  
E-XI: fac

**H<sub>3</sub>AsO<sub>4</sub>·½H<sub>2</sub>O** Arsenic acid-½Water  
(c) C: eah

**20-9**

**AsF<sub>3</sub>** Arsenic(III) fluoride  
(c) C: eah fbf fbg  
E-XI: eah fae(-t) fbf  
(liq) C: eaq faa fab fac fad fae  
fbj fbk  
E-XI: eaq fac fae fbj  
(g) C: faa fab fac fad  
E-XI: fac  
E-XIII: fae(t) fai(t) fal(t)

**AsF<sub>5</sub>** Arsenic(V) fluoride  
(c) C: eah fbf fbg  
E-III: eal(-t) fbm(-t) fbn  
E-V: eah fbf fbg  
(liq) C: eaq fbj fbk  
E-III: eal fbi(-t) fbj fbk

**20-10**

**AsCl<sub>2</sub>** Arsenic dichloride  
(g) C: fab

**AsCl<sub>3</sub>** Arsenic(III) chloride  
(c) C: eah fbf fbg  
E-V: eah fbf fbg  
(liq) C: eaq faa fab fac fad fbj  
fbk  
E-III: eal(-t,t) fbi(-t,t) fbj(-t,t)  
fbk  
E-XI: fac  
E-XIII: fae  
(g) C: faa fab fac fad  
E-XI: fac  
E-XIII: fae(t) fai(t) fal(t)

**20-11**

**AsBr<sub>3</sub>** Arsenic(III) bromide  
(c) C: eah fab fbf fbg  
E-V: eah fbf fbg  
(liq) C: eaq fbj fbk

**20-12**

**AsI<sub>2</sub>** Arsenic di-iodide  
(c) C: eah

**AsI<sub>3</sub>** Arsenic(III) iodide  
(c) C: eah fab  
(liq) C: eaq fbj fbk  
(g) E-XIII: fae(t) fai(t) fal(t)

**20-14**

**As<sub>2</sub>S<sub>2</sub>** Diarsenic disulfide  
(c, II, red) C: eaj fab  
(c, I, black) C: eah  
(liq) C: eaq  
(g) C: fab

**As<sub>2</sub>S<sub>3</sub>** Arsenic(III) sulfide  
(c, II, yellow) C: eaj fab  
E-XIII: fae  
(c, I, red) C: eah

**20-14-1**

**As<sub>2</sub>O<sub>3</sub>·SO<sub>3</sub>** Arsenic(III) oxide-Sulfur trioxide  
(c) C: fab

**20-18**

**AsN** Arsenic(III) nitride  
(g) C: fab fae  
E-XIII: fae(t) fai(t) fal(t)

**20-18-2-1**

**NH<sub>4</sub>H<sub>2</sub>AsO<sub>4</sub>** Ammonium dihydrogen arsenate  
(c) C: faa fab fac fad  
E-XI: fac fae(-t)  
E-XIII: fae  
(aq) C: fab

**(NH<sub>4</sub>)<sub>2</sub>HAsO<sub>4</sub>** Diammonium hydrogen arsenate  
(c) C: fab  
(aq) C: fab

**(NH<sub>4</sub>)<sub>3</sub>AsO<sub>4</sub>** Triammonium arsenate  
C: fab  
C: fab

**(NH<sub>4</sub>)<sub>3</sub>AsO<sub>4</sub>·3H<sub>2</sub>O** Triammonium arsenate-3Water  
(c) C: fab

**21 - Antimony - Sb**

**21**

**Sb** Antimony  
(c, IV, explosive) C: fab  
(c, III) C: eaj fac fae  
(c, II) C: eaj  
(c, I) C: eah fbf fbg  
(c) D: eah fac(t) fae(t) faf(t) fai(t) fbf  
E-III: fbm(t) fbn(t)  
E-V: eah fbf fbg  
E-XI: fac fae(-t)  
E-XIII: fae(t) fai(t) fal(t) fbf  
F: eah eal(t) fac fae(-t,t) faf(t)  
fai(t) fal(t) fbf fbg fbn  
(liq) C: eaq  
D: eaq fac(t) fae(t) faf(t) fai(t) fbj  
E-III: eaq eal(t) fbi(t) fbj(t) fbk  
E-XIII: fae fai(t) fal(t)  
F: eal(t) fae(t) faf(t) fai(t) fal(t) fbk  
(g) C: faa fab fac fad fae  
D: faa(+t) fab(+t) fac(+t) fad(+t)  
fad(+t) fae(+t) faf(+t) fai(+t)  
E-III: fac  
E-XI: fac  
E-XIII: fae fai(+t) fal(+t)  
F: fac fae(+t) faf(+t) fai(+t)  
fal(+t)



**Sb<sub>4</sub>O<sub>5</sub>Cl<sub>2</sub>** Tetra-antimony pentoxide dichloride  
(c) C: fab

**21-10-9**

**SbCl<sub>3</sub>F<sub>2</sub>** Antimony(V) trichloride difluoride  
(c) C: eah

**21-11**

**SbBr<sub>3</sub>** Antimony(III) bromide  
(c) C: eah fab fbf fbq  
E-V: eah fbf fbq  
E-XIII: fae(t)  
(liq) C: eaq  
(in carbon disulfide) C: fab

**21-12**

**SbI<sub>3</sub>** Antimony(III) iodide  
(c) C: eah fab  
(aq) C: fab

**21-14**

**SbS<sub>3</sub><sup>3-</sup>** Trithioantimonate(III) ion  
(aq) C: fab

**Sb<sub>2</sub>S<sub>3</sub>** Antimony(III) sulfide  
(c, black) C: fab  
E-VII: faa(t) fab(t) fam(t) fan(t)  
E-XI: fac  
E-XIII: fae(t)  
(amorph, orange) C: fab

**Sb<sub>4</sub>S<sub>6</sub>** Antimony(III) hexasulfide  
(c) C: eah fbf fbq  
E-V: eah fbf fbq

**21-14-1**

**Sb<sub>2</sub>(SO<sub>4</sub>)<sub>3</sub>** Antimony(III) sulfate  
(c) C: fab

**21-15**

**Sb<sub>2</sub>Se<sub>3</sub>** Antimony(III) selenide  
(c) C: eah

**21-16**

**Sb<sub>2</sub>Te<sub>3</sub>** Antimony(III) telluride  
(c) C: eah

**21-18**

**SbN** Antimony(III) nitride  
(g) C: fab  
E-XIII: fae(t) fai(t) fal(t)

**21-18-9-2**

**SbF<sub>3</sub>·NH<sub>3</sub>** Antimony(III) fluoride—Ammonia  
(c) C: fab

**SbF<sub>3</sub>·2NH<sub>3</sub>** Antimony(III) fluoride—2-Ammonia  
(c) C: fab

**SbF<sub>3</sub>·3NH<sub>3</sub>** Antimony(III) fluoride—3-Ammonia  
(c) C: fab

**SbF<sub>3</sub>·4NH<sub>3</sub>** Antimony(III) fluoride—4-Ammonia  
(c) C: fab

**SbF<sub>3</sub>·6NH<sub>3</sub>** Antimony(III) fluoride—6-Ammonia  
(c) C: fab

**21-18-10-2**

**3NH<sub>4</sub>Cl·2SbCl<sub>3</sub>** 3-Ammonium chloride—2-Antimony(III) chloride  
(c) C: eah

**22 — Bismuth — Bi**

**22**

**Bi** Bismuth  
(c) C: eah fac fae fbf fbq  
D: eah fac(t) fae(t) faf(t) fai(t) fbf  
E-V: eah fbf fbq  
E-XI: fac fae(-t)  
E-XIII: fae(t) fai(t) fal(t) fbf  
F: eah eal(t) fac fae(-t,t) faf(t)  
fai(t) fal(t) fbf fbq fbn  
(liq) C: eaq  
D: eaq fac(t) fae(t) faf(t) fai(t) fbf  
E-III: eaq eal(t) fae fai(t) fal(t)  
F: eal(t,+t) fae(t) faf(t) fai(t) fal(t)  
fbk  
(g) C: faa fab fac fad fae faa(t)  
fab(t) fac(t,+t) fad(t) fae(t,+t)  
faf(t,+t) fai(t,+t)  
E-XI: fac  
E-XIII: fae fai(t,+t) fal(t,+t)  
F: fac fae(t) faf(t) fai(t) fal(t)

**Bi<sup>+</sup>**

(g) C: fab

**Bi<sup>2+</sup>**

(g) C: fab

**Bi<sup>3+</sup>**

(g) C: fab

**Bi<sup>4+</sup>**

(g) C: fab

**Bi<sup>5+</sup>**

(g) C: fab

**Bi<sup>6+</sup>**

(g) C: fab

**Bi<sub>2</sub>**

Dibismuth  
(g) C: faa fab fac fad fae  
D: faa(t) fab(t) fac(t) fad(t) fae(t) faf(t)  
fai(t)  
E-XI: fac  
E-XIII: fae(t) fai(t,+t) fal(t,+t)  
F: fac fae(t,+t) faf(t,+t) fai(t,+t)  
fal(t,+t)

**22-1**

**BiO** Bismuth monoxide

(c) C: fab  
E-XII: faa(t) fab(t)

(g) C: fab  
E-XIII: fae(t) fai(t) fal(t)

**BiO<sup>+</sup>**

Monoxobismuth(III) ion

(aq) C: faa fad

**BISMUTH**  
22-1 Bi<sub>2</sub>O<sub>3</sub>

Bi<sub>2</sub>O<sub>3</sub> Bismuth(III) oxide  
(c) C: eah faa fab fac fad fae  
fbf fbq  
E-V: eah fbf fbq  
E-XI: fac fae(-t)  
E-XII: faa(t) fab(t)  
E-XIII: fae(t) fai(t) fal(t)

**22-2**

BiH Bismuth monohydride  
(g) C: fab  
E-XI: fac  
E-XIII: fae(t, +t) fai(t, +t) fal(t, +t)

Bi<sup>3</sup>H Bismuth monodeuteride  
(g) E-XI: fac  
E-XIII: fae(t) fai(t) fal(t)

Bi(OH)<sub>3</sub> Bismuth(III) hydroxide  
(c) C: fab

**22-9**

BiF Bismuth monofluoride  
(g) C: fab  
E-XIII: fae(t) fai(t) fal(t)

BiF<sub>3</sub> Bismuth(III) fluoride  
(c) C: eah

BiF<sub>5</sub> Bismuth(V) fluoride  
(c) C: eai

**22-10**

BiCl Bismuth monochloride  
(g) C: faa fab fac fad  
E-XI: fac  
E-XIII: fae(t) fai(t) fal(t)

BiCl<sub>3</sub> Bismuth(III) chloride  
(c) C: eah faa fab fac fad fbf  
fbq  
E-V: eah fbf fbq  
E-XI: fac  
(liq) C: eaq fbj fbk  
E-III: eaq eal(t) fbi(t) fbj(t) fbk  
(g) C: faa fab fac fad fae  
E-XI: fac  
E-XIII: fae(t) fai(t) fal(t)

(in aq hydrogen chloride) C: fab  
BiCl<sub>4</sub> Bismuth tetrachloride  
(c) C: eah

**22-10-1**

BiClO Bismuth(III) oxide chloride  
(c) C: faa fab fac fad

**22-11**

BiBr Bismuth monobromide  
(g) C: faa fab fac fad  
E-XI: fac  
E-XIII: fae(t) fai(t) fal(t)

BiBr<sub>3</sub> Bismuth(III) bromide  
(c, II) C: eaj  
(c, I) C: eah

(liq) C: eaq fbj fbk  
E-III: eaq eal(t) fbi(t) fbj(t) fbk

**22-12**

BiI Bismuth monoiodide  
(g) C: faa fab fac fad  
E-XI: fac  
E-XIII: fae(t) fai(t) fal(t)

**22-14**

BIS Bismuth monosulfide  
(c) C: eah faa fab fac fad  
E-V: eah fbf fbq  
E-VII: faa(t) fab(t)  
E-XI: fac  
E-XIII: fae(t)

**22-14-1**

Bi<sub>2</sub>(SO<sub>4</sub>)<sub>3</sub> Bismuth(III) sulfate  
(c) C: fab

**22-15**

BiSe Bismuth monoselenide  
(c, II) C: eaj  
Bi<sub>2</sub>Se<sub>3</sub> Bismuth(III) selenide  
(c) C: eah

**22-16**

Bi<sub>2</sub>Te<sub>3</sub> Bismuth(III) telluride  
(c) C: eah  
**22-16-14**

Bi<sub>2</sub>Te<sub>3</sub>·Bi<sub>2</sub>S<sub>3</sub> Bismuth(III) telluride—Bismuth(III) sulfide  
(c) C: eah

**22-21**

Bi-Sb Bismuth-Antimony  
(c) F: fcf  
(liq) F: fcf(x) fcg(x)  
BiSb Bismuth antimonide  
(g) E-XIII: fae(t) fai(t) fal(t)

**23 – Carbon – C**

**23**

C Carbon  
(c, graphite) A: fac(-t, +t) fae(-t, +t)  
faq(-t, +t) fai(-t, +t) fao  
C: eai fac fae fbn fbo  
D: eai fac(t, +t) fae(t, +t) faf(t, +t)  
fai(t, +t)  
E-XI: fac fae(-t)  
E-XIII: fae(t, +t) fai(t, +t) fal(t, +t)  
(c, diamond) C: faa fab fac fad fae  
E-XI: fac fae(-t)  
E-XIII: fae(t) fai(t) fal(t)  
(c) E-III: eai eal(t, +t) fbn(t, +t)  
fbn(t, +t) fbo

	(g) A:	faa(t,+t)	fab(t,+t)	fac(t,+t)	
		fad(t,+t)	fae(t,+t)	faf(t,+t)	
		faq(t,+t)	fai(t,+t)		
	C:	faa	fab	fac	fad
	D:	faa(t,+t)	fab(t,+t)	fac(t,+t)	fae
		fad(t,+t)	fae(t,+t)	faf(t,+t)	
		fai(t,+t)			
	E-III:	fac			
	E-XI:	fac			
	E-XIII:	fae	fai(t,+t)	fal(t,+t)	
C <sup>+</sup>					
C <sup>+</sup>	(g) C:	fab			
C <sup>+</sup>					
C <sup>+</sup>	(g) C:	fab			
C <sup>+</sup>					
C <sup>+</sup>	(g) C:	fab			
C <sup>+</sup>					
C <sup>+</sup>	(g) C:	fab			
C <sub>2</sub>	Dicarbon				
	(g) C:	fab			
	D:	faa(t,+t)	fab(t,+t)	fac(t,+t)	
		fad(t,+t)	fae(t,+t)	faf(t,+t)	
		fai(t,+t)			
	E-III:	fac			
	E-XI:	fac			
	E-XIII:	fae(t,+t)	fai(t,+t)	fal(t,+t)	
C <sub>3</sub>	Tricarbon				
	(g) D:	faa(t,+t)	fab(t,+t)	fac(t,+t)	
		fad(t,+t)	fae(t,+t)	faf(t,+t)	
		fai(t,+t)			
	E-XIII:	fae(t,+t)	fai(t,+t)	fal(t,+t)	
	<b>23-1</b>				
	Carbon monoxide				
(c, II)	C:	eaj	fbf	fbg	fbd
	E-III:	eaj	eal(-t)	fbm(-t)	fbn(-t)
	E-XI:	eaj	fbf		
(c, I)	C:	eah	fbf	fbg	fbh
	E-III:	eah	eal(-t)	fbm(-t)	fbn(-t)
(c)	E-V:	eah	fbf	fbg	
	E-XI:	eah	fae(-t)	fbf	
(liq)	C:	eaq	fbj	fbk	
	E-III:	eaq	eal(-t)	fbi(-t)	fbj(-t)
	E-XI:	eaq	fbj		
(g)	A:	faa(-t,+t)	fab(-t,+t)	fac(-t,+t)	
		fad(-t,+t)	fae(-t,+t)	faf(-t,+t)	
		faq(-t,+t)	fai(-t,+t)	fao	
	C:	faa	fab	fac	fad
	E-IV:	faa(t)	fab(t)		
	E-XI:	fac	fae(-t)		
	E-XII:	faa(t)	fab(t)		
	E-XIII:	fae(t,+t)	fai(t,+t)	fal(t,+t)	
C <sup>+</sup>					
	(g) C:	fab			
CO <sub>2</sub>	Carbon dioxide				
(c)	C:	eah	eai	fbf	fbg
	E-III:	eai	eal(-t)	fbm(-t)	fbn(-t)

	E-V:	eah	fbf	fbg	
	E-XI:	eai	fae(-t)	fbn	
(g) A:	faa(-t,+t)	fab(-t,+t)	fac(-t,+t)		
	fad(-t,+t)	fae(-t,+t)	faf(-t,+t)		
	faq(-t,+t)	fai(-t,+t)			
C:	faa	fab	fac	fad	fae
E-IV:	faa(t)	fab(t)	fac	fad	fam
E-XI:	fac	fae(-t)			
E-XII:	faa(t)	fab(t)			
E-XIII:	fae(t,+t)	fai(t,+t)	fal(t,+t)		
(aq) C:	faa	fab	fac	fad	
CO <sub>2</sub> ·6H <sub>2</sub> O	Carbon dioxide hexahydrate				
(c) C:	fab				
CO <sub>2</sub> <sup>+</sup>					
(g) C:	fab				
CO <sub>3</sub> <sup>2-</sup>	Carbonate ion				
(aq) C:	faa	fab	fac	fad	
	E-IV:	faa			
	E-XI:	fac			
C <sub>2</sub> O <sub>4</sub> <sup>2-</sup>	Oxalate ion				
(aq) C:	faa	fab	fac	fad	
	E-XI:	fac			
C <sub>3</sub> O <sub>2</sub>	Tricarbon dioxide				
(g) E-XI:	fac				
	E-XIII:	fae(t)	fai(t)	fal(t)	
	<b>23-2</b>				
	Carbon monohydride				
(g) C:	fab				
CH <sub>3</sub>	Methyl				
(g) C:	fab				
CH <sub>4</sub>	Methane				
(c, II)	A:	eaj	fbf	fbg	
(c, I)	A:	eaq	eah	eai	eal(-t)
(c)	C:	eah	fbf	fbg	fbh
	E-III:	eah	eal(-t)	fbm(-t)	fbn(-t)
	E-XI:	eah	fae(-t)	fbf	
(liq)	A:	eab(-t)	eaq	eaf(-t)	eaq
		fbj	fbk	eal(-t)	eam(-t)
	C:	eaq	fbj	fbk	
	E-III:	eaq	eal(-t)	fbi(-t)	fbj(-t)
	E-XI:	eaq	fbj		
(g) A:	eba(p,-t)	ebb(p,-t)	ebc	ebd	
	ebe	ebf	ebg	faa(t)	fab(t)
	fad(t)	fae(t)	faf(t)	fafa(p,-t)	fafb(p,-t)
	faq(t)	faga(p,-t)	fai(t)	fai(a(p,-t))	
	fak(p,-t)	fao			
	C:	faa	fab	fac	fad
	E-VIII:	faa(t)	fab(t)		
	E-XI:	fac	fae(-t)		
	E-XIII:	fae(t)	fai(t)	fal(t)	
CH <sub>4</sub> ·6H <sub>2</sub> O	Methane hexahydrate				
(c) C:	fab				
C <sub>2</sub> H <sub>2</sub>	Acetylene (Ethyne)				
(c) A:	eah	eai	eal(-t)		
	C:	eah	eai	fbf	fbg
(liq) A:	eaq	eaq	eal(-t)		
	C:	eaq	fbj	fbk	

(g) A: ebc ebd ebe ebf ebq faa(t)  
fab(t) fac(t) fad(t) fae(t) faf(t) faq(t)  
fal(t) fao  
C: faa fab fac fad fae  
E-XIII: fae(t) fal(t) fal(t)  
(aq) C: fab

C<sub>2</sub>H<sub>2</sub>·6H<sub>2</sub>O Acetylene hexahydrate (Ethyne hexahydrate)  
(c) C: fab

C<sub>2</sub>H<sub>4</sub> Ethylene (Ethene)  
(c) A: eaa eah fbf fbq  
C: eah fbf fbq  
(liq) A: eab(-t)eac eaf(-t) eag eal(-t) ean(-t)  
fbj fbk  
C: eag fbj fbk  
(g) A: ebc ebd ebe ebf ebq faa(t)  
fab(t) fac(t) fad(t) fae(t) faf(t) faq(t)  
fal(t) fao  
C: faa fab fac fad fae

C<sub>2</sub>H<sub>4</sub>·6H<sub>2</sub>O Ethylene hexahydrate  
(c) C: fab

C<sub>2</sub>H<sub>6</sub> Ethane  
(c) A: eaa eah fbf fbq  
C: eah fbf fbq fbh  
(liq) A: eab(-t)eac eaf(-t) eag eal(-t) ean(-t)  
fab fao fbj fbk  
C: eag fbj fbk fbl  
(g) A: eba(p,-t,t) ebb(p,-t,t) ebc ebd  
ebe ebf ebq faa(t) fab(t) fac(t)  
fad(t) fae(t) faf(t) fafa(p,-t,t) fafb(p,-t,t)  
faq(t) faqa(p,-t,t) fal(t) faia(p,-t,t)  
fak(p,-t,t) fao  
C: faa fab fac fad fae

C<sub>3</sub>H<sub>4</sub> Allene (Propadiene)  
(c) A: eah  
(liq) A: eac eag eal(-t)  
(g) A: ebf faa(t) fab(t) fac(t) fad(t) fae(t)  
faf(t) faq(t) fal(t) fao  
Propyne (Methylacetylene)  
(c) A: eah  
(liq) A: eac eag eal(-t)  
(g) A: ebf faa(t) fab(t) fac(t) fad(t) fae(t)  
faf(t) faq(t) fal(t) fao

C<sub>3</sub>H<sub>6</sub> Cyclopropane  
(c) A: eah  
(liq) A: eac eag  
Propene (Propylene)  
(c) A: eaa eah fbf fbq  
(liq) A: eab(-t,t) eac eaf(-t) eag eal(-t)  
ean(-t)eao fbj fbk  
(g) A: ebc ebd ebe ebf ebq faa(t)  
fab(t) fac(t) fad(t) fae(t) faf(t) faq(t)  
fal(t) fao

C<sub>3</sub>H<sub>8</sub> Propane  
(c) A: eaa eah fbf fbq  
(liq) A: eab(-t,t) eac eaf(-t) eag eal(-t)  
ean(-t)eao fab fao fbj fbk  
(g) A: eba(p,-t,t) ebb(p,-t,t) ebc ebd  
ebe ebf ebq faa(t) fab(t) fac(t)  
fad(t) fae(t) faf(t) fafa(p,-t,t) fafb(p,-t,t)  
faq(t) faqa(p,-t,t) fal(t) faia(p,-t,t)  
fak(p,-t,t) fao

C<sub>4</sub>H<sub>6</sub> 1,2-Butadiene  
(c) A: eah  
(liq) A: eab eac eag eal(-t,t) eao  
(g) A: faa(t) fab(t) fac(t) fad(t) fae(t) faf(t)  
faq(t) fal(t) fao

1,3-Butadiene  
(c) A: eah  
(liq) A: eab eac eag eal(-t,t) eao  
fab fao  
(g) A: ebc ebd ebe ebf ebq faa(t)  
fab(t) fac(t) fad(t) fae(t) faf(t) faq(t)  
fal(t) fao

1-Butyne (Ethylacetylene)  
(c) A: eah  
(liq) A: eab eac eag eal(-t,t) eao  
(g) A: ebf faa(t) fab(t) fac(t) fad(t) fae(t)  
faf(t) faq(t) fal(t) fao

2-Butyne (Dimethylacetylene)  
(c) A: eah eai eal(-t)  
(liq) A: eab eac ead eag eal(-t,t)  
eao  
(g) A: ebf faa(t) fab(t) fac(t) fad(t) fae(t)  
faf(t) faq(t) fal(t) fao

C<sub>4</sub>H<sub>8</sub> 1-Butene  
(c) A: eaa eah fbf fbq  
(liq) A: eab(-t,t) eac eaf(-t,t) eag  
eal(-t,t) ean(-t)eao fbj fbk  
(g) A: ebc ebd ebe ebf ebq faa(t)  
fab(t) fac(t) fad(t) fae(t) faf(t) faq(t)  
fal(t) fao

cis-2-Butene  
(c) A: eaa eah fbf fbq  
(liq) A: eab eac eaf(-t,t) eag eal(-t,t)  
eao fbj fbk  
(g) A: ebc ebd ebe ebf ebq faa(t)  
fab(t) fac(t) fad(t) fae(t) faf(t) faq(t)  
fal(t) fao

trans-2-Butene  
(c) A: eaa eah fbf fbq  
(liq) A: eab eac eaf(-t,t) eag eal(-t,t)  
eao fbj fbk  
(g) A: ebc ebd ebe ebf ebq faa(t)  
fab(t) fac(t) fad(t) fae(t) faf(t) faq(t)  
fal(t) fao

Cyclobutane  
(c) A: eah  
(liq) A: eab eac ead eag eao

Cyclopropane, methyl-  
(c) A: eah  
(liq) A: eac eag  
Propene, 2-methyl- (Isobutene)  
(c) A: eaa eah fbf fbq  
(liq) A: eab eac eaf(-t,t) eag eal(-t,t)  
eao fbj fbk  
(g) A: ebc ebd ebe ebf ebq faa(t)  
fab(t) fac(t) fad(t) fae(t) faf(t) faq(t)  
fal(t) fao

C<sub>4</sub>H<sub>10</sub> n-Butane  
(c, II) A: eaj fbb fbc  
(c, I) A: eaa eah fbf fbq  
(liq) A: eab(-t,t) eac ead eaf(t) eag  
eal(-t,t) ean(-t)eao fab fao  
fbj fbk

(g) A: eba(p,t) ebb(p,t) ebc ebd  
ebe ebf ebg faa(t) fab(t) fac(t)  
fad(t) fae(t) fai(t) fafa(p,t) fafb(p,t)  
faq(t) faga(p,t) fai(t) faia(p,t)  
fak(p,t) fao

Propane, 2-Methyl- (Isobutane)  
(c) A: eaa eah fbf fbg  
(liq) A: eab(-t,t) eac eaf(-t) eag eal(-t,t)  
ean(-t)eao fab fao fbj fbk  
(g) A: eba(p,-t,t) ebb(p,-t,t) ebc ebd  
ebe ebf ebg faa(t) fab(t) fac(t)  
fad(t) fae(t) fai(t) fafa(p,-t,t) fafb(p,-t,t)  
faq(t) faga(p,-t,t) fai(t) faia(p,-t,t)  
fak(p,-t,t) fao

C<sub>5</sub>H<sub>8</sub> 1,2-Butadiene, 3-methyl-  
(c) A: eah  
(liq) A: eab eac ead eae eag eal(-t,t)  
eao  
(g) A: faa(t) fab(t) fac(t) fad(t) fae(t) fai(t)  
faq(t) fai(t) fao

1,3-Butadiene, 2-methyl- (Isoprene)  
(c) A: eah  
(liq) A: eab eac ead eae eag eal(-t,t)  
eao fab fao  
(g) A: faa(t) fab(t) fac(t) fad(t) fae(t) fai(t)  
faq(t) fai(t) fao

1-Butyne, 3-methyl-  
(c) A: eah  
(liq) A: eab eac ead eag eal(-t,t)  
eao  
(g) A: faa(t) fab(t) fac(t) fad(t) fae(t) fai(t)  
faq(t) fai(t) fao

Cyclopentene  
(c) A: eah  
(liq) A: eab eac ead eae eag eao  
fab fac fao  
(g) A: faa(t) fab(t) fac(t) fad(t) fae(t) fai(t)  
faq(t) fai(t) fao

1,2-Pentadiene  
(c) A: eah  
(liq) A: eab eac ead eae eag eal(-t,t)  
eao  
(g) A: faa(t) fab(t) fac(t) fad(t) fae(t) fai(t)  
faq(t) fai(t) fao

1-cis-3-Pentadiene  
(c) A: eah  
(liq) A: eab eac ead eae eag eal(-t,t)  
eao  
(g) A: faa(t) fab(t) fac(t) fad(t) fae(t) fai(t)  
faq(t) fai(t) fao

1-trans-3-Pentadiene  
(c) A: eah  
(liq) A: eab eac ead eae eag eal(-t,t)  
eao  
(g) A: faa(t) fab(t) fac(t) fad(t) fae(t) fai(t)  
faq(t) fai(t) fao

1,4-Pentadiene  
(c) A: eah  
(liq) A: eab eac ead eae eag eal(-t,t)  
eao

(g) A: faa(t) fab(t) fac(t) fad(t) fae(t) fai(t)  
faq(t) fai(t) fao

2,3-Pentadiene  
(c) A: eah  
(liq) A: eab eac ead eae eag eal(-t,t)  
eao  
(g) A: faa(t) fab(t) fac(t) fad(t) fae(t) fai(t)  
faq(t) fai(t) fao

1-Pentyne  
(c) A: eah  
(liq) A: eab eac ead eae eag eal(-t,t)  
eao  
(g) A: ebf faa(t) fab(t) fac(t) fad(t) fae(t)  
fai(t) fai(t) fao

2-Pentyne  
(c) A: eah  
(liq) A: eab eac ead eag eal(-t,t)  
eao  
(g) A: ebf faa(t) fab(t) fac(t) fad(t) fae(t)  
fai(t) fai(t) fao

C<sub>5</sub>H<sub>10</sub> 1-Butene, 2-methyl-  
(c) A: eaa eah fbf fbg  
(liq) A: eab eac ead eae eaf(t) eag  
eal(-t,t) eao fbi fbj fbk  
(g) A: faa(t) fab(t) fac(t) fad(t) fae(t) fai(t)  
faq(t) fai(t) fao

1-Butene, 3-methyl-  
(c) A: eaa eah fbf fbg  
(liq) A: eab eac ead eae eaf(t) eag  
eal(-t,t) eao fbi fbj fbk  
(g) A: faa(t) fab(t) fac(t) fad(t) fae(t) fai(t)  
faq(t) fai(t) fao

2-Butene, 2-methyl-  
(c) A: eaa eah fbf fbg  
(liq) A: eab eac ead eae eaf(t) eag  
eal(-t,t) eao fbi fbj fbk  
(g) A: faa(t) fab(t) fac(t) fad(t) fae(t) fai(t)  
faq(t) fai(t) fao

Cyclobutane, methyl-  
(liq) A: eab eac ead eag eao

Cyclopentane  
(c, III) A: eaj fbb fbc  
(c, II) A: eaj fbb fbc  
(c, I) A: eaa eah fbf fbg  
(liq) A: eab(-t,t) eac ead eae eaf(t)  
eag eal(-t,t) ean(-t,t) eao  
faa fab fac fao fbi fbj  
fbk  
(g) A: ebc ebd ebe ebf ebg faa(t)  
fab(t) fac(t) fad(t) fae(t) fai(t) fao

Cyclopropane, ethyl-  
(c) A: eah  
(liq) A: eab eac ead eag eao

Cyclopropane, 1,1-dimethyl-  
(c) A: eah  
(liq) A: eab eac ead eag eao

Cyclopropane, 1,cis-2-dimethyl-  
(c) A: eah  
(liq) A: eab eac ead eae eag eao



Cyclopropane, 1,trans-2-dimethyl-  
(c) A: eah  
(liq) A: eab eac ead eae eaq eao

1-Pentene  
(c) A: eaa eah fbf fbq  
(liq) A: eab(-t,t) eac ead eae eaf(t)  
eag eal(-t,t) ean(-t,t) eao fbi  
fbj fbk  
(g) A: ebe ebf faa(t) fab(t) fac(t) fad(t)  
fae(t) faf(t) faq(t) fai(t) fao

cis-2-Pentene  
(c) A: eaa eah fbf fbq  
(liq) A: eab eac ead eae eaf(t) eaq  
eal(-t,t) eao fbi fbj fbk  
(g) A: faa(t) fab(t) fac(t) fad(t) fae(t) faf(t)  
faq(t) fai(t) fao

trans-2-Pentene  
(c) A: eaa eah fbf fbq  
(liq) A: eab eac ead eae eaf(t) eaq  
eal(-t,t) eao fbi fbj fbk  
(g) A: faa(t) fab(t) fac(t) fad(t) fae(t) faf(t)  
faq(t) fai(t) fao

C<sub>5</sub>H<sub>12</sub> Butane, 2-methyl- (Isopentane)  
(c) A: eaa eah fbf fbq  
(liq) A: eab(-t,t) eac ead eae eaf(-t,t)  
eag eal(-t,t) ean(-t,t) eao  
faa fab fac fao fbi fbj  
fbk  
(g) A: ebc ebd ebe ebf ebg faa(t)  
fab(t) fac(t) fad(t) fae(t) faf(t) faq(t)  
fai(t) fao

n-Pentane  
(c) A: eaa eah fbf fbq  
(liq) A: eab(-t,t) eac ead eae eaf(-t,t)  
eag eal(-t,t) ean(-t,t) eao  
faa fab fac fao fbi fbj  
fbk  
(g) A: eba(p,t) ebb(p,t) ebc ebd  
ebe ebf ebg faa(t) fab(t) fac(t)  
fad(t) fae(t) faf(t) fafa(p,t) fafb(p,t)  
faq(t) faqa(p,t) fai(t) faia(p,t)  
fak(p,t) fao

Propane, 2,2-dimethyl- (Neopentane)  
(c, II) A: eaj fbb fbc  
(c, I) A: eaa eah fbf fbq  
(liq) A: eab(-t,t) eac ead eae eaq  
eal(-t,t) ean(-t,t) eao fab  
fao fbj fbk  
(g) A: ebc ebd ebe ebf ebg faa(t)  
fab(t) fac(t) fad(t) fae(t) faf(t) faq(t)  
fai(t) fao

C<sub>6</sub>H<sub>6</sub> Benzene  
(c) A: eaa eah eai eal(-t,t) fbf  
fbq  
(liq) A: eab(t) eac ead eae eaf(t) eaq  
eal(t) ean(t) eao faa fab fac  
fao fbi fbj fbk  
(g) A: ebc ebd ebe ebf ebg faa(t)  
fab(t) fac(t) fad(t) fae(t) faf(t) faq(t)  
fai(t) fao

C<sub>6</sub>H<sub>10</sub> 1,3-Butadiene, 2-ethyl-  
(liq) A: eab eac ead eae eaq eao

1,3-Butadiene, 2,3-dimethyl-  
(c) A: eah  
(liq) A: eab eac ead eae eaq eao

1-Butyne, 3,3-dimethyl-  
(c) A: eah  
(liq) A: eab eac ead eae eaq eao

Cyclohexene  
(c) A: eah  
(liq) A: eab eac ead eae eaq eao  
fao  
(g) A: faa(t) fab(t) fac(t) fad(t) fae(t) faf(t)  
faq(t) fai(t) fao

Cyclopentene, 1-methyl-  
(c) A: eah  
(liq) A: eab eac ead eae eaq eao  
fao  
(g) A: fac(t) fae(t) faf(t) faq(t) fai(t) fao

Cyclopentene, 3-methyl-  
(liq) A: eab eac ead eae eaq eao  
fao  
(g) A: fac(t) fae(t) faf(t) faq(t) fai(t)

Cyclopentene, 4-methyl-  
(c) A: eah  
(liq) A: eab eac ead eaq eao fao  
(g) A: fac(t) fae(t) faf(t) faq(t) fai(t)

1,2-Hexadiene  
(liq) A: eab eac ead eaq eao

1-cis-3-Hexadiene  
(liq) A: eab eac ead eae eaq eao

1-trans-3-Hexadiene  
(liq) A: eab eac ead eae eaq eao

1-cis-4-Hexadiene  
(liq) A: eab eac ead eaq eao

1-trans-4-Hexadiene  
(liq) A: eab eac ead eaq eao

1,5-Hexadiene  
(c) A: eah  
(liq) A: eab eac ead eaq eao

2,3-Hexadiene  
(liq) A: eab eac ead eaq eao

cis-2-cis-4-Hexadiene  
(liq) A: eab eac ead eae eaq eao

cis-2-trans-4-Hexadiene  
(liq) A: eab eac ead eae eaq eao

trans-2-trans-4-Hexadiene  
(liq) A: eab eac ead eae eaq eao

1-Hexyne  
(c) A: eah  
(liq) A: eab eac ead eae eaq eao  
(g) A: faa(t) fab(t) fac(t) fad(t) fae(t) faf(t)  
faq(t) fai(t) fao

2-Hexyne  
(c) A: eah  
(liq) A: eab eac ead eae eaq eao

3-Hexyne  
(c) A: eah  
(liq) A: eab eac ead eae eaq eao

1,2-Pentadiene, 3-methyl-  
(liq) A: eab eac ead eaq eao

1,2-Pentadiene, 4-methyl-  
(liq) A: eab eac ead eag eao  
1-cis-3-Pentadiene, 2-methyl-  
(liq) A: eab eac ead eae eag eao  
1-trans-3-Pentadiene, 2-methyl-  
(liq) A: eab eac ead eae eag eao  
1-cis-3-Pentadiene, 3-methyl-  
(liq) A: eab eac ead eae eag eao  
1-trans-3-Pentadiene, 3-methyl-  
(liq) A: eab eac ead eae eag eao  
1,3-Pentadiene, 4-methyl-  
(liq) A: eab eac ead eae eag eao  
1,4-Pentadiene, 2-methyl-  
(liq) A: eab eac ead eag eao  
1,4-Pentadiene, 3-methyl-  
(liq) A: eab eac ead eag eao  
2,3-Pentadiene, 2-methyl-  
(liq) A: eab eac ead eag eao  
1-Pentyne, 3-methyl-  
(liq) A: eab eac ead eag eao  
1-Pentyne, 4-methyl-  
(c) A: eah  
(liq) A: eab eac ead eae eag eao  
2-Pentyne, 4-methyl-  
(c) A: eah  
(liq) A: eab eac ead eag eao  
C<sub>6</sub>H<sub>12</sub> 1-Butene, 2-ethyl-  
(c) A: eaa eah fbf fbq  
(liq) A: eab eac ead eae eag eal(-t,t)  
eao fbj fbk  
(g) A: faa(t) fab(t) fac(t) fad(t) fae(t) faf(t)  
faq(t) fai(t) fao  
1-Butene, 2,3-dimethyl-  
(c) A: eaa eah fbf fbq  
(liq) A: eab eac ead eae eag eal(-t,t)  
eao fbj fbk  
(g) A: faa(t) fab(t) fac(t) fad(t) fae(t) faf(t)  
faq(t) fai(t) fao  
1-Butene, 3,3-dimethyl-  
(c, II) A: eaj fbb fbc  
(c, I) A: eaa eah fbf fbq  
(liq) A: eab eac ead eae eag eal(-t,t)  
eao fbj fbk  
(g) A: faa(t) fab(t) fac(t) fad(t) fae(t) faf(t)  
faq(t) fai(t) fao  
2-Butene, 2,3-dimethyl-  
(c, II) A: eaj fbb fbc  
(c, I) A: eaa eah fbf fbq  
(liq) A: eab eac ead eae eag eal(-t,t)  
eao fbj fbk  
(g) A: faa(t) fab(t) fac(t) fad(t) fae(t) faf(t)  
faq(t) fai(t) fao  
Cyclobutane, ethyl-  
(c) A: eah  
(liq) A: eab eac ead eae eag eao  
Cyclobutane, 1,1-dimethyl-  
(liq) A: eab eac ead eag eao  
Cyclobutane, 1,cis-2-dimethyl-  
(liq) A: eab eac ead eag eao  
Cyclobutane, 1,trans-2-dimethyl-  
(liq) A: eab eac ead eag eao

Cyclobutane, 1,cis-3-dimethyl-  
(liq) A: eab eac ead eag eao  
Cyclobutane, 1,trans-3-dimethyl-  
(liq) A: eab eac ead eag eao  
Cyclohexane  
(c, II) A: eaj fbb fbc  
(c, I) A: eaa eah fbf fbq  
(liq) A: eab(t) eac ead eae eaf(t)  
eag eal(t) ean(t) eao faa fab  
fac fao fbi fbj fbk  
(g) A: faa(t) fab(t) fac(t) fad(t) fae(t) faf(t)  
faq(t) fai(t) fao  
Cyclopentane, methyl-  
(c) A: eaa eah fbf fbq  
(liq) A: eab(-t,t) eac ead eae eaf(t)  
eag eal(-t,t) ean(-t,t) eao  
faa fab fac fao fbi fbj  
fbk  
(g) A: ebc ebd ebe ebf ebq faa(t)  
fab(t) fac(t) fad(t) fae(t) faf(t) faq(t)  
fai(t) fao  
Cyclopropane, 1-methyl-1-ethyl-  
(c) A: eah  
(liq) A: eab eac ead eag eao  
Cyclopropane, 1-methyl-cis-2-ethyl-  
(liq) A: eab eac ead eag eao  
Cyclopropane, 1-methyl-trans-2-ethyl-  
(liq) A: eab eac ead eag eao  
Cyclopropane, 1,1,2-trimethyl-  
(c) A: eah  
(liq) A: eab eac ead eae eag eao  
Cyclopropane, 1,cis-2,cis-3-trimethyl-  
(liq) A: eab eac ead eag eao  
Cyclopropane, 1,cis-2,trans-3-trimethyl-  
(liq) A: eab eac ead eag eao  
Cyclopropane, isopropyl-  
(c) A: eah  
(liq) A: eab eac ead eag eao  
Cyclopropane, n-propyl-  
(liq) A: eab eac ead eag eao  
1-Hexene  
(c) A: eaa eah fbf fbq  
(liq) A: eab(-t,t) eac ead eae eaf(t)  
eag eal(-t,t) ean(-t,t) eao  
fbj fbk  
(g) A: faa(t) fab(t) fac(t) fad(t) fae(t) faf(t)  
faq(t) fai(t) fao  
cis-2-Hexene  
(c) A: eaa eah fbf fbq  
(liq) A: eab eac ead eae eag eal(-t,t)  
eao fbj fbk  
(g) A: faa(t) fab(t) fac(t) fad(t) fae(t) faf(t)  
faq(t) fai(t) fao  
trans-2-Hexene  
(c) A: eaa eah fbf fbq  
(liq) A: eab eac ead eae eag eal(-t,t)  
eao fbj fbk  
(g) A: faa(t) fab(t) fac(t) fad(t) fae(t) faf(t)  
faq(t) fai(t) fao  
cis-3-Hexene  
(c) A: eaa eah fbf fbq

(liq) A: eab eac ead eae eaq eal(-t,t)  
eao fbj fbk  
(g) A: faa(t) fab(t) fac(t) fad(t) fae(t) faf(t)  
faq(t) fai(t) fao

trans-3-Hexene  
(c) A: eaa eah fbf fbq  
(liq) A: eab eac ead eae eaq eal(-t,t)  
eao fbj fbk  
(g) A: faa(t) fab(t) fac(t) fad(t) fae(t) faf(t)  
faq(t) fai(t) fao

1-Pentene, 2-methyl-  
(c) A: eaa eah fbf fbq  
(liq) A: eab eac ead eae eaq eal(-t,t)  
eao fbj fbk  
(g) A: faa(t) fab(t) fac(t) fad(t) fae(t) faf(t)  
faq(t) fai(t) fao

1-Pentene, 3-methyl-  
(c) A: eaa eah fbf fbq  
(liq) A: eab eac ead eae eaq eal(-t,t)  
eao fbj fbk  
(g) A: faa(t) fab(t) fac(t) fad(t) fae(t) faf(t)  
faq(t) fai(t) fao

1-Pentene, 4-methyl-  
(c, II) A: eaj  
(c, I) A: eaa eah fbf fbq  
(liq) A: eab eac ead eae eaq eal(-t,t)  
eao fbj fbk  
(g) A: faa(t) fab(t) fac(t) fad(t) fae(t) faf(t)  
faq(t) fai(t) fao

2-Pentene, 2-methyl-  
(c) A: eaa eah fbf fbq  
(liq) A: eab eac ead eae eaq eal(-t,t)  
eao fbj fbk  
(g) A: faa(t) fab(t) fac(t) fad(t) fae(t) faf(t)  
faq(t) fai(t) fao

cis-2-Pentene, 3-methyl-  
(c) A: eaa eah fbf fbq  
(liq) A: eab eac ead eae eaq eal(-t,t)  
eao fbj fbk  
(g) A: faa(t) fab(t) fac(t) fad(t) fae(t) faf(t)  
faq(t) fai(t) fao

trans-2-Pentene, 3-methyl-  
(c) A: eaa eah fbf fbq  
(liq) A: eab eac ead eae eaq eal(-t,t)  
eao fbj fbk  
(g) A: faa(t) fab(t) fac(t) fad(t) fae(t) faf(t)  
faq(t) fai(t) fao

cis-2-Pentene, 4-methyl-  
(c) A: eaa eah fbf fbq  
(liq) A: eab eac ead eae eaq eal(-t,t)  
eao fbj fbk  
(g) A: faa(t) fab(t) fac(t) fad(t) fae(t) faf(t)  
faq(t) fai(t) fao

trans-2-Pentene, 4-methyl-  
(c) A: eaa eah fbf fbq  
(liq) A: eab eac ead eae eaq eal(-t,t)  
eao fbj fbk  
(g) A: faa(t) fab(t) fac(t) fad(t) fae(t) faf(t)  
faq(t) fai(t) fao

C<sub>6</sub>H<sub>14</sub> Butane, 2,2-dimethyl-  
(c, III) A: eaj fbb fbc  
(c, II) A: eaj fbb fbc  
(c, I) A: eaa eah fbf fbq  
(liq) A: eab(t) eac ead eae eaf(t) eaq  
eal(-t,t) eao faa fab fac  
fao fbi fbj fbk  
(g) A: ebc ebd ebe ebf ebq faa(t)  
fab(t) fac(t) fad(t) fae(t) faf(t) faq(t)  
fai(t) fao

Butane, 2,3-dimethyl-  
(c, II) A: eaj fbb fbc  
(c, I) A: eaa eah fbf fbq  
(liq) A: eab(t) eac ead eae eaf(t) eaq  
eal(-t,t) eao faa fab fac  
fao fbi fbj fbk  
(g) A: ebc ebd ebe ebf ebq faa(t)  
fab(t) fac(t) fad(t) fae(t) faf(t) faq(t)  
fai(t) fao

n-Hexane  
(c) A: eaa eah fbf fbq  
(liq) A: eab(-t,t) eac ead eae eaf(-t,t)  
eag eal(-t,t) eam(-t,t) eao  
faa fab fac fao fbi fbj  
fbk  
(g) A: ebc ebd ebe ebf ebq faa(t)  
fab(t) fac(t) fad(t) fae(t) faf(t) faq(t)  
fai(t) fao

Pentane, 2-methyl-  
(c) A: eaa eah fbf fbq  
(liq) A: eab(t) eac ead eae eaf(t) eaq  
eal(-t,t) eao faa fab fac  
fao fbi fbj fbk  
(g) A: ebc ebd ebe ebf ebq faa(t)  
fab(t) fac(t) fad(t) fae(t) faf(t) faq(t)  
fai(t) fao

Pentane, 3-methyl-  
(liq) A: eab(t) eac ead eae eaf(t) eaq  
eal(-t,t) eao faa fab fac  
fao fbi fbj fbk  
(g) A: ebc ebd ebe ebf ebq faa(t)  
fab(t) fac(t) fad(t) fae(t) faf(t) faq(t)  
fai(t) fao

C<sub>7</sub>H<sub>8</sub> Benzene, methyl- (Toluene)  
(c) A: eaa eah fbf fbq  
(liq) A: eab(-t,t) eac ead eae eaf(t)  
eag eal(t) eam(-t,t) eao faa  
fab fac fao fbi fbj fbk  
(g) A: ebc ebd ebe ebf ebq faa(t)  
fab(t) fac(t) fad(t) fae(t) faf(t) faq(t)  
fai(t) fao

C<sub>7</sub>H<sub>12</sub> Cyclohexene, 1-methyl-  
(c) A: eah  
(liq) A: eab eac ead eae eaq eao  
fao  
(g) A: fao  
Cyclohexene, 3-methyl-  
(liq) A: eab eac ead eaq eao  
Cyclohexene, 4-methyl-  
(c) A: eah

Cyclopentene, 1-ethyl-  
(c) A: eah  
(liq) A: eab eac ead eae eag eao  
fao  
(g) A: fao  
Cyclopentene, 3-ethyl-  
(liq) A: eab eac ead eag eao fao  
Cyclopentene, 4-ethyl-  
(liq) A: eab eac ead eag eao fao  
Cyclopentene, 1,2-dimethyl-  
(c) A: eah  
(liq) A: eab eac ead eae eag eao  
(g) A: fac(t) fae(t) faf(t) faq(t) fai(t)  
Cyclopentene, 1,3-dimethyl-  
(liq) A: eab eac ead eag eao  
(g) A: fac(t) fae(t) faf(t) faq(t) fai(t)  
Cyclopentene, 1,4-dimethyl-  
(liq) A: eab eac ead eag eao  
(g) A: fac(t) fae(t) faf(t) faq(t) fai(t)  
Cyclopentene, 1,5-dimethyl-  
(c) A: eah  
(liq) A: eab eac ead eae eag eao  
(g) A: fac(t) fae(t) faf(t) faq(t) fai(t)  
Cyclopentene, 3,3-dimethyl-  
(liq) A: eab eac ead eag eao  
(g) A: fac(t) fae(t) faf(t) faq(t) fai(t)  
Cyclopentene, 3,cis-4-dimethyl-  
(liq) A: eab ead eao  
(g) A: fac(t) fae(t) faf(t) faq(t) fai(t)  
Cyclopentene, 3,trans-4-dimethyl-  
(g) A: fac(t) fae(t) faf(t) faq(t) fai(t)  
Cyclopentene, 3,cis-5-dimethyl-  
(g) A: fac(t) fae(t) faf(t) faq(t) fai(t)  
Cyclopentene, 3,trans-5-dimethyl-  
(g) A: fac(t) fae(t) faf(t) faq(t) fai(t)  
Cyclopentene, 4,4-dimethyl-  
(liq) A: eab eac ead eag eao  
1-Heptyne  
(c) A: eah  
(liq) A: eab eac ead eae eag eao  
(g) A: faa(t) fab(t) fac(t) fad(t) fae(t) faf(t)  
faq(t) fai(t) fao  
2-Heptyne  
(liq) A: eab eac ead eag eao  
3-Heptyne  
(c) A: eah  
(liq) A: eab eac ead eag eao  
1-Hexyne, 3-methyl-  
(liq) A: eab eac ead eag eao  
1-Hexyne, 4-methyl-  
(liq) A: eab eac ead eag eao  
1-Hexyne, 5-methyl-  
(c) A: eah  
(liq) A: eab eac ead eag eao  
2-Hexyne, 4-methyl-  
(c) A: eah  
(liq) A: eab eac ead eag eao  
2-Hexyne, 5-methyl-  
(c) A: eah  
(liq) A: eab eac ead eag eao

3-Hexyne, 2-methyl-  
(c) A: eah  
(liq) A: eab eac ead eag eao  
1-Pentyne, 3-ethyl-  
(liq) A: eab eac ead eag eao  
1-Pentyne, 3,3-dimethyl-  
(liq) A: eab eac ead eag eao  
1-Pentyne, 3,4-dimethyl-  
(liq) A: eab eac ead eag eao  
1-Pentyne, 4,4-dimethyl-  
(c) A: eah  
(liq) A: eab eac ead eag eao  
2-Pentyne, 4,4-dimethyl-  
(liq) A: eab eac ead eae eag eao  
1-Butene, 3-methyl-2-ethyl-  
(liq) A: eab eac ead eae eag eal(t)  
eao fbj fbk  
(g) A: fao  
1-Butene, 2,3,3-trimethyl-  
(c) A: eaa eah fbf fbq  
(liq) A: eab eac ead eae eag eal(t)  
eao fbj fbk  
(g) A: fao  
Cycloheptane  
(c) A: eah  
(liq) A: eab eac ead eae eag eao  
Cyclohexane, methyl-  
(c) A: eaa eah fbf fbq  
(liq) A: eab(-t,t) ead eae eaf(t) eag  
eal(-t,t) ean(-t,t) eao faa  
fab fac fao fbi fbj fbk  
(g) A: faa(t) fab(t) fac(t) fad(t) fae(t) faf(t)  
faq(t) fai(t)  
Cyclopentane, ethyl-  
(c, II) A: eaa eaj fbb fbc  
(c, I) A: eaa eah fbf fbq  
(liq) A: eab(-t,t) eac ead eae eaf(t)  
eag eal(t) ean(-t,t) eao faa  
fab fac fao fbi fbj fbk  
(g) A: ebc ebd ebe ebf ebq faa(t)  
fab(t) fac(t) fad(t) fae(t) faf(t) faq(t)  
fai(t) fao  
Cyclopentane, 1,1-dimethyl-  
(c, II) A: eaj fbb fbc  
(c, I) A: eaa eah fbf fbq  
(liq) A: eab eac ead eae eaf(t) eag  
eal(-t,t) eao faa fab fac  
fao fbi fbj fbk  
(g) A: ebc ebd ebe ebf ebq faa(t)  
fab(t) fac(t) fad(t) fae(t) faf(t) faq(t)  
fai(t) fao  
Cyclopentane, 1,cis-2-dimethyl-  
(c, II) A: eaj fbb fbc  
(c, I) A: eaa eah fbf fbq  
(liq) A: eab eac ead eae eag eal(-t,t)  
eao faa fab fac fao fbi  
fbj fbk  
(g) A: ebc ebd ebe ebf ebq faa(t)  
fab(t) fac(t) fad(t) fae(t) faf(t) faq(t)  
fai(t) fao  
Cyclopentane, 1,trans-2-dimethyl-  
(c) A: eaa eah fbf fbq

C<sub>7</sub>H<sub>14</sub>

(liq) A:	eab	eac	ead	eae	eag	eal(-t,t)					
	eao	faa	fab	fac	fao	fbi					
	fbj	fbk									
(g) A:	ebc	ebd	ebe	ebf	ebg	faa(t)					
	fab(t)	fac(t)	fad(t)	fae(t)	fai(t)	faq(t)					
	fai(t)	fao									
Cyclopentane, 1,cis-3-dimethyl-											
(c) A:	ea	eah	fbf	fbg							
(liq) A:	eab	eac	ead	eae	eag	eal(-t,t)					
	eao	faa	fab	fac	fao	fbi					
	fbj	fbk									
(g) A:	ebc	ebd	ebe	ebf	ebg	faa(t)					
	fab(t)	fac(t)	fad(t)	fae(t)	fai(t)	faq(t)					
	fai(t)	fao									
Cyclopentane, 1,trans-3-dimethyl-											
(c) A:	ea	eah	fbf	fbg							
(liq) A:	eab	eac	ead	eae	eag	eal(-t,t)					
	eao	faa	fab	fac	fao	fbi					
	fbj	fbk									
(g) A:	ebc	ebd	ebe	ebf	ebg	faa(t)					
	fab(t)	fac(t)	fad(t)	fae(t)	fai(t)	faq(t)					
	fai(t)	fao									
1-Heptene											
(c, II) A:	ea	eah	fbf	fbg							
(c, I) A:	ea	eah	fbf	fbg							
(liq) A:	eab(t)	eac	ead	eae	eaf(t)	eag					
	eal(-t,t)	eam(t)	eao	fbj	fbk						
(g) A:	faa(t)	fab(t)	fac(t)	fad(t)	fae(t)	fai(t)					
	faq(t)	fai(t)	fao								
cis-2-Heptene											
(liq) A:	eab	eac	ead	eae	eag	eal(t)					
	eao	fbj	fbk								
(g) A:	fao										
trans-2-Heptene											
(c) A:	ea	eah	fbf	fbg							
(liq) A:	eab	eac	ead	eae	eag	eal(t)					
	eao	fbj	fbk								
(g) A:	fao										
cis-3-Heptene											
(liq) A:	eab	eac	ead	eae	eag	eal(t)					
	eao	fbj	fbk								
(g) A:	fao										
trans-3-Heptene											
(c) A:	ea	eah	fbf	fbg							
(liq) A:	eab	eac	ead	eae	eag	eal(t)					
	eao	fbj	fbk								
(g) A:	fao										
1-Hexene, 2-methyl-											
(c) A:	ea	eah	fbf	fbg							
(liq) A:	eab	eac	ead	eae	eag	eal(t)					
	eao	fbj	fbk								
(g) A:	fao										
1-Hexene, 3-methyl-											
(liq) A:	eab	eac	ead	eae	eag	eal(t)					
	eao	fbj	fbk								
(g) A:	fao										
1-Hexene, 4-methyl-											
(c) A:	ea	eah	fbf	fbg							
(liq) A:	eab	eac	ead	eae	eag	eal(t)					
	eao	fbj	fbk								
(g) A:	fao										
1-Hexene, 5-methyl-											
(liq) A:	eab	eac	ead	eae	eag	eal(t)					
	eao	fbj	fbk								
(g) A:	fao										
2-Hexene, 2-methyl-											
(c) A:	ea	eah	fbf	fbg							
(liq) A:	eab	eac	ead	eae	eag	eal(t)					
	eao	fbj	fbk								
(g) A:	fao										
cis-2-Hexene, 3-methyl-											
(c) A:	ea	eah	fbf	fbg							
(liq) A:	eab	eac	ead	eae	eag	eal(t)					
	eao	fbj	fbk								
(g) A:	fao										
trans-2-Hexene, 3-methyl-											
(c) A:	eah										
(liq) A:	eab	eac	ead	eae	eag	eal(t)					
	eao	fbj	fbk								
(g) A:	fao										
cis-2-Hexene, 4-methyl-											
(liq) A:	eab	eac	ead	eae	eag	eal(t)					
	eao	fbj	fbk								
(g) A:	fao										
trans-2-Hexene, 4-methyl-											
(c) A:	ea	eah	fbf	fbg							
(liq) A:	eab	eac	ead	eae	eag	eal(t)					
	eao	fbj	fbk								
(g) A:	fao										
cis-2-Hexene, 5-methyl-											
(liq) A:	eab	eac	ead	eae	eag	eal(t)					
	eao	fbj	fbk								
(g) A:	fao										
trans-2-Hexene, 5-methyl-											
(c) A:	ea	eah	fbf	fbg							
(liq) A:	eab	eac	ead	eae	eag	eal(t)					
	eao	fbj	fbk								
(g) A:	fao										
cis-3-Hexene, 2-methyl-											
(liq) A:	eab	eac	ead	eae	eag	eal(t)					
	eao	fbj	fbk								
(g) A:	fao										
trans-3-Hexene, 2-methyl-											
(c) A:	ea	eah	fbf	fbg							
(liq) A:	eab	eac	ead	eae	eag	eal(t)					
	eao	fbj	fbk								
(g) A:	fao										
cis-3-Hexene, 3-methyl-											
(liq) A:	eab	eac	ead	eae	eag	eal(t)					
	eao	fbj	fbk								
(g) A:	fao										
trans-3-Hexene, 3-methyl-											
(liq) A:	eab	eac	ead	eae	eag	eal(t)					
	eao	fbj	fbk								
(g) A:	fao										
1-Pentene, 2-ethyl-											
(liq) A:	eab	eac	ead	eae	eag	eal(t)					
	eao	fbj	fbk								
(g) A:	fao										
1-Pentene, 3-ethyl-											
(c) A:	ea	eah	fbf	fbg							
(liq) A:	eab	eac	ead	eae	eag	eal(t)					
	eao	fbj	fbk								
(g) A:	fao										

1-Pentene, 2,3-dimethyl-  
 (c) A: eaa eah fbf fbq  
 (liq) A: eab eac ead eae eaq eal(t)  
           eao fbj fbk  
 (g) A: fao

1-Pentene, 2,4-dimethyl-  
 (c) A: eaa eah fbf fbq  
 (liq) A: eab eac ead eae eaq eal(t)  
           eao fbj fbk  
 (g) A: fao

1-Pentene, 3,3-dimethyl-  
 (c) A: eaa eah fbf fbq  
 (liq) A: eab eac ead eae eaq eal(t)  
           eao fbj fbk  
 (g) A: fao

1-Pentene, 3,4-dimethyl-  
 (liq) A: eab eac ead eae eaq eal(t)  
           eao fbj fbk  
 (g) A: fao

1-Pentene, 4,4-dimethyl-  
 (c) A: eaa eah fbf fbq  
 (liq) A: eab eac ead eae eaq eal(t)  
           eao fbj fbk  
 (g) A: fao

2-Pentene, 3-ethyl-  
 (liq) A: eab eac ead eae eaq eal(t)  
           eao fbj fbk  
 (g) A: fao

2-Pentene, 2,3-dimethyl-  
 (c) A: eaa eah fbf fbq  
 (liq) A: eab eac ead eae eaq eal(t)  
           eao fbj fbk  
 (g) A: fao

2-Pentene, 2,4-dimethyl-  
 (c) A: eaa eah fbf fbq  
 (liq) A: eab eac ead eae eaq eal(t)  
           eao fbj fbk  
 (g) A: fao

cis-2-Pentene, 3,4-dimethyl-  
 (c) A: eaa eah fbf fbq  
 (liq) A: eab eac ead eae eaq eal(t)  
           eao fbj fbk  
 (g) A: fao

trans-2-Pentene, 3,4-dimethyl-  
 (c) A: eaa eah fbf fbq  
 (liq) A: eab eac ead eae eaq eal(t)  
           eao fbj fbk  
 (g) A: fao

cis-2-Pentene, 4,4-dimethyl-  
 (c) A: eaa eah fbf fbq  
 (liq) A: eab eac ead eae eaq eal(t)  
           eao fbj fbk  
 (g) A: fao

trans-2-Pentene, 4,4-dimethyl-  
 (c) A: eaa eah fbf fbq  
 (liq) A: eab eac ead eae eaq eal(t)  
           eao fbj fbk  
 (g) A: fao

C<sub>7</sub>H<sub>16</sub> Butane, 2,2,3-trimethyl-  
 (c, II) A: eaj fbb fbc  
 (c, I) A: eaa eah fbf fbq

(liq) A: eab(t) eac ead eae eaf(t) eaq  
           eal(-t,t) eao faa fab fac  
           fao fbi fbj fbk

(g) A: ebc ebd ebe ebf ebq faa(t)  
       fab(t) fac(t) fad(t) fae(t) faf(t) faq(t)  
       fai(t) fao

n-Heptane  
 (c) A: eaa eah fbf fbq  
 (liq) A: eab(-t,t) eac ead eae eaf(-t,t)  
           eag eal(t) ean(-t,t) eao faa  
           fab fac fao fbi fbj fbk

(g) A: ebc ebd ebe ebf ebq faa(t)  
       fab(t) fac(t) fad(t) fae(t) faf(t) faq(t)  
       fai(t) fao

Hexane, 2-methyl-  
 (c) A: eaa eah fbf fbq  
 (liq) A: eab(t) eac ead eae eaf(-t,t)  
           eag eal(-t,t) eao faa fab  
           fac fao fbi fbj fbk

(g) A: ebc ebd ebe ebf ebq faa(t)  
       fab(t) fac(t) fad(t) fae(t) faf(t) faq(t)  
       fai(t) fao

Hexane, 3-methyl-  
 (liq) A: eab(t) eac ead eae eaf(-t,t)  
           eag eal(-t,t) eao faa fab  
           fac fao fbi fbj fbk

(g) A: ebc ebd ebe ebf ebq faa(t)  
       fab(t) fac(t) fad(t) fae(t) faf(t) faq(t)  
       fai(t) fao

Pentane, 3-ethyl-  
 (c) A: eaa eah fbf fbq  
 (liq) A: eab(-t,t) eac ead eae eaf(-t,t)  
           eag eal(-t,t) eao faa fab  
           fac fao fbi fbj fbk

(g) A: ebc ebd ebe ebf ebq faa(t)  
       fab(t) fac(t) fad(t) fae(t) faf(t) faq(t)  
       fai(t) fao

Pentane, 2,2-dimethyl-  
 (c) A: eaa eah fbf fbq  
 (liq) A: eab(-t,t) eac ead eae eaf(-t,t)  
           eag eal(-t,t) eao faa fab  
           fac fao fbi fbj fbk

(g) A: ebc ebd ebe ebf ebq faa(t)  
       fab(t) fac(t) fad(t) fae(t) faf(t) faq(t)  
       fai(t) fao

Pentane, 2,3-dimethyl-  
 (liq) A: eab(t) eac ead eae eaf(-t,t)  
           eag eal(-t,t) eao faa fab  
           fac fao fbi fbj fbk

(g) A: ebc ebd ebe ebf ebq faa(t)  
       fab(t) fac(t) fad(t) fae(t) faf(t) faq(t)  
       fai(t) fao

Pentane, 2,4-dimethyl-  
 (c) A: eaa eah fbf fbq  
 (liq) A: eab(t) eac ead eae eaf(-t,t)  
           eag eal(-t,t) eao faa fab  
           fac fao fbi fbj fbk

(g) A: ebc ebd ebe ebf ebq faa(t)  
       fab(t) fac(t) fad(t) fae(t) faf(t) faq(t)  
       fai(t) fao

Pentane, 3,3-dimethyl-  
(c, III) A: eaj  
(c, II) A: eaj  
(c, I) A: eaa eah fbf fbg  
(liq) A: eab(t) eac ead eae eaf(-t,t)  
eag eal(-t,t) eao faa fab  
fac fao fbi fbj fbk  
(g) A: ebe ebf faa(t) fab(t) fac(t) fad(t)  
fae(t) fai(t) faq(t) fai(t) fao

C<sub>8</sub>H<sub>8</sub> Benzene, ethenyl- (Styrene; Vinylbenzene;  
Phenylethylene)  
(c) A: eah  
(liq) A: eab eac ead eae eaq eao  
fab fao  
(g) A: faa(t) fab(t) fac(t) fad(t) fae(t) fai(t)  
faq(t) fai(t) fao

C<sub>8</sub>H<sub>10</sub> Benzene, ethyl-  
(c) A: eaa eah fbf fbg  
(liq) A: eab(-t,t) eac ead eae eaf(t)  
eag eal(t) eam(-t,t) eao faa  
fab fac fao fbi fbj fbk  
(g) A: ebc ebd ebe ebf ebq faa(t)  
fab(t) fac(t) fad(t) fae(t) fai(t) faq(t)  
fai(t) fao

Benzene, 1,2-dimethyl- (o-Xylene)  
(c) A: eaa eah fbf fbg  
(liq) A: eab(-t,t) eac ead eae eaf(t)  
eag eal(t) eam(t) eao faa fab  
fac fao fbi fbj fbk  
(g) A: ebc ebd ebe ebf ebq faa(t)  
fab(t) fac(t) fad(t) fae(t) fai(t) faq(t)  
fai(t) fao

Benzene, 1,3-dimethyl- (m-Xylene)  
(c) A: eaa eah fbf fbg  
(liq) A: eab(-t,t) eac ead eae eaf(t)  
eag eal(t) eam(t) eao faa fab  
fac fao fbi fbj fbk  
(g) A: ebc ebd ebe ebf ebq faa(t)  
fab(t) fac(t) fad(t) fae(t) fai(t) faq(t)  
fai(t) fao

Benzene, 1,4-dimethyl- (p-Xylene)  
(c) A: eaa eah fbf fbg  
(liq) A: eab(t) eac ead eae eaf(t) eaq  
eal(t) eam(t) eao faa fab fac  
fao fbi fbj fbk  
(g) A: ebc ebd ebe ebf ebq faa(t)  
fab(t) fac(t) fad(t) fae(t) fai(t) faq(t)  
fai(t) fao

C<sub>8</sub>H<sub>14</sub> Cyclohexene, 1-ethyl-  
(liq) A: eab eac ead eae eaq eao  
fao  
(g) A: fao

Cyclohexene, 3-ethyl-  
(liq) A: eab eac ead eae eaq eao

Cyclohexene, 4-ethyl-  
(liq) A: eab eac ead eae eaq eao

Cyclohexene, 1,2-dimethyl-  
(liq) A: eab eac ead eae eaq eao

Cyclohexene, 1,3-dimethyl-  
(liq) A: eab eac ead eae eaq eao

Cyclohexene, 1,4-dimethyl-  
(c) A: eah  
(liq) A: eab eac ead eae eaq eao

Cyclohexene, 1,5-dimethyl-  
(liq) A: eab eac ead eae eaq eao

Cyclohexene, 1,6-dimethyl-  
(liq) A: eab eac ead eaq eao

Cyclohexene, 3,3-dimethyl-  
(liq) A: eab eac ead eaq eao

Cyclohexene, 4,4-dimethyl-  
(c) A: eah  
(liq) A: eab eac ead eae eaq eao

Cyclopentene, 1-n-propyl-  
(liq) A: eab eac ead eaq eao fao  
(g) A: fao

Cyclopentene, 3-n-propyl-  
(liq) A: fao

Cyclopentene, 4-n-propyl-  
(liq) A: fao

1-Octyne  
(c) A: eah  
(liq) A: eab eac ead eae eaq eao  
(g) A: faa(t) fab(t) fac(t) fad(t) fae(t) fai(t)  
faq(t) fai(t) fao

2-Octyne  
(liq) A: eab eac ead eaq eao

3-Octyne  
(c) A: eah  
(liq) A: eab eac ead eaq eao

C<sub>8</sub>H<sub>16</sub> 1-Butene, 3-methyl-2-isopropyl-  
(liq) A: eab eac ead eae eaq eal(t)  
eao

1-Butene, 3,3-dimethyl-2-ethyl-  
(liq) A: eab eac ead eae eaq eal(t)  
eao

Cyclohexane, ethyl-  
(c) A: eaa eah fbf fbg  
(liq) A: eab(-t,t) eac ead eae eaf(t)  
eag eal(t) eam(-t,t) eao faa  
fab fac fao fbi fbj fbk  
(g) A: faa(t) fab(t) fac(t) fad(t) fae(t) fai(t)  
faq(t) fai(t) fao

Cyclohexane, 1,1-dimethyl-  
(c, II) A: eaj fbb fbc  
(c, I) A: eaa eah fbf fbg  
(liq) A: eab eac ead eae eaf(t) eaq  
eal(t) eao faa fab fac fao  
fbi fbj fbk  
(g) A: faa(t) fab(t) fac(t) fad(t) fae(t) fai(t)  
faq(t) fai(t) fao

Cyclohexane, 1,cis-2-dimethyl-  
(c, II) A: eaj fbb fbc  
(c, I) A: eaa eah fbf fbg  
(liq) A: eab eac ead eae eaf(t) eaq  
eal(t) eao faa fab fac fao  
fbi fbj fbk  
(g) A: faa(t) fab(t) fac(t) fad(t) fae(t) fai(t)  
faq(t) fai(t) fao

Cyclohexane, 1,trans-2-dimethyl-  
(c) A: eaa eah fbf fbg



(liq) A: eab eac ead eae eaf(t) eag  
eal(t) eao faa fab fac fao  
fbi fbj fbk  
(g) A: faa(t) fab(t) fac(t) fad(t) fae(t) faf(t)  
faq(t) fal(t) fao

Cyclohexane, 1,cis-3-dimethyl-  
(c) A: eaa eah fbf fbg  
(liq) A: eab eac ead eae eaf(t) eag  
eal(t) eao faa fab fac fao  
fbi fbj fbk  
(g) A: faa(t) fab(t) fac(t) fad(t) fae(t) faf(t)  
faq(t) fal(t) fao

Cyclohexane, 1,trans-3-dimethyl-  
(c) A: eaa eah fbf fbg  
(liq) A: eab eac ead eae eaf(t) eag  
eal(t) eao faa fab fac fao  
fbi fbj fbk  
(g) A: faa(t) fab(t) fac(t) fad(t) fae(t) faf(t)  
faq(t) fal(t) fao

Cyclohexane, 1,cis-4-dimethyl-  
(c) A: eaa eah fbf fbg  
(liq) A: eab eac ead eae eaf(t) eag  
eal(t) eao faa fab fac fao  
fbi fbj fbk  
(g) A: faa(t) fab(t) fac(t) fad(t) fae(t) faf(t)  
faq(t) fal(t) fao

Cyclohexane, 1,trans-4-dimethyl-  
(c) A: eaa eah fbf fbg  
(liq) A: eab eac ead eae eaf(t) eag  
eal(t) eao faa fab fac fao  
fbi fbj fbk  
(g) A: faa(t) fab(t) fac(t) fad(t) fae(t) faf(t)  
faq(t) fal(t) fao

Cyclo-octane  
(c) A: eah  
(liq) A: eab eac ead eae eag eao

Cyclopentane, 1-methyl-1-ethyl-  
(c) A: eah  
(liq) A: eab eac ead eae eag eal(t)  
eao

Cyclopentane, 1-methyl-cis-2-ethyl-  
(c) A: eah  
(liq) A: eab eac ead eae eag eal(t)  
eao

Cyclopentane, 1-methyl-trans-2-ethyl-  
(liq) A: eab eac ead eae eag eal(t)  
eao

Cyclopentane, 1-methyl-cis-3-ethyl-  
(liq) A: eab eac ead eae eag eal(t)  
eao

Cyclopentane, 1-methyl-trans-3-ethyl-  
(liq) A: eab eac ead eae eag eal(t)  
eao

Cyclopentane, 1,1,2-trimethyl-  
(c) A: eah  
(liq) A: eab eac ead eae eag eal(t)  
eao

Cyclopentane, 1,1,3-trimethyl-  
(c) A: eah  
(liq) A: eab eac ead eae eag eal(t)  
eao

Cyclopentane, 1,cis-2,cis-3-trimethyl-  
(c) A: eah  
(liq) A: eab eac ead eae eag eal(t)  
eao

Cyclopentane, 1,cis-2,trans-3-trimethyl-  
(c) A: eah  
(liq) A: eab eac ead eae eag eal(t)  
eao

Cyclopentane, 1,trans-2,cis-3-trimethyl-  
(c) A: eah  
(liq) A: eab eac ead eae eag eal(t)  
eao

Cyclopentane, 1,cis-2,cis-4-trimethyl-  
(liq) A: eab eac ead eae eag eal(t)  
eao

Cyclopentane, 1,cis-2,trans-4-trimethyl-  
(c) A: eah  
(liq) A: eab eac ead eae eag eal(t)  
eao

Cyclopentane, 1,trans-2,cis-4-trimethyl-  
(c) A: eah  
(liq) A: eab eac ead eae eag eal(t)  
eao

Cyclopentane, isopropyl-  
(c) A: eah  
(liq) A: eab eac ead eae eag eal(t)  
eao

Cyclopentane, n-propyl-  
(c) A: eaa eah fbf fbg  
(liq) A: eab(-t,t) eac ead eae eag  
eal(t) eam(-t,t) eao faa fab  
fac fao fbj fbk  
(g) A: faa(t) fab(t) fac(t) fad(t) fae(t) faf(t)  
faq(t) fal(t) fao

1-Heptene, 2-methyl-  
(c) A: eah  
(liq) A: eab eac ead eae eag eal(t)  
eao

1-Heptene, 3-methyl-  
(liq) A: eab eac ead eae eag eal(t)  
eao

1-Heptene, 4-methyl-  
(liq) A: eah eac ead eae eag eal(t)  
eao

1-Heptene, 5-methyl-  
(liq) A: eab eac ead eae eag eal(t)  
eao

1-Heptene, 6-methyl-  
(liq) A: eab eac ead eae eag eal(t)  
eao

2-Heptene, 2-methyl-  
(liq) A: eab eac ead eae eag eal(t)  
eao

cis-2-Heptene, 3-methyl-  
(liq) A: eab eac ead eae eag eal(t)  
eao

trans-2-Heptene, 3-methyl-  
(liq) A: eab eac ead eae eag eal(t)  
eao

cis-2-Heptene, 4-methyl-  
(liq) A: eab eac ead eae eag eal(t)  
eao



trans-2-Heptene, 4-methyl-  
(liq) A: eab eac ead eae eaq eal(t)  
eao

cis-2-Heptene, 5-methyl-  
(liq) A: eab eac ead eae eaq eal(t)  
eao

trans-2-Heptene, 5-methyl-  
(liq) A: eab eac ead eae eaq eal(t)  
eao

cis-2-Heptene, 6-methyl-  
(liq) A: eab eac ead eae eaq eal(t)  
eao

trans-2-Heptene, 6-methyl-  
(liq) A: eab eac ead eae eaq eal(t)  
eao

cis-3-Heptene, 2-methyl-  
(liq) A: eab eac ead eae eaq eal(t)  
eao

trans-3-Heptene, 2-methyl-  
(liq) A: eab eac ead eae eaq eal(t)  
eao

cis-3-Heptene, 3-methyl-  
(liq) A: eab eac ead eae eaq eal(t)  
eao

trans-3-Heptene, 3-methyl-  
(liq) A: eab eac ead eae eaq eal(t)  
eao

cis-3-Heptene, 4-methyl-  
(liq) A: eab eac ead eae eaq eal(t)  
eao

trans-3-Heptene, 4-methyl-  
(liq) A: eab eac ead eae eaq eal(t)  
eao

cis-3-Heptene, 5-methyl-  
(liq) A: eab eac ead eae eaq eal(t)  
eao

trans-3-Heptene, 5-methyl-  
(liq) A: eab eac ead eae eaq eal(t)  
eao

cis-3-Heptene, 6-methyl-  
(liq) A: eab eac ead eae eaq eal(t)  
eao

trans-3-Heptene, 6-methyl-  
(liq) A: eab eac ead eae eaq eal(t)  
eao

1-Hexene, 2-ethyl-  
(liq) A: eab eac ead eae eaq eal(t)  
eao

1-Hexene, 3-ethyl-  
(liq) A: eab eac ead eae eaq eal(t)  
eao

1-Hexene, 4-ethyl-  
(liq) A: eab eac ead eae eaq eal(t)  
eao

1-Hexene, 2,3-dimethyl-  
(liq) A: eab eac ead eae eaq eal(t)  
eao

1-Hexene, 2,4-dimethyl-  
(liq) A: eab eac ead eae eaq eal(t)  
eao

1-Hexene, 2,5-dimethyl-  
(liq) A: eab eac ead eae eaq eal(t)  
eao

1-Hexene, 3,3-dimethyl-  
(liq) A: eab eac ead eae eaq eal(t)  
eao

1-Hexene, 3,4-dimethyl-  
(liq) A: eab eac ead eae eaq eal(t)  
eao

1-Hexene, 3,5-dimethyl-  
(liq) A: eab eac ead eae eaq eal(t)  
eao

1-Hexene, 4,4-dimethyl-  
(liq) A: eab eac ead eae eaq eal(t)  
eao

1-Hexene, 4,5-dimethyl-  
(liq) A: eab eac ead eae eaq eal(t)  
eao

1-Hexene, 5,5-dimethyl-  
(liq) A: eab eac ead eae eaq eal(t)  
eao

cis-2-Hexene, 3-ethyl-  
(liq) A: eab eac ead eae eaq eal(t)  
eao

trans-2-Hexene, 3-ethyl-  
(liq) A: eab eac ead eae eaq eal(t)  
eao

cis-2-Hexene, 4-ethyl-  
(liq) A: eab eac ead eae eaq eal(t)  
eao

trans-2-Hexene, 4-ethyl-  
(liq) A: eab eac ead eae eaq eal(t)  
eao

2-Hexene, 2,3-dimethyl-  
(c) A: eah  
(liq) A: eab eac ead eae eaq eal(t)  
eao

2-Hexene, 2,4-dimethyl-  
(liq) A: eab eac ead eae eaq eal(t)  
eao

2-Hexene, 2,5-dimethyl-  
(liq) A: eab eac ead eae eaq eal(t)  
eao

cis-2-Hexene, 3,4-dimethyl-  
(liq) A: eab eac ead eae eaq eal(t)  
eao

trans-2-Hexene, 3,4-dimethyl-  
(liq) A: eab eac ead eae eaq eal(t)  
eao

cis-2-Hexene, 3,5-dimethyl-  
(liq) A: eab eac ead eae eaq eal(t)  
eao

trans-2-Hexene, 3,5-dimethyl-  
(liq) A: eab eac ead eae eaq eal(t)  
eao

cis-2-Hexene, 4,4-dimethyl-  
(liq) A: eab eac ead eae eaq eal(t)  
eao

trans-2-Hexene, 4,4-dimethyl-  
(liq) A: eab eac ead eae eaq eal(t)  
eao

cis-2-Hexene, 4,5-dimethyl-  
(liq) A: eab eac ead eae eaq eal(t)  
eao

trans-2-Hexene, 4,5-dimethyl-  
(liq) A: eab eac ead eae eaq eal(t)  
eao

cis-2-Hexene, 5,5-dimethyl-  
(liq) A: eab eac ead eae eaq eal(t)  
eao

trans-2-Hexene, 5,5-dimethyl-  
(liq) A: eab eac ead eae eaq eal(t)  
eao

3-Hexene, 3-ethyl-  
(liq) A: eab eac ead eae eaq eal(t)  
eao

cis-3-Hexene, 2,2-dimethyl-  
(c) A: eah  
(liq) A: eab eac ead eae eaq eal(t)  
eao

trans-3-Hexene, 2,2-dimethyl-  
(liq) A: eab eac ead eae eaq eal(t)  
eao

cis-3-Hexene, 2,3-dimethyl-  
(liq) A: eab eac ead eae eaq eal(t)  
eao

trans-3-Hexene, 2,3-dimethyl-  
(liq) A: eab eac ead eae eaq eal(t)  
eao

cis-3-Hexene, 2,4-dimethyl-  
(liq) A: eab eac ead eae eaq eal(t)  
eao

trans-3-Hexene, 2,4-dimethyl-  
(liq) A: eab eac ead eae eaq eal(t)  
eao

cis-3-Hexene, 2,5-dimethyl-  
(liq) A: eab eac ead eae eaq eal(t)  
eao

trans-3-Hexene, 2,5-dimethyl-  
(liq) A: eab eac ead eae eaq eal(t)  
eao

cis-3-Hexene, 3,4-dimethyl-  
(liq) A: eab eac ead eae eaq eal(t)  
eao

trans-3-Hexene, 3,4-dimethyl-  
(liq) A: eab eac ead eae eaq eal(t)  
eao

1-Octene  
(c) A: eaa eah fbf fbq  
(liq) A: eab(t) eac ead eae eaf(t) eaq  
eal(t) ean(t) eao fbj fbk  
(g) A: faa(t) fab(t) fac(t) fad(t) fae(t) faf(t)  
faq(t) fal(t) fao

cis-2-Octene  
(c) A: eah  
(liq) A: eab eac ead eae eaq eal(t)  
eao

trans-2-Octene  
(c) A: eah  
(liq) A: eab eac ead eae eaq eal(t)  
eao

cis-3-Octene  
(liq) A: eab eac ead eae eaq eal(t)  
eao

trans-3-Octene  
(c) A: eah  
(liq) A: eab eac ead eae eaq eal(t)  
eao

cis-4-Octene  
(c) A: eah  
(liq) A: eab eac ead eae eaq eal(t)  
eao

trans-4-Octene  
(c) A: eah  
(liq) A: eab eac ead eae eaq eal(t)  
eao

1-Pentene, 2-methyl-3-ethyl-  
(liq) A: eab eac ead eae eaq eal(t)  
eao

1-Pentene, 3-methyl-2-ethyl-  
(liq) A: eah eac ead eae eaq eal(t)  
eao

1-Pentene, 3-methyl-3-ethyl-  
(liq) A: eab eac ead eae eaq eal(t)  
eao

1-Pentene, 4-methyl-2-ethyl-  
(liq) A: eab eac ead eae eaq eal(t)  
eao

1-Pentene, 4-methyl-3-ethyl-  
(liq) A: eab eac ead eae eaq eal(t)  
eao

1-Pentene, 2,3,3-trimethyl-  
(c) A: eah  
(liq) A: eab eac ead eae eaq eal(t)  
eao

1-Pentene, 2,3,4-trimethyl-  
(liq) A: eab eac ead eae eaq eal(t)  
eao

1-Pentene, 2,4,4-trimethyl-  
(c) A: eah  
(liq) A: eab eac ead eae eaq eal(t)  
eao

1-Pentene, 3,3,4-trimethyl-  
(liq) A: eab eac ead eae eaq eal(t)  
eao

1-Pentene, 3,4,4-trimethyl-  
(liq) A: eab eac ead eae eaq eal(t)  
eao

1-Pentene, 2-isopropyl-  
(liq) A: eab eac ead eae eaq eal(t)  
eao

1-Pentene, 2-n-propyl-  
(liq) A: eab eac ead eae eaq eal(t)  
eao

2-Pentene, 2-methyl-3-ethyl-  
(liq) A: eab eac ead eae eaq eal(t)  
eao

cis-2-Pentene, 4-methyl-3-ethyl-  
(liq) A: eab eac ead eae eaq eal(t)  
eao

trans-2-Pentene, 4-methyl-3-ethyl-  
(liq) A: eab eac ead eae eaq eal(t)  
eao

2-Pentene, 2,3,4-trimethyl-  
(c) A: eah  
(liq) A: eab eac ead eae eag eal(t)  
eao

2-Pentene, 2,4,4-trimethyl-  
(c) A: eah  
(liq) A: eab eac ead eae eag eal(t)  
eao

cis-2-Pentene, 3,4,4-trimethyl-  
(liq) A: eab eac ead eae eag eal(t)  
eao

trans-2-Pentene, 3,4,4-trimethyl-  
(liq) A: eab eac ead eae eag eal(t)  
eao

C<sub>6</sub>H<sub>14</sub> Butane, 2,2,3,3-tetramethyl-  
(c, II) A: eaj fbb fbc  
(c, I) A: eaa eah eai eal(t) fao fbf  
fbg fbn fno  
(liq) A: eab(t) eac ead eal(t) fao  
fab fac fbj fbk  
(g) A: ebc ebd ebe ebf ebq faa(t)  
fab(t) fac(t) fad(t) fae(t) faf(t) faq(t)  
fal(t) fao

Heptane, 2-methyl-  
(c) A: eaa eah fbf fbg  
(liq) A: eab(t) eac ead eae eaf(t) eag  
eal(t) eao faa fab fac fao  
fbi fbj fbk  
(g) A: ebc ebd ebe ebf ebq faa(t)  
fab(t) fac(t) fad(t) fae(t) faf(t) faq(t)  
fal(t) fao

Heptane, 3-methyl-  
(c) A: eaa eah fbf fbg  
(liq) A: eab(t) eac ead eae eaf(t) eag  
eal(t) eao faa fab fac fao  
fbi fbj fbk  
(g) A: ebc ebd ebe ebf ebq faa(t)  
fab(t) fac(t) fad(t) fae(t) faf(t) faq(t)  
fal(t) fao

Heptane, 4-methyl-  
(c) A: eaa eah fbf fbg  
(liq) A: eab(-t,t) eac ead eae eaf(t)  
eag eal(t) eao faa fab fac  
fao fbi fbj fbk  
(g) A: ebc ebd ebe ebf ebq faa(t)  
fab(t) fac(t) fad(t) fae(t) faf(t) faq(t)  
fal(t) fao

Hexane, 3-ethyl-  
(liq) A: eab(t) eac ead eae eaf(t) eag  
eal(t) eao faa fab fac fao  
fbi fbj fbk  
(g) A: ebc ebd ebe ebf ebq faa(t)  
fab(t) fac(t) fad(t) fae(t) faf(t) faq(t)  
fal(t) fao

Hexane, 2,2-dimethyl-  
(c) A: eaa eah fbf fbg  
(liq) A: eab(t) eac ead eae eaf(t) eag  
eal(t) eao faa fab fac fao  
fbi fbj fbk

(g) A: ebc ebd ebe ebf ebq faa(t)  
fab(t) fac(t) fad(t) fae(t) faf(t) faq(t)  
fal(t) fao

Hexane, 2,3-dimethyl-  
(liq) A: eab(t) eac ead eae eaf(t) eag  
eal(t) eao faa fab fac fao  
fbi fbj fbk  
(g) A: ebc ebd ebe ebf ebq faa(t)  
fab(t) fac(t) fad(t) fae(t) faf(t) faq(t)  
fal(t) fao

Hexane, 2,4-dimethyl-  
(liq) A: eab(t) eac ead eae eaf(t) eag  
eal(t) eao faa fab fac fao  
fbi fbj fbk  
(g) A: ebc ebd ebe ebf ebq faa(t)  
fab(t) fac(t) fad(t) fae(t) faf(t) faq(t)  
fal(t) fao

Hexane, 2,5-dimethyl-  
(c) A: eaa eah fbf fbg  
(liq) A: eab(-t,t) eac ead eae eaf(t)  
eag eal(t) eao faa fab fac  
fao fbi fbj fbk  
(g) A: ebc ebd ebe ebf ebq faa(t)  
fab(t) fac(t) fad(t) fae(t) faf(t) faq(t)  
fal(t) fao

Hexane, 3,3-dimethyl-  
(c) A: eaa eah fbf fbg  
(liq) A: eab(t) eac ead eae eaf(t) eag  
eal(t) eao faa fab fac fao  
fbi fbj fbk  
(g) A: ebc ebd ebe ebf ebq faa(t)  
fab(t) fac(t) fad(t) fae(t) faf(t) faq(t)  
fal(t) fao

Hexane, 3,4-dimethyl-  
(liq) A: eab(t) eac ead eae eaf(t) eag  
eal(t) eao faa fab fac fao  
fbi fbj fbk  
(g) A: ebc ebd ebe ebf ebq faa(t)  
fab(t) fac(t) fad(t) fae(t) faf(t) faq(t)  
fal(t) fao

n-Octane  
(c) A: eaa eah fbf fbg  
(liq) A: eab(-t,t) eac ead eae eaf(-t,t)  
eag eal(t) eao faa fab fac  
fao fbi fbj fbk  
(g) A: ebc ebd ebe ebf ebq faa(t)  
fab(t) fac(t) fad(t) fae(t) faf(t) faq(t)  
fal(t) fao

Pentane, 2-methyl-3-ethyl-  
(c) A: eaa eah fbf fbg  
(liq) A: eab(-t,t) eac ead eae eaf(t)  
eag eal(t) eao faa fab fac  
fao fbi fbj fbk  
(g) A: ebc ebd ebe ebf ebq faa(t)  
fab(t) fac(t) fad(t) fae(t) faf(t) faq(t)  
fal(t) fao

Pentane, 3-methyl-3-ethyl-  
(c) A: eaa eah fbf fbg  
(liq) A: eab(t) eac ead eae eaf(t) eag  
eal(t) eao faa fab fac fao  
fbi fbj fbk

(g) A: ebc ebd ebe ebf ebq faa(t)  
fab(t) fac(t) fad(t) faf(t) faq(t) fai(t)  
fao

Pentane, 2,2,3-trimethyl-  
(c) A: eaa eah fbf fbq  
(liq) A: eab(t) eac ead eae eaf(t) eaq  
eal(t) eao faa fab fac fao  
fbi fbj fbk

(g) A: ebc ebd ebe ebf ebq faa(t)  
fab(t) fac(t) fad(t) faf(t) faq(t) fai(t)  
fao

Pentane, 2,2,4-trimethyl-  
(c) A: eaa eah fbf fbq  
(liq) A: eab(-t,t) eac ead eae eaf(t)  
eaq eal(t) eao faa fab fac  
fao fbi fbj fbk

(g) A: ebc ebd ebe ebf ebq faa(t)  
fab(t) fac(t) fad(t) faf(t) faq(t) fai(t)  
fao

Pentane, 2,3,3-trimethyl-  
(c, II) A: eaj fbb fbc  
(c, I) A: eaa eah fbf fbq  
(liq) A: eab(t) eac ead eae eaf(t) eaq  
eal(t) eao faa fab fac fao  
fbi fbj fbk

(g) A: ebc ebd ebe ebf ebq faa(t)  
fab(t) fac(t) fad(t) faf(t) faq(t) fai(t)  
fao

Pentane, 2,3,4-trimethyl-  
(c) A: eaa eah fbf fbq  
(liq) A: eab(t) eac ead eae eaf(t) eaq  
eal(t) eao faa fab fac fao  
fbi fbj fbk

(g) A: ebc ebd ebe ebf ebq faa(t)  
fab(t) fac(t) fad(t) faf(t) faq(t) fai(t)  
fao

C<sub>9</sub>H<sub>8</sub> Indene  
(c) A: eah  
(liq) A: eab eac ead eaq eao

C<sub>9</sub>H<sub>10</sub> Benzene, 1-methyl-2-ethenyl- (o-Methylstyrene)  
(c) A: eah  
(liq) A: eab eac ead eae eaq eao  
(g) A: faa(t) fab(t) fac(t) fad(t) fae(t) faf(t)  
faq(t) fai(t) fao

Benzene, 1-methyl-3-ethenyl- (m-Methylstyrene)  
(c) A: eah  
(liq) A: eab eac ead eae eaq eao  
(g) A: faa(t) fab(t) fac(t) fad(t) fae(t) fai(t)  
faq(t) fai(t) fao

Benzene, 1-methyl-4-ethenyl- (p-Methylstyrene)  
(c) A: eah  
(liq) A: eab eac ead eae eaq eao  
(g) A: faa(t) fab(t) fac(t) fad(t) fae(t) faf(t)  
faq(t) fai(t) fao

Benzene, cis-1-propenyl- (cis-β-Methylstyrene;  
cis-1-Phenyl-1-propene)  
(c) A: eah  
(liq) A: eab eac ead eae eaq eao  
(g) A: faa(t) fab(t) fac(t) fad(t) fae(t) faf(t)  
faq(t) fai(t) fao

Benzene, trans-1-propenyl- (trans-β-Methylstyrene;  
trans-1-Phenyl-1-propene)  
(c) A: eah  
(liq) A: eab eac ead eae eaq eao  
(g) A: faa(t) fab(t) fac(t) fad(t) fae(t) faf(t)  
faq(t) fai(t) fao

Benzene, isopropenyl- (α-Methylstyrene;  
2-Phenyl-1-propene)  
(c) A: eah  
(liq) A: eab eac ead eae eaq eao  
(g) A: faa(t) fab(t) fac(t) fad(t) fae(t) faf(t)  
faq(t) fai(t) fao

Indene, 2,3-dihydro- (Indan)  
(c) A: eah  
(liq) A: eab eac ead eaq eao

C<sub>9</sub>H<sub>12</sub> Benzene, 1-methyl-2-ethyl-  
(c, II) A: eaa eaj fbb fbc  
(c, I) A: eaa eah fbf fbq  
(liq) A: eab(t) eac ead eae eaf(t) eaq  
eal(t) eao faa fab fac fao  
fbi fbj fbk

(g) A: ebc ebd ebe ebf ebq faa(t)  
fab(t) fac(t) fad(t) fae(t) faf(t) faq(t)  
fai(t) fao

Benzene, 1-methyl-3-ethyl-  
(c, II) A: eaa eaj fbb fbc  
(c, I) A: eaa eah fbf fbq  
(liq) A: eab(t) eac ead eae eaf(t) eaq  
eal(t) eao faa fab fac fao  
fbi fbj fbk

(g) A: ebc ebd ebe ebf ebq faa(t)  
fab(t) fac(t) fad(t) fae(t) faf(t) faq(t)  
fai(t) fao

Benzene, 1-methyl-4-ethyl-  
(c) A: eaa eah fbf fbq  
(liq) A: eab(t) eac ead eae eaf(t) eaq  
eal(t) ean(t) eao faa fab fac  
fao fbi fbj fbk

(g) A: ebc ebd ebe ebf ebq faa(t)  
fab(t) fac(t) fad(t) fae(t) faf(t) faq(t)  
fai(t) fao

Benzene, 1,2,3-trimethyl- (Hemimellitene)  
(c, III) A: eaj fbb fbc  
(c, II) A: eaj fbb fbc  
(c, I) A: eaa eah fbf fbq  
(liq) A: eab(t) eac ead eae eaf(t) eaq  
eal(t) eao faa fab fac fao  
fbi fbj fbk

(g) A: ebc ebd ebe ebf ebq faa(t)  
fab(t) fac(t) fad(t) fae(t) faf(t) faq(t)  
fai(t) fao

Benzene, 1,2,4-trimethyl- (Pseudocumene)  
(c, II) A: eaj  
(c, I) A: eaa eah fbf fbq  
(liq) A: eab(t) eac ead eae eaf(t) eaq  
eal(t) ean eao faa fab fac  
fao fbi fbj fbk

(g) A: ebc ebd ebe ebf ebq faa(t)  
fab(t) fac(t) fad(t) fae(t) faf(t) faq(t)  
fai(t) fao

Benzene, 1,3,5-trimethyl- (Mesitylene)  
*(c, III)* A: eaa eaj fbb fbc  
*(c, II)* A: eaa eaj fbb fbc  
*(c, I)* A: eaa eah fbf fbq  
*(liq)* A: eab(t) eac ead eae eaf(t) eaq  
 eal(t) eao faa fab fac fao  
 fbi fbj fbk  
*(g)* A: ebc ebd ebe ebf ebq faa(t)  
 fab(t) fac(t) fad(t) fae(t) faf(t) faq(t)  
 fai(t) fao

Benzene, isopropyl- (Cumene)  
*(c)* A: eaa eah fbf fbq  
*(liq)* A: eab(t) eac ead eae eaf(t) eaq  
 eal(t) ean(t) eao faa fab fac  
 fao fbi fbj fbk  
*(g)* A: ebc ebd ebe ebf ebq faa(t)  
 fab(t) fac(t) fad(t) fae(t) faf(t) faq(t)  
 fai(t) fao

Benzene, n-propyl-  
*(c, II)* A: eaa eaj fbb fbc  
*(c, I)* A: eaa eah fbf fbq  
*(liq)* A: eab(-t, t) eac ead eae eaf(t)  
 eaq eal(t) ean(-t, t) eao faa  
 fab fac fao fbi fbj fbk  
*(g)* A: ebc ebd ebe ebf ebq faa(t)  
 fab(t) fac(t) fad(t) fae(t) faf(t) faq(t)  
 fai(t) fao

C<sub>9</sub>H<sub>16</sub> Cyclohexene, 1-n-propyl-  
*(liq)* A: fao  
*(g)* A: fao

Cyclopentene, 1-n-butyl-  
*(liq)* A: eab eac ead eaq eao fao  
*(g)* A: fao

Cyclopentene, 3-n-butyl-  
*(liq)* A: fao

Cyclopentene, 4-n-butyl-  
*(liq)* A: fao

1-Nonyne  
*(c)* A: eah  
*(liq)* A: eab eac ead eae eaq eao  
*(g)* A: faa(t) fab(t) fac(t) fad(t) fae(t) faf(t)  
 faq(t) fai(t) fao

2-Nonyne  
*(liq)* A: eab eac ead eaq eao

3-Nonyne  
*(liq)* A: eab eac ead eaq eao

C<sub>9</sub>H<sub>18</sub> Cyclohexane, 1-methyl-1-ethyl-  
*(liq)* A: eab eac ead eaq eao

Cyclohexane, 1-methyl-cis-2-ethyl-  
*(liq)* A: eab eac ead eaq eao

Cyclohexane, 1-methyl-trans-2-ethyl-  
*(liq)* A: eab eac ead eaq eao

Cyclohexane, 1-methyl-cis-3-ethyl-  
*(liq)* A: eab eac ead eaq eao

Cyclohexane, 1-methyl-trans-3-ethyl-  
*(liq)* A: eab eac ead eaq eao

Cyclohexane, 1-methyl-cis-4-ethyl-  
*(liq)* A: eab eac ead eaq eao

Cyclohexane, 1-methyl-trans-4-ethyl-  
*(liq)* A: eab eac ead eaq eao

Cyclohexane, 1,1,2-trimethyl-  
*(c)* A: eah  
*(liq)* A: eab eac ead eaq eao

Cyclohexane, 1,1,3-trimethyl-  
*(c)* A: eah  
*(liq)* A: eab eac ead eae eaq eao

Cyclohexane, 1,1,4-trimethyl-  
*(liq)* A: eab eac ead eaq eao

Cyclohexane, 1,cis-2,cis-3-trimethyl-  
*(liq)* A: eab eac ead eaq eao

Cyclohexane, 1,cis-2,trans-3-trimethyl-  
*(liq)* A: eab eac ead eaq eao

Cyclohexane, 1,trans-2,cis-3-trimethyl-  
*(liq)* A: eab eac ead eaq eao

Cyclohexane, 1,cis-2,cis-4-trimethyl-  
*(liq)* A: eab eac ead eaq eao

Cyclohexane, 1,cis-2,trans-4-trimethyl-  
*(liq)* A: eab eac ead eaq eao

Cyclohexane, 1-trans-2-cis-4-trimethyl-  
*(liq)* A: eab eac ead eaq eao

Cyclohexane, 1,trans-2,trans-4-trimethyl-  
*(c)* A: eah  
*(liq)* A: eab eac ead eaq eao

Cyclohexane, 1,cis-3-cis-5-trimethyl-  
*(c)* A: eah  
*(liq)* A: eab eac ead eae eaq eao

Cyclohexane, 1,cis-3,trans-5-trimethyl-  
*(c)* A: eah  
*(liq)* A: eab eac ead eae eaq eao

Cyclohexane, isopropyl-  
*(c)* A: eah  
*(liq)* A: eab eac ead eae eaq eao

Cyclohexane, n-propyl-  
*(c)* A: eaa eah fbf fbq  
*(liq)* A: eab(-t, t) eac ead eae eaq  
 eal(t) ean(-t, t) eao faa fab  
 fac fao fbj fbk  
*(g)* A: faa(t) fab(t) fac(t) fad(t) fae(t) faf(t)  
 faq(t) fai(t) fao

Cyclononane  
*(c)* A: eah  
*(liq)* A: eab eac ead eaq eao

Cyclopentane, isobutyl-  
*(c)* A: eah  
*(liq)* A: eab eac ead eae eaq eao

Cyclopentane, n-butyl-  
*(c)* A: eaa eah fbf fbq  
*(liq)* A: eab(-t, t) eac ead eae eaq  
 eal(t) ean(-t, t) eao fab fao  
 fbj fbk  
*(g)* A: faa(t) fab(t) fac(t) fad(t) fae(t) faf(t)  
 faq(t) fai(t) fao

Cyclopentane, sec-butyl-  
*(liq)* A: eab eac ead eaq eao

Cyclopentane, tert-butyl-  
*(c)* A: eah  
*(liq)* A: eab eac ead eae eaq eao

Cyclopentane, 1,1-diethyl-  
*(liq)* A: eab eac ead eaq eao

Cyclopentane, 1,cis-2-diethyl-  
*(c)* A: eah  
*(liq)* A: eab eac ead eae eaq eao

Cyclopentane, 1,trans-2-diethyl-  
(c) A: eah  
(liq) A: eab eac ead eae eag eao

Cyclopentane, 1,cis-3-diethyl-  
(liq) A: eab eac ead eag eao

Cyclopentane, 1,trans-3-diethyl-  
(liq) A: eab eac ead eag eao

Cyclopentane, 1-methyl-1-isopropyl-  
(liq) A: eab eac ead eag eao

Cyclopentane, 1-methyl-cis-2-isopropyl-  
(liq) A: eab eac ead eag eao

Cyclopentane, 1-methyl-trans-2-isopropyl-  
(liq) A: eab eac ead eag eao

Cyclopentane, 1-methyl-cis-3-isopropyl-  
(liq) A: eab eac ead eag eao

Cyclopentane, 1-methyl-trans-3-isopropyl-  
(liq) A: eab eac ead eag eao

Cyclopentane, 1-methyl-1-n-propyl-  
(liq) A: eab eac ead eag eao

Cyclopentane, 1-methyl-cis-2-n-propyl-  
(c) A: eah  
(liq) A: eab eac ead eae eag eao

Cyclopentane, 1-methyl-trans-2-n-propyl-  
(c) A: eah  
(liq) A: eab eac ead eae eag eao

Cyclopentane, 1-methyl-cis-3-n-propyl-  
(liq) A: eab eac ead eag eao

Cyclopentane, 1-methyl-trans-3-n-propyl-  
(liq) A: eab eac ead eag eao

Cyclopentane, 1,1-dimethyl-2-ethyl-  
(liq) A: eab eac ead eag eao

Cyclopentane, 1,1-dimethyl-3-ethyl-  
(liq) A: eab eac ead eag eao

Cyclopentane, 1,cis-2-dimethyl-1-ethyl-  
(liq) A: eab eac ead eag eao

Cyclopentane, 1,trans-2-dimethyl-1-ethyl-  
(liq) A: eab eac ead eag eao

Cyclopentane, 1,cis-2-dimethyl-cis-3-ethyl-  
(liq) A: eab eac ead eag eao

Cyclopentane, 1,cis-2-dimethyl-trans-3-ethyl-  
(liq) A: eab eac ead eag eao

Cyclopentane, 1,trans-2-dimethyl-cis-3-ethyl-  
(liq) A: eab eac ead eag eao

Cyclopentane, 1,trans-2-dimethyl-trans-3-ethyl-  
(liq) A: eab eac ead eag eao

Cyclopentane, 1,cis-2-dimethyl-cis-4-ethyl-  
(liq) A: eab eac ead eag eao

Cyclopentane, 1,cis-2-dimethyl-trans-4-ethyl-  
(liq) A: eab eac ead eag eao

Cyclopentane, 1,trans-2-dimethyl-cis-4-ethyl-  
(liq) A: eab eac ead eag eao

Cyclopentane, 1,cis-3-dimethyl-1-ethyl-  
(liq) A: eab eac ead eag eao

Cyclopentane, 1,trans-3-dimethyl-1-ethyl-  
(liq) A: eab eac ead eag eao

Cyclopentane, 1,cis-3-dimethyl-cis-2-ethyl-  
(liq) A: eab eac ead eag eao

Cyclopentane, 1,cis-3-dimethyl-trans-2-ethyl-  
(liq) A: eab eac ead eag eao

Cyclopentane, 1,trans-3-dimethyl-cis-2-ethyl-  
(liq) A: eab eac ead eag eao

Cyclopentane, 1,cis-3-dimethyl-cis-4-ethyl-  
(liq) A: eab eac ead eag eao

Cyclopentane, 1,cis-3-dimethyl-trans-4-ethyl-  
(liq) A: eab eac ead eag eao

Cyclopentane, 1,trans-3-dimethyl-cis-4-ethyl-  
(liq) A: eab eac ead eag eao

Cyclopentane, 1,trans-3-dimethyl-trans-4-ethyl-  
(liq) A: eab eac ead eag eao

Cyclopentane, 1,1,2,2-tetramethyl-  
(liq) A: eab eac ead eag eao

Cyclopentane, 1,1,cis-2,cis-3-tetramethyl-  
(liq) A: eab eac ead eag eao

Cyclopentane, 1,1,cis-2,trans-3-tetramethyl-  
(liq) A: eab eac ead eag eao

Cyclopentane, 1,1,cis-2,cis-4-tetramethyl-  
(liq) A: eab eac ead eag eao

Cyclopentane, 1,1,cis-2,trans-4-tetramethyl-  
(liq) A: eab eac ead eag eao

Cyclopentane, 1,1,3,3-tetramethyl-  
(c) A: eah  
(liq) A: eab eac ead eag eao

Cyclopentane, 1,1,cis-3,cis-4-tetramethyl-  
(c) A: eah  
(liq) A: eab eac ead eag eao

Cyclopentane, 1,1,cis-3,trans-4-tetramethyl-  
(c) A: eah  
(liq) A: eab eac ead eag eao

Cyclopentane, 1,2,2,cis-3-tetramethyl-  
(liq) A: eab eac ead eag eao

Cyclopentane, 1,2,2,trans-3-tetramethyl-  
(liq) A: eab eac ead eag eao

Cyclopentane, 1,cis-2,cis-3,cis-4-tetramethyl-  
(liq) A: eab eac ead eag eao

Cyclopentane, 1,cis-2,cis-3,trans-4-tetramethyl-  
(liq) A: eab eac ead eag eao

Cyclopentane, 1,cis-2,trans-3,cis-4-tetramethyl-  
(liq) A: eab eac ead eag eao

Cyclopentane, 1,cis-2,trans-3,trans-4-tetramethyl-  
(liq) A: eab eac ead eag eao

Cyclopentane, 1,trans-2,cis-3,trans-4-tetramethyl-  
(liq) A: eab eac ead eag eao

Cyclopentane, 1,trans-2,trans-3,cis-4-tetramethyl-  
(liq) A: eab eac ead eag eao

1-Nonene  
(c) A: eaa eah fbf fbg  
(liq) A: eab(t) eac ead eae eaf(t) eag  
eal(t) eam(t) eao fbj fbk  
(g) A: faa(t) fab(t) fac(t) fad(t) fae(t) faf(t)  
faq(t) fal(t) fao

1-Octene, 2-methyl-  
(c) A: eah  
(liq) A: eab eac ead eae eag eao

Heptane, 3-ethyl-  
(liq) A: eab eac ead eae eaf(t) eag  
eal(t) eao fao fbj fbk  
(g) A: fao

Heptane, 4-ethyl-  
(liq) A: eab eac ead eae eaf(t) eag  
eal(t) eao fao fbj fbk  
(g) A: fao

C<sub>9</sub>H<sub>20</sub>

Heptane, 2,2-dimethyl-  
(c) A: eaa eah fbf fbj  
(liq) A: eab eac ead eae eaf(t) eaq  
eal(t) eao fao fbj fbk  
(g) A: fao

Heptane, 2,3-dimethyl-  
(liq) A: eab eac ead eae eaf(t) eaq  
eal(t) eao fao fbj fbk  
(g) A: fao

Heptane, 2,4-dimethyl-  
(liq) A: eab eac ead eae eaf(t) eaq  
eal(t) eao fao fbj fbk  
(g) A: fao

Heptane, 2,5-dimethyl-  
(liq) A: eab eac ead eae eaf eaq  
eal(t) eao fao fbj fbk  
(g) A: fao

Heptane, 2,6-dimethyl-  
(c) A: eah  
(liq) A: eab eac ead eae eaf(t) eaq  
eal(t) eao fao fbj fbk  
(g) A: fao

Heptane, 3,3-dimethyl-  
(liq) A: eab eac ead eae eaf(t) eaq  
eal(t) eao fao fbj fbk  
(g) A: fao

Heptane, 3,4-dimethyl-  
(liq) A: eab eac ead eae eaf(t) eaq  
eal(t) eao fao fbj fbk  
(g) A: fao

Heptane, 3,5-dimethyl-  
(liq) A: eab eac ead eae eaf(t) eaq  
eal(t) eao fao fbj fbk  
(g) A: fao

Heptane, 4,4-dimethyl-  
(liq) A: eab eac ead eae eaf(t) eaq  
eal(t) eao fao fbj fbk  
(g) A: fao

Hexane, 2-methyl-3-ethyl-  
(liq) A: eab eac ead eae eaf(t) eaq  
eal(t) eao fao fbj fbk  
(g) A: fao

Hexane, 2-methyl-4-ethyl-  
(liq) A: eab eac ead eae eaf(t) eaq  
eal(t) eao fao fbj fbk  
(g) A: fao

Hexane, 3-methyl-3-ethyl-  
(liq) A: eab eac ead eae eaf(t) eaq  
eal(t) eao fao fbj fbk  
(g) A: fao

Hexane, 3-methyl-4-ethyl-  
(liq) A: eab eac ead eae eaf(t) eaq  
eal(t) eao fao fbj fbk  
(g) A: fao

Hexane, 2,2,3-trimethyl-  
(liq) A: eab eac ead eae eaf(t) eaq  
eal(t) eao fao fbj fbk  
(g) A: fao

Hexane, 2,2,4-trimethyl-  
(c) A: eaa eah fbf fbj

(liq) A: eab eac ead eae eaf(t) eaq  
eal(t) eao fao fbj fbk  
(g) A: fao

Hexane, 2,2,5-trimethyl-  
(c) A: eaa eah fbf fbj  
(liq) A: eab eac ead eae eaf(t) eaq  
eal(t) eao fao fbj fbk  
(g) A: fao

Hexane, 2,3,3-trimethyl-  
(c) A: eaa eah fbf fbj  
(liq) A: eab eac ead eae eaf(t) eaq  
eal(t) eao fao fbj fbk  
(g) A: fao

Hexane, 2,3,4-trimethyl-  
(liq) A: eab eac ead eae eaf(t) eaq  
eal(t) eao fao fbj fbk  
(g) A: fao

Hexane, 2,3,5-trimethyl-  
(c) A: eah  
(liq) A: eab eac ead eae eaf(t) eaq  
eal(t) eao fao fbj fbk  
(g) A: fao

Hexane, 2,4,4-trimethyl-  
(c) A: eaa eah fbf fbj  
(liq) A: eab eac ead eae eaf(t) eaq  
eal(t) eao fao fbj fbk  
(g) A: fao

Hexane, 3,3,4-trimethyl-  
(c) A: eaa eah fbf fbj  
(liq) A: eab eac ead eae eaf(t) eaq  
eal(t) eao fao fbj fbk  
(g) A: fao

n-Nonane  
(c, II) A: eaj fbb fbc  
(c, I) A: eaa eah fbf fbj  
(liq) A: eab(-t, t) eac ead eae eaf(-t, t)  
eag eal(t) ean(-t, t) eao fac  
fab fac fao fbi fbj fbk  
(g) A: ebc ebd ebe ebf ebg faa(t)  
fab(t) fac(t) fad(t) fae(t) faf(t) faq(t)  
fai(t) fao

Octane, 2-methyl-  
(c) A: eah  
(liq) A: eab eac ead eae eaf(t) eaq  
eal(t) eao fao fbj fbk  
(g) A: fao

Octane, 3-methyl-  
(c) A: eah  
(liq) A: eab eac ead eae eaf(t) eaq  
eal(t) eao fao fbj fbk  
(g) A: fao

Octane, 4-methyl-  
(c) A: eah  
(liq) A: eab eac ead eae eaf(t) eaq  
eal(t) eao fao fbj fbk  
(g) A: fao

Pentane, 3,3-diethyl-  
(c) A: eaa eah fbf fbj  
(liq) A: eab eac ead eae eaf(t) eaq  
eal(t) eao fao fbj fbk  
(g) A: fao







Indene, 5-methyl-2,3-dihydro- (5-Methylindan)  
(liq) A: eab eac ead eaq eao

Naphthalene, 1,2,3,4-tetrahydro-  
(c) A: eah  
(liq) A: eab eac ead eae eaq eao

1-Propene, 2-methyl-1-phenyl-  
( $\beta,\beta$ -Dimethylstyrene)  
(c) A: eah  
(liq) A: eab eac ead eaq eao

C<sub>10</sub>H<sub>14</sub> Benzene, isobutyl- (1-Phenyl-2-methylpropane)  
(c) A: eaa eah fbf fbq  
(liq) A: eab eac ead eae eaq eal(t)  
eao fbj fbk

Benzene, n-butyl- (1-Phenylbutane)  
(c) A: eaa eah fbf fbq  
(liq) A: eab(-t,t) eac ead eae eaq  
eal(t) ean(-t,t) eao faa fab  
fac fao fbj fbk  
(g) A: faa(t) fab(t) fac(t) fad(t) fae(t) faf(t)  
faq(t) fai(t) fao

Benzene, sec-butyl- (2-Phenylbutane)  
(c) A: eaa eah fbf fbq  
(liq) A: eab eac ead eae eaq eal(t)  
eao fbj fbk

Benzene, tert-butyl- (2-Phenyl-2-methylpropane)  
(c) A: eaa eah fbf fbq  
(liq) A: eab eac ead eae eaq eal(t)  
eao fbj fbk

Benzene, 1,2-diethyl-  
(c) A: eaa eah fbf fbq  
(liq) A: eab eac ead eae eaq eal(t)  
eao fbj fbk

Benzene, 1,3-diethyl-  
(c) A: eaa eah fbf fbq  
(liq) A: eab eac ead eae eaq eal(t)  
eao fbj fbk

Benzene, 1,4-diethyl-  
(c) A: eaa eah fbf fbq  
(liq) A: eab eac ead eae eaq eal(t)  
eao fbj fbk

Benzene, 1-methyl-2-isopropyl- (o-Cymene)  
(c, III) A: eaj  
(c, II) A: eaj  
(c, I) A: eaa eah fbf fbq  
(liq) A: eab eac ead eae eaq eal(t)  
eao fbj fbk

Benzene, 1-methyl-3-isopropyl- (m-Cymene)  
(c) A: eaa eah fbf fbq  
(liq) A: eab eac ead eae eaq eal(t)  
eao fbj fbk

Benzene, 1-methyl-4-isopropyl- (p-Cymene)  
(c) A: eaa eah fbf fbq  
(liq) A: eab eac ead eae eaq eal(t)  
eao fbj fbk

Benzene, 1-methyl-2-n-propyl-  
(c) A: eaa eah fbf fbq  
(liq) A: eab eac ead eae eaq eal(t)  
eao fbj fbk

Benzene, 1-methyl-3-n-propyl-  
(c) A: eaa eah fbf fbq

(liq) A: eab eac ead eae eaq eal(t)  
eao fbj fbk

Benzene, 1-methyl-4-n-propyl-  
(c) A: eaa eah fbf fbq  
(liq) A: eab eac ead eae eaq eal(t)  
eao fbj fbk

Benzene, 1,2-dimethyl-3-ethyl-  
(c) A: eaa eah fbf fbq  
(liq) A: eab eac ead eae eaq eal(t)  
eao fbj fbk

Benzene, 1,2-dimethyl-4-ethyl-  
(c) A: eaa eah fbf fbq  
(liq) A: eab eac ead eae eaq eal(t)  
eao fbj fbk

Benzene, 1,3-dimethyl-2-ethyl-  
(c) A: eaa eah fbf fbq  
(liq) A: eab eac ead eae eaq eal(t)  
eao fbj fbk

Benzene, 1,3-dimethyl-4-ethyl-  
(c) A: eaa eah fbf fbq  
(liq) A: eab eac ead eae eaq eal(t)  
eao fbj fbk

Benzene, 1,3-dimethyl-5-ethyl-  
(c) A: eaa eah fbf fbq  
(liq) A: eab eac ead eae eaq eal(t)  
eao fbj fbk

Benzene, 1,4-dimethyl-2-ethyl-  
(c) A: eaa eah fbf fbq  
(liq) A: eab eac ead eae eaq eal(t)  
eao fbj fbk

Benzene, 1,2,3,4-tetramethyl- (Phehnitene)  
(c) A: eaa eah fbf fbq  
(liq) A: eab eac ead eae eaq eal(t)  
eao fbj fbk

Benzene, 1,2,3,5-tetramethyl- (Isodurene)  
(c) A: eaa eah fbf fbq  
(liq) A: eab eac ead eae eaq eal(t)  
eao fbj fbk

Benzene, 1,2,4,5-tetramethyl- (Durene)  
(c) A: eaa eah fbf fbq  
(liq) A: eab eac ead eae eaq eal(t)  
eao fbj fbk

C<sub>10</sub>H<sub>18</sub> Cyclohexene, 1-n-butyl-  
(liq) A: fao  
(g) A: fao

Cyclopentene, 1-n-pentyl-  
(liq) A: eab eac ead eaq eao fao  
(g) A: fao

Cyclopentene, 3-n-pentyl-  
(liq) A: fao

Cyclopentene, 4-n-pentyl-  
(liq) A: fao

1-Decyne  
(c) A: eah  
(liq) A: eab eac ead eae eaq eao  
(g) A: faa(t) fab(t) fac(t) fad(t) fae(t) faf(t)  
faq(t) fai(t) fao

2-Decyne  
(liq) A: eab eac ead eaq eao

3-Decyne  
(liq) A: eab eac ead eaq eao

Naphthalene, cis-decahydro-  
(c) A: eah  
(liq) A: eab eac ead eaq eao

Naphthalene, trans-decahydro-  
(c) A: eah  
(liq) A: eab eac ead eaq eao

C<sub>10</sub>H<sub>20</sub> Cyclodecane  
(c) A: eah  
(liq) A: eab eac ead eaq eao

Cyclohexane, n-butyl-  
(c) A: eaa eah fbf fbg  
(liq) A: eab(-t,t) eac ead eae eaq  
eal(t) ean(-t,t) eao faa fab  
fac fao fbj fbk  
(g) A: faa(t) fab(t) fac(t) fad(t) fae(t) faf(t)  
faq(t) fal(t) fao

Cyclopentane, n-pentyl-  
(c) A: eah  
(liq) A: eab(-t,t) eac ead eae eaq  
eal(t) ean(-t,t) eao fao fbj  
fbk  
(g) A: faa(t) fab(t) fac(t) fad(t) fae(t) faf(t)  
faq(t) fal(t) fao

1-Decene  
(c, l) A: eaj fbb fbc  
(c, l) A: eaa eah fbf fbg  
(liq) A: eab(t) eac ead eae eaf(t) eaq  
eal(t) ean(t) eao fbj fbk  
(g) A: faa(t) fab(t) fac(t) fad(t) fae(t) faf(t)  
faq(t) fal(t) fao

1-Nonene, 2-methyl-  
(c) A: eah  
(liq) A: eab eac ead eae eaq eao

C<sub>10</sub>H<sub>22</sub> n-Decane  
(c) A: eaa eah fbf fbg  
(liq) A: eab(-t,t) eac ead eae eaf(-t,t)  
eaq eal(t) ean(-t,t) eao faa  
fab fac fao fbi fbj fbk  
(g) A: ebc ebd ebe ebf ebq faa(t)  
fab(t) fac(t) fad(t) fae(t) faf(t) faq(t)  
fal(t) fao

Heptane, 2-methyl-3-ethyl-  
(liq) A: eab eac ead eae eaq eao  
fao  
(g) A: fao

Heptane, 2-methyl-4-ethyl-  
(liq) A: eab eac ead eae eaq eao  
fao  
(g) A: fao

Heptane, 2-methyl-5-ethyl-  
(liq) A: eab eac ead eae eaq eao  
fao  
(g) A: fao

Heptane, 3-methyl-3-ethyl-  
(liq) A: eab eac ead eae eaq eao  
fao  
(g) A: fao

Heptane, 3-methyl-4-ethyl-  
(liq) A: eab eac ead eae eaq eao  
fao  
(g) A: fao

Heptane, 3-methyl-5-ethyl-  
(liq) A: eab eac ead eae eaq eao  
fao  
(g) A: fao

Heptane, 4-methyl-3-ethyl-  
(liq) A: eab eac ead eae eaq eao  
fao  
(g) A: fao

Heptane, 4-methyl-4-ethyl-  
(liq) A: eab eac ead eae eaq eao  
fao  
(g) A: fao

Heptane, 2,2,3-trimethyl-  
(liq) A: eab eac ead eae eaq eao  
fao  
(g) A: fao

Heptane, 2,2,4-trimethyl-  
(liq) A: eab eac ead eae eaq eao  
fao  
(g) A: fao

Heptane, 2,2,5-trimethyl-  
(liq) A: eab eac ead eae eaq eao  
fao  
(g) A: fao

Heptane, 2,2,6-trimethyl-  
(liq) A: eab eac ead eae eaq eao  
fao  
(g) A: fao

Heptane, 2,3,3-trimethyl-  
(liq) A: eab eac ead eae eaq eao  
fao  
(g) A: fao

Heptane, 2,3,4-trimethyl-  
(liq) A: eab eac ead eae eaq eao  
fao  
(g) A: fao

Heptane, 2,3,5-trimethyl-  
(liq) A: eab eac ead eae eaq eao  
fao  
(g) A: fao

Heptane, 2,3,6-trimethyl-  
(liq) A: eab eac ead eae eaq eao  
fao  
(g) A: fao

Heptane, 2,4,4-trimethyl-  
(liq) A: eab eac ead eae eaq eao  
fao  
(g) A: fao

Heptane, 2,4,5-trimethyl-  
(liq) A: eab eac ead eae eaq eao  
fao  
(g) A: fao

Heptane, 2,4,6-trimethyl-  
(liq) A: eab eac ead eae eaq eao  
fao  
(g) A: fao

Heptane, 2,5,5-trimethyl-  
(liq) A: eab eac ead eae eaq eao  
fao  
(g) A: fao

Heptane, 3,3,4-trimethyl-  
(liq) A: eab eac ead eae eaq eao  
fao  
(g) A: fao  
Heptane, 3,3,5-trimethyl-  
(liq) A: eab eac ead eae eaq eao  
fao  
(g) A: fao  
Heptane, 3,4,4-trimethyl-  
(liq) A: eab eac ead eae eaq eao  
fao  
(g) A: fao  
Heptane, 3,4,5-trimethyl-  
(liq) A: eab eac ead eae eaq eao  
fao  
(g) A: fao  
Heptane, 4-isopropyl-  
(liq) A: eab eac ead eae eaq eao  
fao  
(g) A: eab eac ead eae eaq eao  
fao  
(g) A: fao  
Heptane, 4-n-propyl-  
(liq) A: eab eac ead eae eaq eao  
fao  
(g) A: fao  
Hexane, 3,3-diethyl-  
(liq) A: eab eac ead eae eaq eao  
fao  
(g) A: fao  
Hexane, 3,4-diethyl-  
(liq) A: eab eac ead eae eaq eao  
fao  
(g) A: fao  
Hexane, 2-methyl-3-isopropyl-  
(liq) A: eab eac ead eae eaq eao  
fao  
(g) A: fao  
Hexane, 2,2-dimethyl-3-ethyl-  
(liq) A: eab eac ead eae eaq eao  
fao  
(g) A: fao  
Hexane, 2,2-dimethyl-4-ethyl-  
(liq) A: eab eac ead eae eaq eao  
fao  
(g) A: fao  
Hexane, 2,3-dimethyl-3-ethyl-  
(liq) A: eab eac ead eae eaq eao  
fao  
(g) A: fao  
Hexane, 2,3-dimethyl-4-ethyl-  
(liq) A: eab eac ead eae eaq eao  
fao  
(g) A: fao  
Hexane, 2,4-dimethyl-3-ethyl-  
(liq) A: eab eac ead eae eaq eao  
fao  
(g) A: fao  
Hexane, 2,4-dimethyl-4-ethyl-  
(liq) A: eab eac ead eae eaq eao  
fao

(g) A: fao  
Hexane, 2,5-dimethyl-3-ethyl-  
(liq) A: eab eac ead eae eaq eao  
fao  
(g) A: fao  
Hexane, 3,3-dimethyl-4-ethyl-  
(liq) A: eab eac ead eae eaq eao  
fao  
(g) A: fao  
Hexane, 3,4-dimethyl-3-ethyl-  
(liq) A: eab eac ead eae eaq eao  
fao  
(g) A: fao  
Hexane, 2,2,3,3-tetramethyl-  
(c) A: eah  
(liq) A: eab eac ead eae eaq eao  
fao  
(g) A: fao  
Hexane, 2,2,3,4-tetramethyl-  
(liq) A: eab eac ead eae eaq eao  
fao  
(g) A: fao  
Hexane, 2,2,3,5-tetramethyl-  
(liq) A: eab eac ead eae eaq eao  
fao  
(g) A: fao  
Hexane, 2,2,4,4-tetramethyl-  
(liq) A: eab eac ead eae eaq eao  
fao  
(g) A: fao  
Hexane, 2,2,4,5-tetramethyl-  
(liq) A: eab eac ead eae eaq eao  
fao  
(g) A: fao  
Hexane, 2,2,5,5-tetramethyl-  
(c) A: eah  
(liq) A: eab eac ead eae eaq eao  
fao  
(g) A: fao  
Hexane, 2,3,3,4-tetramethyl-  
(liq) A: eab eac ead eae eaq eao  
fao  
(g) A: fao  
Hexane, 2,3,3,5-tetramethyl-  
(liq) A: eab eac ead eae eaq eao  
fao  
(g) A: fao  
Hexane, 2,3,4,4-tetramethyl-  
(liq) A: eab eac ead eae eaq eao  
fao  
(g) A: fao  
Hexane, 2,3,4,5-tetramethyl-  
(liq) A: eab eac ead eae eaq eao  
fao  
(g) A: fao  
Hexane, 3,3,4,4-tetramethyl-  
(liq) A: eab eac ead eae eaq eao  
fao  
(g) A: fao  
Nonane, 2-methyl-  
(c) A: eah

(liq) A: eab eac ead eae eag eao  
fao  
(g) A: fao  
Nonane, 3-methyl-  
(c) A: eah  
(liq) A: eab eac ead eae eag eao  
fao  
(g) A: fao  
Nonane, 4-methyl-  
(c) A: eah  
(liq) A: eab eac ead eae eag eao  
fao  
(g) A: fao  
Nonane, 5-methyl-  
(c) A: eah  
(liq) A: eab eac ead eae eag eao  
fao  
(g) A: fao  
Octane, 3-ethyl-  
(liq) A: eab eac ead eae eag eao  
fao  
(g) A: fao  
Octane, 4-ethyl-  
(liq) A: eab eac ead eae eag eao  
fao  
(g) A: fao  
Octane, 2,2-dimethyl-  
(liq) A: eab eac ead eae eag eao  
fao  
(g) A: fao  
Octane, 2,3-dimethyl-  
(liq) A: eab eac ead eae eag eao  
fao  
(g) A: fao  
Octane, 2,4-dimethyl-  
(liq) A: eab eac ead eae eag eao  
fao  
(g) A: fao  
Octane, 2,5-dimethyl-  
(liq) A: eab eac ead eae eag eao  
fao  
(g) A: fao  
Octane, 2,6-dimethyl-  
(liq) A: eab eac ead eae eag eao  
fao  
(g) A: fao  
Octane, 2,7-dimethyl-  
(c) A: eah  
(liq) A: eab eac ead eae eag eao  
fao  
(g) A: fao  
Octane, 3,3-dimethyl-  
(liq) A: eab eac ead eae eag eao  
fao  
(g) A: fao  
Octane, 3,4-dimethyl-  
(liq) A: eab eac ead eae eag eao  
fao  
(g) A: fao  
Octane, 3,5-dimethyl-  
(liq) A: eab eac ead eae eag eao  
fao  
(g) A: fao

Octane, 3,6-dimethyl-  
(liq) A: eab eac ead eae eag eao  
fao  
(g) A: fao  
Octane, 4,4-dimethyl-  
(liq) A: eab eac ead eae eag eao  
fao  
(g) A: fao  
Octane, 4,5-dimethyl-  
(liq) A: eab eac ead eae eag eao  
fao  
(g) A: fao  
Pentane, 2-methyl-3,3-diethyl-  
(liq) A: eab eac ead eae eag eao  
fao  
(g) A: fao  
Pentane, 2,4-dimethyl-3-isopropyl-  
(c) A: eah  
(liq) A: eab eac ead eae eag eao  
fao  
(g) A: fao  
Pentane, 2,2,3-trimethyl-3-ethyl-  
(liq) A: eab eac ead eae eag eao  
fao  
(g) A: fao  
Pentane, 2,2,4-trimethyl-3-ethyl-  
(liq) A: eab eac ead eae eag eao  
fao  
(g) A: fao  
Pentane, 2,3,4-trimethyl-3-ethyl-  
(liq) A: eab eac ead eae eag eao  
fao  
(g) A: fao  
Pentane, 2,2,3,3,4-pentamethyl-  
(c) A: eah  
(liq) A: eab eac ead eae eag eao  
fao  
(g) A: fao  
Pentane, 2,2,3,4,4-pentamethyl-  
(c) A: eah  
(liq) A: eab eac ead eae eag eao  
fao  
(g) A: fao

C<sub>11</sub>H<sub>10</sub> Naphthalene, 1-methyl-  
(c) A: eah  
(liq) A: eab eac ead eae eag eal(t)  
eao  
Naphthalene, 2-methyl-  
(c) A: eah  
(liq) A: eab eac ead eae eag eal(t)  
eao  
C<sub>11</sub>H<sub>14</sub> Naphthalene, 1-methyl-1,2,3,4-tetrahydro-  
(liq) A: eab eac ead eae eag eao  
Naphthalene, 2-methyl-1,2,3,4-tetrahydro-  
(liq) A: eab eac ead eae eag eao  
Naphthalene, 5-methyl-1,2,3,4-tetrahydro-  
(c) A: eah  
(liq) A: eab eac ead eae eag eao  
Naphthalene, 6-methyl-1,2,3,4-tetrahydro-  
(c) A: eah  
(liq) A: eab eac ead eae eag eao

C <sub>11</sub> H <sub>16</sub>	Benzene, 1-ethyl-2-isopropyl-						
	(liq) A:	eab	eac	ead	eae	eaq	eao
	Benzene, 1-ethyl-3-isopropyl-						
	(liq) A:	eab	eac	ead	eae	eaq	eao
	Benzene, 1-ethyl-4-isopropyl-						
	(liq) A:	eab	eac	ead	eae	eaq	eao
	Benzene, 1-ethyl-2-n-propyl-						
	(liq) A:	eab	eac	ead	eaq	eao	
	Benzene, 1-ethyl-3-n-propyl-						
	(liq) A:	eab	eac	ead	eaq	eao	
	Benzene, 1-ethyl-4-n-propyl-						
	(liq) A:	eab	eac	ead	eaq	eao	
	Benzene, 1-methyl-2-isobutyl-						
	(liq) A:	eab	eac	ead	eae	eaq	eao
	Benzene, 1-methyl-3-isobutyl-						
	(liq) A:	eab	eac	ead	eae	eaq	eao
	Benzene, 1-methyl-4-isobutyl-						
	(liq) A:	eab	eac	ead	eaq	eao	
	Benzene, 1-methyl-2-n-butyl-						
	(liq) A:	eab	eac	ead	eaq	eao	
	Benzene, 1-methyl-3-n-butyl-						
	(liq) A:	eab	eac	ead	eaq	eao	
	Benzene, 1-methyl-4-n-butyl-						
	(liq) A:	eab	eac	ead	eaq	eao	
	Benzene, 1-methyl-2-sec-butyl-						
	(liq) A:	eab	eac	ead	eae	eaq	eao
	Benzene, 1-methyl-3-sec-butyl-						
	(liq) A:	eab	eac	ead	eae	eaq	eao
	Benzene, 1-methyl-4-sec-butyl-						
	(liq) A:	eab	eac	ead	eae	eaq	eao
	Benzene, 1-methyl-2-tert-butyl-						
	(c) A:	eah					
	(liq) A:	eab	eac	ead	eaq	eao	
	Benzene, 1-methyl-3-tert-butyl-						
	(c) A:	eah					
	(liq) A:	eab	eac	ead	eaq	eao	
	Benzene, 1-methyl-4-tert-butyl-						
	(c) A:	eah					
	(liq) A:	eab	eac	ead	eae	eaq	eao
	Benzene, 1-methyl-2,3-diethyl-						
	(liq) A:	eab	eac	ead	eae	eaq	eao
	Benzene, 1-methyl-2,4-diethyl-						
	(liq) A:	eab	eac	ead	eae	eaq	eao
	Benzene, 1-methyl-2,5-diethyl-						
	(liq) A:	eab	eac	ead	eae	eaq	eao
	Benzene, 1-methyl-2,6-diethyl-						
	(liq) A:	eab	eac	ead	eae	eaq	eao
Benzene, 1-methyl-3,4-diethyl-							
(liq) A:	eab	eac	ead	eae	eaq	eao	
Benzene, 1-methyl-3,5-diethyl-							
(c) A:	eah						
(liq) A:	eab	eac	ead	eae	eaq	eao	
Benzene, 1,2-dimethyl-3-isopropyl-							
(liq) A:	eab	eac	ead	eae	eaq	eao	
Benzene, 1,2-dimethyl-4-isopropyl-							
(liq) A:	eab	eac	ead	eae	eaq	eao	
Benzene, 1,3-dimethyl-2-isopropyl-							
(liq) A:	eab	eac	ead	eae	eaq	eao	
Benzene, 1,3-dimethyl-4-isopropyl-							
(liq) A:	eab	eac	ead	eae	eaq	eao	
Benzene, 1,3-dimethyl-5-isopropyl-							
(liq) A:	eab	eac	ead	eae	eaq	eao	
Benzene, 1,4-dimethyl-2-isopropyl-							
(liq) A:	eab	eac	ead	eae	eaq	eao	
Benzene, 1,2-dimethyl-3-n-propyl							
(liq) A:	eab	eac	ead	eae	eaq	eao	
Benzene, 1,2-dimethyl-4-n-propyl-							
(liq) A:	eab	eac	ead	eae	eaq	eao	
Benzene, 1,3-dimethyl-2-n-propyl-							
(liq) A:	eab	eac	ead	eae	eaq	eao	
Benzene, 1,3-dimethyl-4-n-propyl-							
(liq) A:	eab	eac	ead	eae	eaq	eao	
Benzene, 1,3-dimethyl-5-n-propyl-							
(c) A:	eah						
(liq) A:	eab	eac	ead	eae	eaq	eao	
Benzene, 1,4-dimethyl-2-n-propyl-							
(liq) A:	eab	eac	ead	eae	eaq	eao	
Benzene, 1,2,3-trimethyl-4-ethyl-							
(liq) A:	eab	eac	ead	eae	eaq	eao	
Benzene, 1,2,3-trimethyl-5-ethyl-							
(liq) A:	eab	eac	ead	eae	eaq	eao	
Benzene, 1,2,4-trimethyl-3-ethyl-							
(liq) A:	eab	eac	ead	eae	eaq	eao	
Benzene, 1,2,4-trimethyl-5-ethyl-							
(c) A:	eah						
(liq) A:	eab	eac	ead	eae	eaq	eao	
Benzene, 1,2,4-trimethyl-6-ethyl-							
(liq) A:	eab	eac	ead	eae	eaq	eao	
Benzene, 1,3,5-trimethyl-2-ethyl-							
(c) A:	eah						
(liq) A:	eab	eac	ead	eae	eaq	eao	
Benzene, pentamethyl-							
(c) A:	eah						
(liq) A:	eab	eac	ead	eae	eaq	eao	
Benzene, n-pentyl-							
(c) A:	ea	eah	fbf	fbg			
(liq) A:	eab(-t,t)	eac	ead	eae	eaq		
	eal(t)	ean(-t,t)	eao	faa	fab		
	fac	fao	fbj	fbk			
(g) A:	faa(t)	fab(t)	fac(t)	fad(t)	fae(t)	faf(t)	
	fag(t)	fai(t)	fao				
Butane, 1-phenyl-2-methyl-							
(liq) A:	eab	eac	ead	eae	eaq	eao	
Butane, 1-phenyl-3-methyl-							
(liq) A:	eab	eac	ead	eaq	eao		
Butane, 2-phenyl-2-methyl-							
(liq) A:	eab	eac	ead	eae	eaq	eao	
Butane, 2-phenyl-3-methyl-							
(liq) A:	eab	eac	ead	eae	eaq	eao	
Pentane, 2-phenyl-							
(liq) A:	eab	eac	ead	eae	eaq	eao	
Pentane, 3-phenyl-							
(liq) A:	eab	eac	ead	eae	eaq	eao	
Propane, 1-phenyl-2,2-dimethyl-							
(liq) A:	eab	eac	ead	eaq	eao		
C <sub>11</sub> H <sub>20</sub>	Cyclohexene, 1-n-pentyl-						
	(liq) A:	fao					
	(g) A:	fao					
	Cyclopentene, 1-n-hexyl-						
(liq) A:	eab	eac	ead	eaq	eao	fao	
(g) A:	fao						
Cyclopentene, 3-n-hexyl-							
(liq) A:	fao						

Cyclopentene, 4-n-hexyl-  
(liq) A: fao  
Naphthalene, 1-methyl-cis-decahydro-  
(liq) A: eac eag  
Naphthalene, 1-methyl-trans-decahydro-  
(liq) A: eac ead eag  
Naphthalene, 2-methyl-cis-decahydro-  
(liq) A: eac eag  
Naphthalene, 2-methyl-trans-decahydro-  
(liq) A: eac eag  
Naphthalene, 9-methyl-cis-decahydro-  
(liq) A: eab eac ead eag eao  
Naphthalene, 9-methyl-trans-decahydro-  
(liq) A: eab eac ead eag eao  
1-Undecyne  
(c) A: eah  
(liq) A: eab eac ead eae eag eao  
(g) A: faa(t) fab(t) fac(t) fad(t) fae(t) faf(t)  
faq(t) fai(t) fao  
2-Undecyne  
(liq) A: eab eac ead eag eao  
3-Undecyne  
(liq) A: eab eac ead eag eao  
C<sub>11</sub>H<sub>22</sub> Cyclohexane, n-pentyl-  
(c) A: eah  
(liq) A: eab(-t,t) eac ead eae eag  
eal(t) ean(-t,t) eao fao fbj  
fbk  
(g) A: faa(t) fab(t) fac(t) fad(t) fae(t) faf(t)  
faq(t) fai(t) fao  
Cyclopentane, n-hexyl-  
(c) A: eah  
(liq) A: eab(-t,t) eac ead eae eag  
eal(t) ean(-t,t) eao fao fbj  
fbk  
(g) A: faa(t) fab(t) fac(t) fad(t) fae(t) faf(t)  
faq(t) fai(t) fao  
Cycloundecane  
(c) A: eah  
(liq) A: eab eac ead eag eao  
1-Decene, 2-methyl-  
(c) A: eah  
(liq) A: eab eac ead eae eag eao  
1-Undecene  
(c, II) A: eaj fbb fbc  
(c, I) A: eaa eah fbf fbj  
(liq) A: eab(t) eac ead eae eaf(t) eag  
eal(t) ean(t) eao fbj fbk  
(g) A: faa(t) fab(t) fac(t) fad(t) fae(t) faf(t)  
faq(t) fai(t) fao  
C<sub>11</sub>H<sub>24</sub> Decane, 2-methyl-  
(c) A: eah  
(liq) A: eab eac ead eag eao  
Decane, 3-methyl-  
(c) A: eah  
(liq) A: eab eac ead eag eao  
Decane, 4-methyl-  
(c) A: eah  
(liq) A: eab eac ead eag eao  
Decane, 5-methyl-  
(liq) A: eab eac ead eag eao

Heptane, 4-tert-butyl-  
(liq) A: eab eac ead eag eao  
Heptane, 3,3-diethyl-  
(liq) A: eab eac ead eag eao  
Heptane, 3,4-diethyl-  
(liq) A: eab eac ead eag eao  
Heptane, 3,5-diethyl-  
(liq) A: eab eac ead eag eao  
Heptane, 4,4-diethyl-  
(liq) A: eab eac ead eag eao  
Heptane, 2-methyl-3-isopropyl-  
(liq) A: eab eac ead eag eao  
Heptane, 2-methyl-4-isopropyl-  
(liq) A: eab eac ead eag eao  
Heptane, 3-methyl-4-isopropyl-  
(liq) A: eab eac ead eag eao  
Heptane, 4-methyl-4-isopropyl-  
(liq) A: eab eac ead eag eao  
Heptane, 2-methyl-4-n-propyl-  
(liq) A: eab eac ead eag eao  
Heptane, 3-methyl-4-n-propyl-  
(liq) A: eab eac ead eag eao  
Heptane, 4-methyl-4-n-propyl-  
(liq) A: eab eac ead eag eao  
Heptane, 2,2-dimethyl-3-ethyl-  
(liq) A: eab eac ead eag eao  
Heptane, 2,2-dimethyl-4-ethyl-  
(liq) A: eab eac ead eag eao  
Heptane, 2,2-dimethyl-5-ethyl-  
(liq) A: eab eac ead eag eao  
Heptane, 2,3-dimethyl-3-ethyl-  
(liq) A: eab eac ead eag eao  
Heptane, 2,3-dimethyl-4-ethyl-  
(liq) A: eab eac ead eag eao  
Heptane, 2,3-dimethyl-5-ethyl-  
(liq) A: eab eac ead eag eao  
Heptane, 2,4-dimethyl-3-ethyl-  
(liq) A: eab eac ead eag eao  
Heptane, 2,4-dimethyl-4-ethyl-  
(c) A: eah  
(liq) A: eab eac ead eag eao  
Heptane, 2,4-dimethyl-5-ethyl-  
(liq) A: eab eac ead eag eao  
Heptane, 2,5-dimethyl-3-ethyl-  
(liq) A: eab eac ead eag eao  
Heptane, 2,5-dimethyl-4-ethyl-  
(liq) A: eab eac ead eag eao  
Heptane, 2,5-dimethyl-5-ethyl-  
(liq) A: eab eac ead eag eao  
Heptane, 2,6-dimethyl-3-ethyl-  
(liq) A: eab eac ead eag eao  
Heptane, 2,6-dimethyl-4-ethyl-  
(liq) A: eab eac ead eag eao  
Heptane, 3,3-dimethyl-4-ethyl-  
(liq) A: eab eac ead eag eao  
Heptane, 3,3-dimethyl-5-ethyl-  
(liq) A: eab eac ead eag eao  
Heptane, 3,4-dimethyl-3-ethyl-  
(liq) A: eab eac ead eag eao  
Heptane, 3,4-dimethyl-4-ethyl-  
(liq) A: eab eac ead eag eao









Pentane, 2,2,3,3,4,4-hexamethyl-  
(liq) A: eab eac ead eag eao

n-Undecane  
(c, II) A: eaj fbb fbc  
(c, I) A: eaa eah fbf fbg  
(liq) A: eab(t) eac ead eae eaf(t) eag  
eal(t) ean(t) eao faa fab fac  
fao fbi fbj fbk  
(g) A: ebc ebd ebe ebf ebg faa(t)  
fab(t) fac(t) fad(t) fae(t) faf(t) faq(t)  
fao

C<sub>12</sub>H<sub>10</sub> Benzene, phenyl-  
(c) A: eah  
(liq) A: eac eag

C<sub>12</sub>H<sub>12</sub> Naphthalene, 1-ethyl-  
(c) A: eah  
(liq) A: eab eac ead eae eag eal(t)  
eao

Naphthalene, 2-ethyl-  
(c) A: eah  
(liq) A: eab eac ead eae eag eal(t)  
eao

Naphthalene, 1,2-dimethyl-  
(c) A: eah  
(liq) A: eab eac ead eae eag eao

Naphthalene, 1,3-dimethyl-  
(c) A: eah  
(liq) A: eab eac ead eae eag eao

Naphthalene, 1,4-dimethyl-  
(c) A: eah  
(liq) A: eab eac ead eae eag eao

Naphthalene, 1,5-dimethyl-  
(c) A: eah  
(liq) A: eac eag

Naphthalene, 1,6-dimethyl-  
(c) A: eah  
(liq) A: eab eac ead eae eag eao

Naphthalene, 1,7-dimethyl-  
(c) A: eah  
(liq) A: eab eac ead eae eag eao

Naphthalene, 1,8-dimethyl-  
(c) A: eah  
(liq) A: eac eag

Naphthalene, 2,3-dimethyl-  
(c) A: eah  
(liq) A: eac eag

Naphthalene, 2,6-dimethyl-  
(c) A: eah  
(liq) A: eac eag

Naphthalene, 2,7-dimethyl-  
(c) A: eah  
(liq) A: eac eag

C<sub>12</sub>H<sub>16</sub> Naphthalene, 1-ethyl-1,2,3,4-tetrahydro-  
(liq) A: eab eac ead eag eao

Naphthalene, 2-ethyl-1,2,3,4-tetrahydro-  
(liq) A: eab eac ead eag eao

Naphthalene, 5-ethyl-1,2,3,4-tetrahydro-  
(liq) A: eab eac ead eae eag eao

Naphthalene, 6-ethyl-1,2,3,4-tetrahydro-  
(liq) A: eab eac ead eae eag eao

Naphthalene, 1,1-dimethyl-1,2,3,4-tetrahydro-  
(liq) A: eab eac ead eag eao

Naphthalene, 1,cis-2-dimethyl-1,2,3,4-tetrahydro-  
(liq) A: eab eac ead eag eao

Naphthalene, 1,trans-2-dimethyl-1,2,3,4-tetrahydro-  
(liq) A: eab eac ead eag eao

Naphthalene, 1,cis-3-dimethyl-1,2,3,4-tetrahydro-  
(liq) A: eab eac ead eag eao

Naphthalene, 1,trans-3-dimethyl-1,2,3,4-tetrahydro-  
(liq) A: eab eac ead eag eao

Naphthalene, 1,cis-4-dimethyl-1,2,3,4-tetrahydro-  
(liq) A: eab eac ead eag eao

Naphthalene, 1,trans-4-dimethyl-1,2,3,4-tetrahydro-  
(liq) A: eab eac ead eag eao

Naphthalene, 1,5-dimethyl-1,2,3,4-tetrahydro-  
(liq) A: eab eac ead eag eao

Naphthalene, 1,6-dimethyl-1,2,3,4-tetrahydro-  
(liq) A: eab eac ead eag eao

Naphthalene, 1,7-dimethyl-1,2,3,4-tetrahydro-  
(liq) A: eab eac ead eag eao

Naphthalene, 1,8-dimethyl-1,2,3,4-tetrahydro-  
(liq) A: eab eac ead eag eao

Naphthalene, 2,2-dimethyl-1,2,3,4-tetrahydro-  
(liq) A: eab eac ead eag eao

Naphthalene, 2,cis-3-dimethyl-1,2,3,4-tetrahydro-  
(c) A: eah  
(liq) A: eab eac ead eag eao

Naphthalene, 2,trans-3-dimethyl-1,2,3,4-tetrahydro-  
(c) A: eah  
(liq) A: eab eac ead eag eao

Naphthalene, 2,5-dimethyl-1,2,3,4-tetrahydro-  
(liq) A: eab eac ead eag eao

Naphthalene, 2,6-dimethyl-1,2,3,4-tetrahydro-  
(c) A: eah  
(liq) A: eab eac ead eag eao

Naphthalene, 2,7-dimethyl-1,2,3,4-tetrahydro-  
(liq) A: eab eac ead eag eao

Naphthalene, 2,8-dimethyl-1,2,3,4-tetrahydro-  
(liq) A: eab eac ead eag eao

Naphthalene, 5,6-dimethyl-1,2,3,4-tetrahydro-  
(liq) A: eab eac ead eag eao

Naphthalene, 5,7-dimethyl-1,2,3,4-tetrahydro-  
(c) A: eah  
(liq) A: eab eac ead eae eag eao

Naphthalene, 5,8-dimethyl-1,2,3,4-tetrahydro-  
(liq) A: eab eac ead eag eao

Naphthalene, 6,7-dimethyl-1,2,3,4-tetrahydro-  
(c) A: eah  
(liq) A: eab eac ead eag eao

C<sub>12</sub>H<sub>18</sub> Benzene, n-hexyl-  
(c) A: eah  
(liq) A: eab(-t,t) eac ead eae eag  
eal(t) ean(-t,t) eao fao fbj  
fbk  
(g) A: faa(t) fab(t) fac(t) fad(t) fae(t) faf(t)  
faq(t) fal(t) fao

C<sub>12</sub>H<sub>22</sub> Cyclohexene, 1-n-hexyl-  
(liq) A: fao  
(g) A: fao

Cyclopentene, 1-n-heptyl-  
(liq) A: eab eac ead eag eao fao  
(g) A: fao



















Naphthalene, 2-n-propyl-  
(c) A: eah  
(liq) A: eab eac ead eag eao

C<sub>13</sub>H<sub>18</sub> Naphthalene, 1-n-propyl-1,2,3,4-tetrahydro-  
(liq) A: eab eac ead eag eao

Naphthalene, 6-n-propyl-1,2,3,4-tetrahydro-  
(liq) A: eab eac ead eag eao

C<sub>13</sub>H<sub>20</sub> Benzene, n-heptyl-  
(c) A: eah  
(liq) A: eab(-t,t) eac ead eae eag  
eal(t) ean(-t,t) eao fao fbj  
fbk  
(g) A: faa(t) fab(t) fac(t) fad(t) fae(t) faf(t)  
faq(t) fal(t) fao

C<sub>13</sub>H<sub>24</sub> Cyclohexene, 1-n-heptyl-  
(liq) A: fao  
(g) A: fao

Cyclopentene, 1-n-octyl-  
(liq) A: eab eac ead eag eao fao  
(g) A: fao

Cyclopentene, 3-n-octyl-  
(liq) A: fao

Cyclopentene, 4-n-octyl-  
(liq) A: fao

Methane, dicyclohexyl-  
(c) A: eah  
(liq) A: eab eac ead eag eao

1-Tridecane  
(c) A: eah  
(liq) A: eab eac ead eae eag eao  
(g) A: faa(t) fab(t) fac(t) fad(t) fae(t) faf(t)  
faq(t) fal(t) fao

2-Tridecane  
(liq) A: eab eac ead eag eao

3-Tridecane  
(liq) A: eab eac ead eag eao

C<sub>13</sub>H<sub>26</sub> Cyclohexane, n-heptyl-  
(c) A: eah  
(liq) A: eab(-t,t) eac ead eae eag  
eal(t) ean(-t,t) eao fao fbj  
fbk  
(g) A: faa(t) fab(t) fac(t) fad(t) fae(t) faf(t)  
faq(t) fal(t) fao

Cyclopentane, n-octyl-  
(c) A: eah  
(liq) A: eab(-t,t) eac ead eae eag  
eal(t) ean(-t,t) eao fao fbj  
fbk  
(g) A: faa(t) fab(t) fac(t) fad(t) fae(t) faf(t)  
faq(t) fal(t) fao

Cyclotridecane  
(c) A: eah  
(liq) A: eab eac ead eag eao

1-Dodecene, 2-methyl-  
(c) A: eah  
(liq) A: eab eac ead eae eag eao

1-Tridecene  
(c) A: eaa eah fbf fbj  
(liq) A: eab(t) eac ead eae eaf(t) eag  
eal(t) ean(t) eao fbj fbk  
(g) A: faa(t) fab(t) fac(t) fad(t) fae(t) faf(t)  
faq(t) fal(t) fao

C<sub>13</sub>H<sub>28</sub> Dodecane, 2-methyl-  
(c) A: eah  
(liq) A: eab eac ead eag eao

Dodecane, 3-methyl-  
(c) A: eah  
(liq) A: eab eac ead eag eao

n-Tridecane  
(c, ll) A: eaj fbb fbc  
(c, l) A: eaa eah fbf fbj  
(liq) A: eab(t) eac ead eae eaf(t) eag  
eal(t) ean(t) eao faa fab fac  
fao fbi fbj fbk  
(g) A: ebc ebd ebe ebf ebg faa(t)  
fab(t) fac(t) fad(t) fae(t) faf(t) faq(t)  
fal(t) fao

Undecane, 2,2-dimethyl-  
(liq) A: eab eac ead eag eao

Undecane, 2,3-dimethyl-  
(liq) A: eab eac ead eag eao

Undecane, 2,4-dimethyl-  
(liq) A: eab eac ead eag eao

C<sub>14</sub>H<sub>12</sub> Ethene, 1,1-diphenyl-  
(c) A: eah  
(liq) A: eab eac ead eag eao

C<sub>14</sub>H<sub>14</sub> Benzene, 1-ethyl-2-phenyl- (2-Ethylbiphenyl)  
(c) A: eah  
(liq) A: eab eac ead eag eao

Benzene, 1-ethyl-3-phenyl- (3-Ethylbiphenyl)  
(c) A: eah  
(liq) A: eab eac ead eag eao

Benzene, 1-ethyl-4-phenyl- (4-Ethylbiphenyl)  
(c) A: eah  
(liq) A: eac eag

Benzene, 1-methyl-2-(2'-methyl-phenyl)-  
(2,2'-Dimethylbiphenyl)  
(c) A: eah  
(liq) A: eab eac ead eag eao

Benzene, 1-methyl-2-(3'-methyl-phenyl) -  
(2,3'-Dimethylbiphenyl)  
(liq) A: eab eac ead eag eao

Benzene, 1-methyl-2-(4'-methyl-phenyl) -  
(2,4'-Dimethylbiphenyl)  
(liq) A: eac eag

Benzene, 1-methyl-3-(3'-methyl-phenyl) -  
(3,3'-Dimethylbiphenyl)  
(c) A: eah  
(liq) A: eab eac eag eao

Benzene, 1-methyl-3-(4'-methyl-phenyl) -  
(3,4'-Dimethylbiphenyl)  
(c) A: eah  
(liq) A: eab eac ead eag eao

Benzene, 1-methyl-4-(4'-methyl-phenyl) -  
(4,4'-Dimethylbiphenyl)  
(c) A: eah  
(liq) A: eac eag

Benzene, 1,2-dimethyl-3-phenyl-  
(2,3-Dimethylbiphenyl)  
(liq) A: eac eag

Benzene, 1,2-dimethyl-4-phenyl-  
(3,4-Dimethylbiphenyl)  
(liq) A: eac eag

Benzene, 1,3-dimethyl-2-phenyl-  
(2,6-Dimethylbiphenyl)  
(liq) A: eac eaq  
Benzene, 1,3-dimethyl-4-phenyl-  
(2,4-Dimethylbiphenyl)  
(liq) A: eac eaq  
Benzene, 1,3-dimethyl-5-phenyl-  
(3,5-Dimethylbiphenyl)  
(liq) A: eac eaq  
Benzene, 1,4-dimethyl-2-phenyl-  
(2,5-Dimethylbiphenyl)  
(liq) A: eac eaq  
Ethane, 1,1-diphenyl-  
(c) A: eah  
(liq) A: eab eac ead eae eaq eao  
Ethane, 1,2-diphenyl- (Bibenzyl)  
(c) A: eah  
(liq) A: eac eaq  
Methane, 2'-methyl-diphenyl-  
(c) A: eah  
(liq) A: eab eac ead eaq eao  
Methane, 3'-methyl-diphenyl  
(c) A: eah  
(liq) A: eab eac ead eaq eao  
Methane, 4'-methyl-diphenyl-  
(c) A: eah  
(liq) A: eab eac ead eae eaq eao  
C<sub>14</sub>H<sub>18</sub> Naphthalene, 1-n-butyl-  
(c) A: eah  
(liq) A: eab eac ead eae eaq eao  
Naphthalene, 2-n-butyl-  
(c) A: eah  
(liq) A: eab eac ead eae eaq eao  
C<sub>14</sub>H<sub>20</sub> Naphthalene, 1-n-butyl-1,2,3,4-tetrahydro-  
(liq) A: eab eac ead eaq eao  
Naphthalene, 6-n-butyl-1,2,3,4-tetrahydro-  
(liq) A: eab eac ead eaq eao  
C<sub>14</sub>H<sub>22</sub> Benzene, n-octyl-  
(c) A: eah  
(liq) A: eab(-t,t) eac ead eae eaq  
eal(t) eam(-t,t) eao fao fbj  
fbk  
(g) A: faa(t) fab(t) fac(t) fad(t) fae(t) faf(t)  
faq(t) fai(t) fao  
C<sub>14</sub>H<sub>26</sub> Cyclohexene, 1-n-octyl-  
(liq) A: fao  
(g) A: fao  
Cyclopentene, 1-n-nonyl-  
(liq) A: eab eac ead eaq eao fao  
(g) A: fao  
Cyclopentene, 3-n-nonyl-  
(liq) A: fao  
Cyclopentene, 4-n-nonyl-  
(liq) A: fao  
Ethane, 1,1-dicyclohexyl-  
(c) A: eah  
(liq) A: eab eac ead eaq eao  
1-Tetradecyne  
(c) A: eah  
(liq) A: eab eac ead eae eaq eao  
(g) A: faa(t) fab(t) fac(t) fad(t) fae(t) faf(t)  
faq(t) fai(t) fao

2-Tetradecyne  
(liq) A: eab eac ead eaq eao  
3-Tetradecyne  
(liq) A: eab eac ead eaq eao  
C<sub>14</sub>H<sub>28</sub> Cyclohexane, n-octyl-  
(c) A: eah  
(liq) A: eab(-t,t) eac ead eae eaq  
eal(t) eam(-t,t) eao fao fbj  
fbk  
(g) A: faa(t) fab(t) fac(t) fad(t) fae(t) faf(t)  
faq(t) fai(t) fao  
Cyclopentane, n-nonyl-  
(c) A: eah  
(liq) A: eab(-t,t) eac ead eae eaq  
eal(t) eam(-t,t) eao fao fbj  
fbk  
(g) A: faa(t) fab(t) fac(t) fad(t) fae(t) faf(t)  
faq(t) fai(t) fao  
Cyclotetradecane  
(c) A: eah  
(liq) A: eab eac ead eaq eao  
1-Tetradecene  
(c) A: eaa eah fbf fbg  
(liq) A: eab(t) eac ead eae eaf(t) eaq  
eal(t) eam(t) eao fbj fbk  
(g) A: faa(t) fab(t) fac(t) fad(t) fae(t) faf(t)  
faq(t) fai(t) fao  
1-Tridecene, 2-methyl-  
(c) A: eah  
(liq) A: eab eac ead eae eao  
C<sub>14</sub>H<sub>30</sub> Dodecane, 2,2-dimethyl-  
(liq) A: eab eac ead eaq eao  
Dodecane, 2,3-dimethyl-  
(liq) A: eab eac ead eaq eao  
Dodecane, 2,3-dimethyl-  
(liq) A: eab eac ead eaq eao  
n-Tetradecane  
(c) A: eaa eah fbf fbg  
(liq) A: eab(t) eac ead eae eaf(t) eaq  
eal(t) eam(t) eao faa fab fac  
fao fbi fbj fbk  
(g) A: ebc ebd ebe ebf ebg faa(t)  
fab(t) fac(t) fad(t) fae(t) faf(t) faq(t)  
fal(t) fao  
Tridecane, 2-methyl-  
(c) A: eah  
(liq) A: eab eac ead eaq eao  
Tridecane, 3-methyl-  
(c) A: eah  
(liq) A: eab eac ead eaq eao  
C<sub>15</sub>H<sub>14</sub> 1-Propene, 1,1-diphenyl-  
(c) A: eah  
(liq) A: eab eac ead eaq eao  
C<sub>15</sub>H<sub>16</sub> Ethane, 2'-methyl-1,1-diphenyl-  
(liq) A: eab eac ead eaq eao  
Ethane, 2'-methyl-1,2-diphenyl-  
(liq) A: eab eac ead eaq eao  
Ethane, 3'-methyl-1,1-diphenyl-  
(liq) A: eab eac ead eaq eao  
Ethane, 3'-methyl-1,2-diphenyl-  
(liq) A: eab eac ead eaq eao

	Ethane, 4'-methyl-1,1-diphenyl-	(liq) A: eab eac ead eag eao
	Ethane, 4'-methyl-1,2-diphenyl-	(liq) A: eac eag
	Methane, 2'-ethylidiphenyl-	(c) A: eah
	(liq) A: eab eac ead eag eao	
	Methane, 3'-ethylidiphenyl-	(c) A: eah
	(liq) A: eab eac ead eag eao	
	Methane, 4'-ethylidiphenyl-	(c) A: eah
	(liq) A: eab eac ead eag eao	
	Methane, 2',3'-dimethyldiphenyl-	(liq) A: eab eac ead eag eao
	Methane, 2',4'-dimethyldiphenyl-	(liq) A: eab eac ead eag eao
	Methane, 2',5'-dimethyldiphenyl-	(liq) A: eab eac ead eag eao
	Methane, 2',6'-dimethyldiphenyl-	(liq) A: eab eac ead eag eao
	Methane, 3',4'-dimethyldiphenyl-	(liq) A: eab eac ead eag eao
	Methane, 3',5'-dimethyldiphenyl-	(liq) A: eab eac ead eag eao
	Methane, 2',2''-dimethyldiphenyl-	(liq) A: eab eac ead eag eao
	Methane, 2',3''-dimethyldiphenyl-	(liq) A: eab eac ead eag eao
	Methane, 2',4''-dimethyldiphenyl-	(liq) A: eab eac ead eag eao
	Methane, 3',3''-dimethyldiphenyl-	(liq) A: eab eac ead eag eao
	Methane, 3',4''-dimethyldiphenyl-	(liq) A: eab eac ead eag eao
	Methane, 4',4''-dimethyldiphenyl-	(c) A: eah
	(liq) A: eac eag	
	Propane, 1,1-diphenyl-	(c) A: eah
	(liq) A: eab eac ead eae eag eao	
	Propane, 1,2-diphenyl-	(c) A: eah
	(liq) A: eab eac ead eag eao	
	Propane, 1,3-diphenyl-	(c) A: eah
	(liq) A: eab eac ead eag eao	
C <sub>15</sub> H <sub>18</sub>	Naphthalene, 1-n-pentyl-	(c) A: eah
	(liq) A: eab eac ead eae eag eao	
	Naphthalene, 2-n-pentyl-	(c) A: eah
	(liq) A: eab eac ead eae eag eao	
C <sub>15</sub> H <sub>22</sub>	Naphthalene, 1-n-pentyl-1,2,3,4-tetrahydro-	(liq) A: eab eac ead eag eao
	Naphthalene, 6-n-pentyl-1,2,3,4-tetrahydro-	(liq) A: eab eac ead eag eao

C <sub>15</sub> H <sub>24</sub>	Benzene, n-nonyl-	(c) A: eah
	(liq) A: eab(-t,t) eac ead eae eag eal(t) eam(-t,t) eao fao fbj fbk	
	(g) A: faa(t) fab(t) fac(t) fad(t) fae(t) faf(t) faf(t) fao	
C <sub>15</sub> H <sub>26</sub>	Cyclohexene, 1-n-nonyl-	(liq) A: fao
	(g) A: fao	
	Cyclopentene, 1-n-decyl-	(liq) A: eab eac ead eag eao fao
	(g) A: fao	
	Cyclopentene, 3-n-decyl-	(liq) A: fao
	Cyclopentene, 4-n-decyl-	(liq) A: fao
	1-Pentadecyne	(c) A: eah
	(liq) A: eab eac ead eae eag eao	
	(g) A: faa(t) fab(t) fac(t) fad(t) fae(t) faf(t) faf(t) faf(t) fao	
	2-Pentadecyne	(liq) A: eab eac ead eag eao
	3-Pentadecyne	(liq) A: eab eac ead eag eao
	Propane, 1,1-dicyclohexyl-	(c) A: eah
	(liq) A: eab eac ead eag eao	
C <sub>15</sub> H <sub>30</sub>	Cyclohexane, n-nonyl-	(c) A: eah
	(liq) A: eab(-t,t) eac ead eae eag eal(t) eam(-t,t) eao fao fbj fbk	
	(g) A: faa(t) fab(t) fac(t) fad(t) fae(t) faf(t) faf(t) faf(t) fao	
	Cyclopentadecane	(c) A: eah
	(liq) A: eab eac ead eag eao	
	Cyclopentane, n-decyl-	(c) A: eaa eah fbj fbj
	(liq) A: eab(-t,t) eac ead eae eag eal(t) eam(-t,t) eao fao fbj fbk	
	(g) A: faa(t) fab(t) fac(t) fad(t) fae(t) faf(t) faf(t) faf(t) fao	
	1-Pentadecene	(c) A: eaa eah fbj fbj
	(liq) A: eab(t) eac ead eae eaf(t) eag eal(t) eam(t) eao fbj fbk	
	(g) A: faa(t) fab(t) fac(t) fad(t) fae(t) faf(t) faf(t) faf(t) fao	
	1-Tetradecene, 2-methyl-	(c) A: eah
	(liq) A: eab eac ead eae eag eao	
C <sub>15</sub> H <sub>32</sub>	n-Pentadecane	(c, II) A: eaj fbb fbc
	(c, I) A: eaa eah fbj fbj	
	(liq) A: eab(t) eac ead eae eaf(t) eag eal(t) eam(t) eao faa fab fac fao fbi fbj fbk	

(g) A: ebc ebd ebe ebf ebq faa(t)  
fab(t) fac(t) fad(t) fae(t) faf(t) fag(t)  
fal(t) fao

Tetradecane, 2-methyl-  
(c) A: eah  
(liq) A: eab eac ead eaq eao

Tetradecane, 3-methyl-  
(c) A: eah  
(liq) A: eab eac ead eaq eao

Tridecane, 2,2-dimethyl-  
(liq) A: eab eac ead eaq eao

Tridecane, 2,3-dimethyl-  
(liq) A: eab eac ead eaq eao

Tridecane, 2,4-dimethyl-  
(liq) A: eab eac ead eaq eao

C<sub>16</sub>H<sub>16</sub> 1-Butene, 1,1-diphenyl-  
(c) A: eah  
(liq) A: eab eac ead eaq eao

C<sub>16</sub>H<sub>18</sub> Butane, 1,1-diphenyl-  
(c) A: eah  
(liq) A: eab eac ead eae eaq eao

C<sub>16</sub>H<sub>20</sub> Naphthalene, 1-n-hexyl-  
(c) A: eah  
(liq) A: eab eac ead eae eaq eao

Naphthalene, 2-n-hexyl-  
(c) A: eah  
(liq) A: eab eac ead eae eaq eao

C<sub>16</sub>H<sub>24</sub> Naphthalene, 1-n-hexyl-1,2,3,4-tetrahydro-  
(liq) A: eab eac ead eaq eao

Naphthalene, 6-n-hexyl-1,2,3,4-tetrahydro-  
(liq) A: eab eac ead eaq eao

Benzene, n-decyl-  
(c) A: eaa eah fbf fbq  
(liq) A: eab(-t,t) eac ead eae eaq  
eal(t) ean(-t,t) eao fao fbj  
fbk

(g) A: faa(t) fab(t) fac(t) fad(t) fae(t) faf(t)  
fag(t) fal(t) fao

C<sub>16</sub>H<sub>20</sub> Butane, 1,1-dicyclohexyl-  
(c) A: eah  
(liq) A: eab eac ead eaq eao

Cyclohexene, 1-n-decyl-  
(liq) A: fao  
(g) A: fao

Cyclopentene, 1-n-undecyl-  
(liq) A: eab eac ead eaq eao fao  
(g) A: fao

Cyclopentene, 3-n-undecyl-  
(liq) A: fao

Cyclopentene, 4-n-undecyl-  
(liq) A: fao

1-Hexadecyne  
(c) A: eah  
(liq) A: eab eac ead eae eaq eao  
(g) A: faa(t) fab(t) fac(t) fad(t) fae(t) faf(t)  
fag(t) fal(t) fao

2-Hexadecyne  
(liq) A: eab eac ead eaq eao

3-Hexadecyne  
(liq) A: eab eac ead eaq eao

C<sub>16</sub>H<sub>32</sub> Cyclohexadecane  
(c) A: eah  
(liq) A: eab eac ead eaq eao

Cyclohexane, n-decyl-  
(c) A: eaa eah fbf fbq  
(liq) A: eab(-t,t) eac ead eae eaq  
eal(t) ean(-t,t) eao fao fbj  
fbk

(g) A: faa(t) fab(t) fac(t) fad(t) fae(t) faf(t)  
fag(t) fal(t) fao

Cyclopentane, n-undecyl-  
(c) A: eah  
(liq) A: eab(-t,t) eac ead eae eaq  
eal(t) ean(t) eao fao fbj fbk  
(g) A: faa(t) fab(t) fac(t) fad(t) fae(t) faf(t)  
fag(t) fal(t) fao

1-Hexadecene  
(c) A: eaa eah fbf fbq  
(liq) A: eab(t) eac ead eae eaf(t) eaq  
eal(t) ean(t) eao fbj fbk  
(g) A: faa(t) fab(t) fac(t) fad(t) fae(t) faf(t)  
fag(t) fal(t) fao

1-Pentadecene, 2-methyl-  
(c) A: eah  
(liq) A: eab eac ead eae eaq eao

C<sub>16</sub>H<sub>34</sub> n-Hexadecane  
(c) A: eaa eah fbf fbq  
(liq) A: eab(t) eac ead eae eaf(t) eaq  
eal(t) ean(t) eao fao fbj fbk  
fao fbi fbj fbk  
(g) A: ebc ebd ebe ebf ebq faa(t)  
fab(t) fac(t) fad(t) fae(t) faf(t) fag(t)  
fal(t) fao

Pentadecane, 2-methyl-  
(c) A: eah  
(liq) A: eab eac ead eaq eao

Pentadecane, 3-methyl-  
(c) A: eah  
(liq) A: eab eac ead eaq eao

Tetradecane, 2,2-dimethyl-  
(liq) A: eab eac ead eaq eao

Tetradecane, 2,3-dimethyl-  
(liq) A: eab eac ead eaq eao

Tetradecane, 2,4-dimethyl-  
(liq) A: eab eac ead eaq eao

C<sub>17</sub>H<sub>18</sub> 1-Pentene, 1,1-diphenyl-  
(liq) A: eab eac ead eaq eao

C<sub>17</sub>H<sub>20</sub> Pentane, 1,1-diphenyl-  
(c) A: eah  
(liq) A: eab eac ead eae eaq eao

C<sub>17</sub>H<sub>22</sub> Naphthalene, 1-n-heptyl-  
(c) A: eah  
(liq) A: eab eac ead eae eaq eao

Naphthalene, 2-n-heptyl-  
(c) A: eah  
(liq) A: eab eac ead eae eaq eao

C<sub>17</sub>H<sub>28</sub> Naphthalene, 1-n-heptyl-1,2,3,4-tetrahydro-  
(liq) A: eab eac ead eaq eao

Naphthalene, 6-n-heptyl-1,2,3,4-tetrahydro-  
(liq) A: eab eac ead eaq eao

**C<sub>17</sub>H<sub>28</sub>** Benzene, n-undecyl-  
(c) A: eah  
(liq) A: eab(-t, t) eac ead eae eaq  
eal(t) eam(-t, t) eao fao fbj  
fbk  
(g) A: faa(t) fab(t) fac(t) fad(t) fae(t) faf(t)  
faq(t) fal(t) fao

**C<sub>17</sub>H<sub>32</sub>** Cyclohexene, 1-n-undecyl-  
(liq) A: fao  
(g) A: fao

Cyclopentene, 1-n-dodecyl-  
(liq) A: eab eac ead eaq eao fao  
(g) A: fao

Cyclopentene, 3-n-dodecyl-  
(liq) A: fao

Cyclopentene, 4-n-dodecyl-  
(liq) A: fao

1-Heptadecyne  
(c) A: eah  
(liq) A: eab eac ead eae eaq eao  
(g) A: faa(t) fab(t) fac(t) fad(t) fae(t) faf(t)  
faq(t) fal(t) fao

2-Heptadecyne  
(liq) A: eab eac ead eaq eao

3-Heptadecyne  
(liq) A: eab eac ead eaq eao

Pentane, 1,1-dicyclohexyl-  
(c) A: eah  
(liq) A: eab eac ead eaq eao

**C<sub>17</sub>H<sub>34</sub>** Cycloheptadecane  
(c) A: eah  
(liq) A: eab eac ead eaq eao

Cyclohexane, n-undecyl-  
(c) A: eah  
(liq) A: eab(t) eac ead eae eaq eal(t)  
eam(t) eao fao fbj fbk  
(g) A: faa(t) fab(t) fac(t) fad(t) fae(t) faf(t)  
faq(t) fal(t) fao

Cyclopentane, n-dodecyl-  
(c) A: eah  
(liq) A: eab(-t, t) eac ead eae eal(t)  
eam(-t, t) eao fao fbj fbk  
(g) A: faa(t) fab(t) fac(t) fad(t) fae(t) faf(t)  
faq(t) fal(t) fao

1-Heptadecene  
(c) A: eah  
(liq) A: eab(t) eac ead eae eaf(t) eaq  
eal(t) eam(t) eao fbj fbk  
(g) A: faa(t) fab(t) fac(t) fad(t) fae(t) faf(t)  
faq(t) fal(t) fao

1-Hexadecene, 2-methyl-  
(c) A: eah  
(liq) A: eab eac ead eae eaq eao

**C<sub>17</sub>H<sub>36</sub>** n-Heptadecane  
(c) A: eaa eah fbf fbq  
(liq) A: eab(t) eac ead eae eaf(t) eaq  
eal(t) eam(t) eao faa fab fac  
fao fbi fbj fbk  
(g) A: ebc ebd ebe ebf ebq faa(t)  
fab(t) fac(t) fad(t) fae(t) faf(t) faq(t)  
fal(t) fao

Hexadecane, 2-methyl  
(c) A: eah  
(liq) A: eab eac ead eaq eao

Hexadecane, 3-methyl-  
(c) A: eah  
(liq) A: eab eac ead eaq eao

Pentadecane, 2,2-dimethyl-  
(liq) A: eab eac ead eaq eao

Pentadecane, 2,3-dimethyl-  
(liq) A: eab eac ead eaq eao

Pentadecane, 2,4-dimethyl-  
(liq) A: eab eac ead eaq eao

**C<sub>18</sub>H<sub>30</sub>** 1-Hexene, 1,1-diphenyl-  
(liq) A: eab eac ead eaq eao

**C<sub>18</sub>H<sub>32</sub>** Hexane, 1,1-diphenyl-  
(c) A: eah  
(liq) A: eab eac ead eae eaq eao

**C<sub>18</sub>H<sub>34</sub>** Naphthalene, 1-n-octyl-  
(c) A: eah  
(liq) A: eab eac ead eae eaq eao

Naphthalene, 2-n-octyl-  
(c) A: eah  
(liq) A: eab eac ead eae eaq eao

**C<sub>18</sub>H<sub>38</sub>** Naphthalene, 1-n-octyl-1,2,3,4-tetrahydro-  
(liq) A: eab eac ead eaq eao

Naphthalene, 6-n-octyl-1,2,3,4-tetrahydro-  
(liq) A: eab eac ead eaq eao

**C<sub>18</sub>H<sub>40</sub>** Benzene, n-dodecyl-  
(c) A: eah  
(liq) A: eab(-t, t) eac ead eae eaq  
eal(t) eam(-t, t) eao fao fbj  
fbk  
(g) A: faa(t) fab(t) fac(t) fad(t) fae(t) faf(t)  
faq(t) fal(t) fao

**C<sub>18</sub>H<sub>44</sub>** Cyclohexene, 1-n-dodecyl-  
(liq) A: fao  
(g) A: fao

Cyclopentene, 1-n-tridecyl-  
(liq) A: eab eac ead eaq eao fao  
(g) A: fao

Cyclopentene, 3-n-tridecyl-  
(liq) A: fao

Cyclopentene, 4-n-tridecyl-  
(liq) A: fao

Hexane, 1,1-dicyclohexyl-  
(c) A: eah  
(liq) A: eab eac ead eaq eao

1-Octadecyne  
(c) A: eah  
(liq) A: eab eac ead eae eaq eao  
(g) A: faa(t) fab(t) fac(t) fad(t) fae(t) faf(t)  
faq(t) fal(t) fao

2-Octadecyne  
(liq) A: eab eac ead eaq eao

3-Octadecyne  
(c) A: eah  
(liq) A: eab eac ead eaq eao

**C<sub>18</sub>H<sub>50</sub>** Cyclohexane, n-dodecyl-  
(c) A: eah  
(liq) A: eab(t) eac ead eae eaq eal(t)  
eam(t) eao fao fbj fbk

(g) A: faa(t) fab(t) fac(t) fad(t) fae(t) faf(t)  
faq(t) fal(t) fao

Cyclo-octadecane  
(c) A: eah  
(liq) A: eab eac ead eaq eao

Cyclopentane, n-tridecyl-  
(c) A: eah  
(liq) A: eab(t) eac ead eae eaq eal(t)  
eam(t) eao fao fbj fbk

(g) A: faa(t) fab(t) fac(t) fad(t) fae(t) faf(t)  
faq(t) fal(t) fao

1-Heptadecene, 2-methyl-  
(c) A: eah  
(liq) A: eab eac ead eae eaq eao

1-Octadecene  
(c) A: eah  
(liq) A: eab(t) eac ead eae eaf(t) eaq  
eal(t) eam(t) eao fbj fbk

(g) A: faa(t) fab(t) fac(t) fad(t) fae(t) faf(t)  
faq(t) fal(t) fao

C<sub>18</sub>H<sub>38</sub> Heptadecane, 2-methyl-  
(c) A: eah  
(liq) A: eab eac ead eaq eao

Heptadecane, 3-methyl-  
(c) A: eah  
(liq) A: eab eac ead eaq eao

Hexadecane, 2,2-dimethyl-  
(liq) A: eab eac ead eaq eao

Hexadecane, 2,3-dimethyl-  
(liq) A: eab eac ead eaq eao

Hexadecane, 2,4-dimethyl-  
(liq) A: eab eac ead eaq eao

n-Octadecane  
(c) A: eaa eah fbf fbj  
(liq) A: eab(t) eac ead eae eaf(t) eaq  
eal(t) eam(t) eao faa fab fac  
fao fbi fbj fbk

(g) A: ebc ebd ebe ebf ebg faa(t)  
fab(t) fac(t) fad(t) fae(t) faf(t) faq(t)  
fal(t) fao

C<sub>19</sub>H<sub>42</sub> 1-Heptene, 1,1-diphenyl-  
(liq) A: eab eac ead eaq eao

C<sub>19</sub>H<sub>34</sub> Heptane, 1,1-diphenyl-  
(c) A: eah  
(liq) A: eab eac ead eae eaq eao

C<sub>19</sub>H<sub>28</sub> Naphthalene, 1-n-nonyl-  
(c) A: eah  
(liq) A: eab eac ead eae eaq eao

Naphthalene, 2-n-nonyl-  
(c) A: eah  
(liq) A: eab eac ead eae eaq eao

C<sub>19</sub>H<sub>30</sub> Naphthalene, 1-n-nonyl-1,2,3,4-tetrahydro-  
(liq) A: eab eac ead eaq eao

Naphthalene, 6-n-nonyl-1,2,3,4-tetrahydro-  
(liq) A: eab eac ead eaq eao

C<sub>19</sub>H<sub>32</sub> Benzene, n-tridecyl-  
(c) A: eah  
(liq) A: eab(t) eac ead eae eaq eal(t)  
eam(t) eao fao fbj fbk

(g) A: faa(t) fab(t) fac(t) fad(t) fae(t) faf(t)  
faq(t) fal(t) fao

C<sub>19</sub>H<sub>36</sub> Cyclohexene, 1-n-tridecyl-  
(liq) A: fao  
(g) A: fao

Cyclopentene, 1-n-tetradecyl-  
(liq) A: eab eac ead eaq eao fao  
(g) A: fao

Cyclopentene, 3-n-tetradecyl-  
(liq) A: fao

Cyclopentene, 4-n-tetradecyl-  
(liq) A: fao

Heptane, 1,1-dicyclohexyl-  
(liq) A: eab eac ead eaq eao

1-Nonadecyne  
(c) A: eah  
(liq) A: eab eac ead eae eaq eao  
(g) A: faa(t) fab(t) fac(t) fad(t) fae(t) faf(t)  
faq(t) fal(t) fao

2-Nonadecyne  
(liq) A: eab eac ead eaq eao

3-Nonadecyne  
(liq) A: eab eac ead eaq eao

C<sub>19</sub>H<sub>26</sub> Cyclohexane, n-tridecyl-  
(c) A: eah  
(liq) A: eab(t) eac ead eae eaq eal(t)  
eam(t) eao fao fbj fbk

(g) A: faa(t) fab(t) fac(t) fad(t) fae(t) faf(t)  
faq(t) fal(t) fao

Cyclononadecane  
(liq) A: eab eac ead eaq eao

Cyclopentane, n-tetradecyl-  
(c) A: eah  
(liq) A: eab(t) eac ead eae eaq eal(t)  
eam(t) eao fao fbj fbk

(g) A: faa(t) fab(t) fac(t) fad(t) fae(t) faf(t)  
faq(t) fal(t) fao

1-Nonadecene  
(c) A: eah  
(liq) A: eab(t) eac ead eae eaf(t) eaq  
eal(t) eam(t) eao fbj fbk

(g) A: faa(t) fab(t) fac(t) fad(t) fae(t) faf(t)  
faq(t) fal(t) fao

1-Octadecene, 2-methyl-  
(c) A: eah  
(liq) A: eab eac ead eae eaq eao

C<sub>19</sub>H<sub>40</sub> Heptadecane, 2,2-dimethyl-  
(liq) A: eab eac ead eaq eao

Heptadecane, 2,3-dimethyl-  
(liq) A: eab eac ead eaq eao

Heptadecane, 2,4-dimethyl-  
(liq) A: eab eac ead eaq eao

n-Nonadecane  
(c, II) A: eaj fbb fbc  
(c, I) A: eaa eah fbf fbj

(liq) A: eab(t) eac ead eae eaf(t) eaq  
eal(t) eam(t) eao faa fab fac  
fao fbi fbj fbk

(g) A: ebc ebd ebe ebf ebg faa(t)  
fab(t) fac(t) fad(t) fae(t) faf(t) faq(t)  
fal(t) fao

Octadecane, 2-methyl-  
(c) A: eah  
(liq) A: eab eac ead eaq eao

Octadecane, 3-methyl-  
(c) A: eah  
(liq) A: eab eac ead eaq eao

C<sub>20</sub>H<sub>34</sub> 1-Octene, 1,1-diphenyl-  
(liq) A: eab eac ead eaq eao

C<sub>20</sub>H<sub>36</sub> Octane, 1,1-diphenyl-  
(c) A: eah  
(liq) A: eab eac ead eae eaq eao

C<sub>20</sub>H<sub>38</sub> Naphthalene, 1-n-decyl-  
(c) A: eah  
(liq) A: eab eac ead eae eaq eao

Naphthalene, 2-n-decyl-  
(c) A: eah  
(liq) A: eab eac ead eae eaq eao

C<sub>20</sub>H<sub>32</sub> Naphthalene, 1-n-decyl-1,2,3,4-tetrahydro-  
(liq) A: eab eac ead eaq eao

Naphthalene, 6-n-decyl-1,2,3,4-tetrahydro-  
(liq) A: eab eac ead eaq eao

C<sub>20</sub>H<sub>34</sub> Benzene, n-tetradecyl-  
(c) A: eah  
(liq) A: eab(t) eac ead eae eaq eal(t)  
ean(t) eao fao fbj fbk  
(g) A: faa(t) fab(t) fac(t) fad(t) fae(t) faf(t)  
faq(t) fal(t) fao

C<sub>20</sub>H<sub>36</sub> Cyclohexene, 1-n-tetradecyl-  
(liq) A: fao  
(g) A: fao

Cyclopentene, 1-n-pentadecyl-  
(liq) A: eab eac ead eaq eao fao  
(g) A: fao

Cyclopentene, 3-n-pentadecyl-  
(liq) A: fao

Cyclopentene, 4-n-pentadecyl-  
(liq) A: fao

1-Eicosyne  
(c) A: eah  
(liq) A: eab eac ead eae eaq eao  
(g) A: faa(t) fab(t) fac(t) fad(t) fae(t) faf(t)  
faq(t) fal(t) fao

2-Eicosyne  
(liq) A: eab eac ead eaq eao

3-Eicosyne  
(liq) A: eab eac ead eaq eao

Octane, 1,1-dicyclohexyl-  
(liq) A: eab eac ead eaq eao

C<sub>20</sub>H<sub>40</sub> Cycloicosane  
(liq) A: eab eac ead eaq eao

Cyclohexane, n-tetradecyl-  
(c) A: eah  
(liq) A: eab(t) eac ead eae eaq eal(t)  
ean(t) eao fao fbj fbk  
(g) A: faa(t) fab(t) fac(t) fad(t) fae(t) faf(t)  
faq(t) fal(t) fao

Cyclopentane, n-pentadecyl-  
(c) A: eah  
(liq) A: eab(t) eac ead eae eaq eal(t)  
ean(t) eao fao fbj fbk  
(g) A: faa(t) fab(t) fac(t) fad(t) fae(t) faf(t)  
faq(t) fal(t) fao

1-Eicosene  
(c) A: eah

(liq) A: eab(t) eac ead eae eaf(t) eaq  
eal(t) ean(t) eao fbj fbk  
(g) A: faa(t) fab(t) fac(t) fad(t) fae(t) faf(t)  
faq(t) fal(t) fao

1-Nonadecene, 2-methyl-  
(c) A: eah  
(liq) A: eab eac ead eae eaq eao

C<sub>20</sub>H<sub>42</sub> n-Eicosane  
(c, l) A: eaj  
(c, l) A: eaa eah fbf fbq  
(liq) A: eab(t) eac ead eae eaf(t) eaq  
eal(t) ean(t) eao faa fab fac  
fao fbi fbj fbk  
(g) A: ebc ebd ebe ebf ebq faa(t)  
fab(t) fac(t) fad(t) fae(t) faf(t) faq(t)  
fal(t) fao

Nonadecane, 2-methyl-  
(c) A: eah  
(liq) A: eab eac ead eaq eao

Nonadecane, 3-methyl-  
(c) A: eah  
(liq) A: eab eac ead eaq eao

Octadecane, 2,2-dimethyl-  
(liq) A: eab eac ead eaq eao

Octadecane, 2,3-dimethyl-  
(liq) A: eab eac ead eaq eao

Octadecane, 2,4-dimethyl-  
(liq) A: eab eac ead eaq eao

C<sub>21</sub>H<sub>38</sub> 1-Nonene, 1,1-diphenyl-  
(liq) A: eab eac ead eaq eao

C<sub>21</sub>H<sub>38</sub> Nonane, 1,1-diphenyl-  
(c) A: eah  
(liq) A: eab eac ead eae eaq eao

C<sub>21</sub>H<sub>30</sub> Naphthalene, 1-n-undecyl-  
(c) A: eah  
(liq) A: eab eac ead eae eaq eao

Naphthalene, 2-n-undecyl-  
(c) A: eah  
(liq) A: eab eac ead eae eaq eao

C<sub>21</sub>H<sub>36</sub> Benzene, n-pentadecyl-  
(c) A: eah  
(liq) A: eab(t) eac ead eae eaq eal(t)  
ean(t) eao fao fbj fbk  
(g) A: faa(t) fab(t) fac(t) fad(t) fae(t) faf(t)  
faq(t) fal(t) fao

C<sub>21</sub>H<sub>40</sub> Cyclohexene, 1-n-pentadecyl-  
(liq) A: fao  
(g) A: fao

Cyclopentene, 1-n-hexadecyl-  
(liq) A: eab eac ead eaq eao fao  
(g) A: fao

Cyclopentene, 3-n-hexadecyl-  
(liq) A: fao

Cyclopentene, 4-n-hexadecyl-  
(liq) A: fao

1-Heneicosyne  
(c) A: eah  
(liq) A: eab eac ead eae eaq eao

Nonane, 1,1-dicyclohexyl-  
(liq) A: eab eac ead eaq eao



C<sub>21</sub>H<sub>42</sub> Cyclohexane, n-pentadecyl-  
(c) A: eah  
(liq) A: eab(t) eac ead eae eag eal(t)  
ean(t) eao fao fbj fbk  
(g) A: faa(t) fab(t) fac(t) fad(t) fae(t) faf(t)  
faq(t) fal(t) fao

Cyclopentane, n-hexadecyl-  
(c) A: eah  
(liq) A: eab(t) eac ead eae eag eal(t)  
ean(t) eao fao fbj fbk  
(g) A: faa(t) fab(t) fac(t) fad(t) fae(t) faf(t)  
faq(t) fal(t) fao

1-Heneicosene  
(c) A: eah  
(liq) A: eab eac ead eae eag eao

C<sub>21</sub>H<sub>44</sub> n-Heneicosane  
(c) A: eah  
(liq) A: eah eac ead eae eag eao

C<sub>22</sub>H<sub>28</sub> 1-Decene, 1,1-diphenyl-  
(liq) A: eab eac ead eag eao

C<sub>22</sub>H<sub>30</sub> Decane, 1,1-diphenyl-  
(c) A: eah  
(liq) A: eab eac ead eae eag eao

C<sub>22</sub>H<sub>32</sub> Naphthalene, 1-n-dodecyl-  
(c) A: eah  
(liq) A: eab eac ead eae eag eao

Naphthalene, 2-n-dodecyl-  
(c) A: eah  
(liq) A: eab eac ead eae eag eao

C<sub>22</sub>H<sub>38</sub> Benzene, n-hexadecyl-  
(c) A: eah  
(liq) A: eab(t) eac ead eae eag eal(t)  
ean(t) eao fao fbj fbk  
(g) A: faa(t) fab(t) fac(t) fad(t) fae(t) faf(t)  
faq(t) fal(t) fao

C<sub>22</sub>H<sub>42</sub> Cyclohexene, 1-n-hexadecyl-  
(liq) A: fao  
(g) A: fao

Decane, 1,1-dicyclohexyl-  
(liq) A: eab eac ead eag eao

1-Docosyne  
(c) A: eah  
(liq) A: eab eac ead eae eag eao

C<sub>22</sub>H<sub>44</sub> Cyclohexane, n-hexadecyl-  
(c) A: eah  
(liq) A: eab(t) eac ead eae eag eal(t)  
ean(t) eao fao fbj fbk  
(g) A: faa(t) fab(t) fac(t) fad(t) fae(t) faf(t)  
faq(t) fal(t) fao

Cyclopentane, n-heptadecyl-  
(c) A: eah  
(liq) A: eab eac ead eae eag eao

1-Docosene  
(c) A: eah  
(liq) A: eab eac ead eae eag eao

C<sub>22</sub>H<sub>46</sub> n-Docosane  
(c) A: eah  
(liq) A: eab eac ead eae eag eao

C<sub>23</sub>H<sub>30</sub> 1-Undecene, 1,1-diphenyl-  
(liq) A: eab eac ead eag eao

C<sub>23</sub>H<sub>32</sub> Undecane, 1,1-diphenyl-  
(c) A: eah  
(liq) A: eab eac ead eae eag eao

C<sub>23</sub>H<sub>40</sub> Benzene, n-heptadecyl-  
(c) A: eah  
(liq) A: eab eac ead eae eag eao

C<sub>23</sub>H<sub>44</sub> 1-Tricosyne  
(c) A: eah  
(liq) A: eab eac ead eae eag eao

Undecane, 1,1-dicyclohexyl-  
(liq) A: eab eac ead eag eao

C<sub>23</sub>H<sub>46</sub> Cyclohexane, n-heptadecyl-  
(c) A: eah  
(liq) A: eab eac ead eae eag eao

Cyclopentane, n-octadecyl-  
(c) A: eah  
(liq) A: eab eac ead eae eag eao

1-Tricosene  
(c) A: eah  
(liq) A: eab eac ead eae eag eao

C<sub>23</sub>H<sub>48</sub> n-Tricosane  
(c) A: eah  
(liq) A: eab eac ead eae eag eao

C<sub>24</sub>H<sub>32</sub> 1-Dodecene, 1,1-diphenyl-  
(liq) A: eab eac ead eag eao

C<sub>24</sub>H<sub>34</sub> Dodecane, 1,1-diphenyl-  
(c) A: eah  
(liq) A: eab eac ead eae eag eao

C<sub>24</sub>H<sub>42</sub> Benzene, n-octadecyl-  
(c) A: eah  
(liq) A: eab eac ead eae eag eao

C<sub>24</sub>H<sub>46</sub> Dodecane, 1,1-dicyclohexyl-  
(liq) A: eab eac ead eag eao

1-Tetracosyne  
(c) A: eah  
(liq) A: eab eac ead eae eag eao

C<sub>24</sub>H<sub>48</sub> Cyclohexane, n-octadecyl-  
(c) A: eah  
(liq) A: eab eac ead eae eag eao

Cyclopentane, n-nonadecyl-  
(c) A: eah  
(liq) A: eab eac ead eae eag eao

1-Tetracosene  
(c) A: eah  
(liq) A: eab eac ead eae eag eao

C<sub>24</sub>H<sub>50</sub> n-Tetracosane  
(c) A: eah  
(liq) A: eab eac ead eae eag eao

C<sub>25</sub>H<sub>34</sub> 1-Tridecene, 1,1-diphenyl-  
(liq) A: eab eac ead eag eao

C<sub>25</sub>H<sub>38</sub> Tridecane, 1,1-diphenyl-  
(c) A: eah  
(liq) A: eab eac ead eae eag eao

C<sub>25</sub>H<sub>44</sub> Benzene, n-nonadecyl-  
(c) A: eah  
(liq) A: eab eac ead eae eag eao

C<sub>25</sub>H<sub>42</sub> 1-Pentacosyne  
(c) A: eah  
(liq) A: eab eac ead eae eag eao

Tridecane, 1,1-dicyclohexyl-  
(liq) A: eab eac ead eag eao





C <sub>31</sub> H <sub>68</sub>	Benzene, n-pentacosyl-
	(c) A: eah
	(liq) A: eab eac ead eae eag eao
C <sub>31</sub> H <sub>60</sub>	1-Hentriacontyne
	(c) A: eah
	(liq) A: eab eac ead eae eag eao
C <sub>31</sub> H <sub>62</sub>	Cyclohexane, n-pentacosyl-
	(c) A: eah
	(liq) A: eab eac ead eae eag eao
	Cyclopentane, n-hexacosyl-
	(c) A: eah
	(liq) A: eab eac ead eae eag eao
	1-Hentriacontene
	(c) A: eah
	(liq) A: eab eac ead eae eag eao
C <sub>31</sub> H <sub>64</sub>	n-Hentriacontane
	(c) A: eah
	(liq) A: eab eac ead eae eag eao
C <sub>32</sub> H <sub>68</sub>	Benzene, n-hexacosyl-
	(c) A: eah
	(liq) A: eab eac ead eae eag eao
C <sub>32</sub> H <sub>62</sub>	1-Dotriacontyne
	(c) A: eah
	(liq) A: eab eac ead eae eag eao
C <sub>32</sub> H <sub>64</sub>	1-Dotriacontene
	(c) A: eah
	(liq) A: eab eac ead eae eag eao
	Cyclohexane, n-hexacosyl-
	(c) A: eah
	(liq) A: eab eac ead eae eag eao
	Cyclopentane, n-heptacosyl-
	(c) A: eah
	(liq) A: eab eac ead eae eag eao
C <sub>32</sub> H <sub>66</sub>	n-Dotriacontane
	(c) A: eah
	(liq) A: eab eac ead eae eag eao
C <sub>33</sub> H <sub>60</sub>	Benzene, n-heptacosyl-
	(c) A: eah
	(liq) A: eab eac ead eae eag eao
C <sub>33</sub> H <sub>64</sub>	1-Tritriacontyne
	(c) A: eah
	(liq) A: eab eac ead eae eag eao
C <sub>33</sub> H <sub>66</sub>	Cyclohexane, n-heptacosyl-
	(c) A: eah
	(liq) A: eab eac ead eae eag eao
	Cyclopentane, n-octacosyl-
	(c) A: eah
	(liq) A: eab eac ead eae eag eao
	1-Tritriacontene
	(c) A: eah
	(liq) A: eab eac ead eae eag eao
C <sub>33</sub> H <sub>68</sub>	n-Tritriacontane
	(c) A: eah
	(liq) A: eab eac ead eae eag eao
C <sub>34</sub> H <sub>62</sub>	Benzene, n-octacosyl-
	(c) A: eah
	(liq) A: eab eac ead eae eag eao
C <sub>34</sub> H <sub>66</sub>	1-Tetratriacontyne
	(c) A: eah
	(liq) A: eab eac ead eae eag eao

C <sub>34</sub> H <sub>68</sub>	Cyclohexane, n-octacosyl-
	(c) A: eah
	(liq) A: eab eac ead eae eag eao
	Cyclopentane, n-nonacosyl-
	(c) A: eah
	(liq) A: eab eac ead eae eag eao
	1-Tetratriacontene
	(c) A: eah
	(liq) A: eab eac ead eae eag eao
C <sub>34</sub> H <sub>70</sub>	n-Tetratriacontane
	(c) A: eah
	(liq) A: eab eac ead eae eag eao
C <sub>35</sub> H <sub>64</sub>	Benzene, n-nonacosyl-
	(c) A: eah
	(liq) A: eab eac ead eae eag eao
C <sub>35</sub> H <sub>68</sub>	1-Pentatriacontyne
	(c) A: eah
	(liq) A: eab eac ead eae eag eao
C <sub>35</sub> H <sub>70</sub>	Cyclohexane, n-nonacosyl-
	(c) A: eah
	(liq) A: eab eac ead eae eag eao
	Cyclopentane, n-triacontyl-
	(c) A: eah
	(liq) A: eab eac ead eae eag eao
	1-Pentatriacontene
	(c) A: eah
	(liq) A: eab eac ead eae eag eao
C <sub>35</sub> H <sub>72</sub>	n-Pentatriacontane
	(c) A: eah
	(liq) A: eab eac ead eae eag eao
C <sub>36</sub> H <sub>68</sub>	Benzene, n-triacontyl-
	(c) A: eah
	(liq) A: eab eac ead eae eag eao
C <sub>36</sub> H <sub>70</sub>	1-Hexatriacontyne
	(c) A: eah
	(liq) A: eab eac ead eae eag eao
C <sub>36</sub> H <sub>72</sub>	Cyclohexane, n-triacontyl-
	(c) A: eah
	(liq) A: eab eac ead eae eag eao
	Cyclopentane, n-hentriacontyl-
	(c) A: eah
	(liq) A: eab eac ead eae eag eao
	1-Hexatriacontene
	(c) A: eah
	(liq) A: eab eac ead eae eag eao
C <sub>36</sub> H <sub>74</sub>	n-Hexatriacontane
	(c) A: eah
	(liq) A: eab eac ead eae eag eao
C <sub>37</sub> H <sub>66</sub>	Benzene, n-hentriacontyl-
	(c) A: eah
	(liq) A: eab eac ead eae eag eao
C <sub>37</sub> H <sub>72</sub>	1-Heptatriacontyne
	(c) A: eah
	(liq) A: eab eac ead eae eag eao
C <sub>37</sub> H <sub>74</sub>	Cyclohexane, n-hentriacontyl-
	(c) A: eah
	(liq) A: eab eac ead eae eag eao
	Cyclopentane, n-dotriacontyl-
	(c) A: eah
	(liq) A: eab eac ead eae eag eao

	1-Heptatriacontene						
	(c) A:	eah					
	(liq) A:	ead eac ead eae eaq eao					
C <sub>37</sub> H <sub>76</sub>	n-Heptatriacontane						
	(c) A:	eah					
	(liq) A:	ead eac ead eae eaq eao					
C <sub>38</sub> H <sub>78</sub>	Benzene, n-dotriacontyl-						
	(c) A:	eah					
	(liq) A:	ead eac ead eae eaq eao					
C <sub>38</sub> H <sub>74</sub>	1-Octatriacontyne						
	(c) A:	eah					
	(liq) A:	ead eac ead eae eaq eao					
C <sub>38</sub> H <sub>76</sub>	Cyclohexane, n-dotriacontyl-						
	(c) A:	eah					
	(liq) A:	ead eac ead eae eaq eao					
	Cyclopentane, n-tritriacontyl-						
	(c) A:	eah					
	(liq) A:	ead eac ead eae eaq eao					
	1-Octatriacontene						
	(c) A:	eah					
	(liq) A:	ead eac ead eae eaq eao					
C <sub>38</sub> H <sub>78</sub>	n-Octatriacontane						
	(c) A:	eah					
	(liq) A:	ead eac ead eae eaq eao					
C <sub>38</sub> H <sub>72</sub>	Benzene, n-tritriacontyl-						
	(c) A:	eah					
	(liq) A:	ead eac ead eae eaq eao					
C <sub>38</sub> H <sub>78</sub>	1-Nonatriacontyne						
	(c) A:	eah					
	(liq) A:	ead eac ead eae eaq eao					
C <sub>38</sub> H <sub>76</sub>	Cyclohexane, n-tritriacontyl-						
	(c) A:	eah					
	(liq) A:	ead eac ead eae eaq eao					
	Cyclopentane, n-tetratriacontyl-						
	(c) A:	eah					
	(liq) A:	ead eac ead eae eaq eao					
	1-Nonatriacontene						
	(c) A:	eah					
	(liq) A:	ead eac ead eae eaq eao					
C <sub>38</sub> H <sub>80</sub>	n-Nonatriacontane						
	(c) A:	eah					
	(liq) A:	ead eac ead eae eaq eao					
C <sub>40</sub> H <sub>74</sub>	Benzene, n-tetratriacontyl-						
	(c) A:	eah					
	(liq) A:	ead eac ead eae eaq eao					
C <sub>40</sub> H <sub>78</sub>	1-Tetracontyne						
	(c) A:	eah					
	(liq) A:	ead eac ead eae eaq eao					
C <sub>40</sub> H <sub>80</sub>	Cyclohexane, n-tetratriacontyl-						
	(c) A:	eah					
	(liq) A:	ead eac ead eae eaq eao					
	Cyclopentane, n-pentatriacontyl-						
	(c) A:	eah					
	(liq) A:	ead eac ead eae eaq eao					
	1-Tetracontene						
	(c) A:	eah					
	(liq) A:	ead eac ead eae eaq eao					
C <sub>40</sub> H <sub>82</sub>	n-Tetracontane						
	(c) A:	eah					
	(liq) A:	ead eac ead eae eaq eao					

C <sub>41</sub> H <sub>78</sub>	Benzene, n-pentatriacontyl-						
	(c) A:	eah					
	(liq) A:	ead eac ead eae eaq eao					
C <sub>41</sub> H <sub>82</sub>	Cyclohexane, n-pentatriacontyl-						
	(c) A:	eah					
	(liq) A:	ead eac ead eae eaq eao					
	Cyclopentane, n-hexatriacontyl-						
	(c) A:	eah					
	(liq) A:	ead eac ead eae eaq eao					
C <sub>42</sub> H <sub>78</sub>	Benzene, n-hexatriacontyl-						
	(c) A:	eah					
	(liq) A:	ead eac ead eae eaq eao					
C <sub>42</sub> H <sub>84</sub>	Cyclohexane, n-hexatriacontyl-						
	(c) A:	eah					
	(liq) A:	ead eac ead eae eaq eao					
	23-2-1						
CHO <sub>2</sub> <sup>-</sup>	Formate ion						
	(aq) C:	faa fab fac fad					
HCO <sub>3</sub> <sup>-</sup>	Hydrogen carbonate ion (Bicarbonate ion)						
	(aq) C:	faa fab fac fad					
	E-IV:	faa fam(t) fan(t)					
	E-XI:	fac					
CH <sub>2</sub> O	Formaldehyde (Methanal)						
	(c) A:	eah					
	C:	eah					
	(liq) A:	ead eac ead eae eaq eao					
	B:	eal(-t)					
	C:	eaq fbj fbk					
	(g) C:	faa fab fac fad fae					
	(aq) C:	fab					
	(in methanol) C:	fab					
CH <sub>2</sub> O <sub>2</sub>	Formic acid (Methanoic acid)						
	(c) A:	eah eal(t)					
	B:	eal(t)					
	C:	eah fbf fbg fbh					
	(liq) A:	ead eac ead eae eaq eal(t)					
	eao						
	C:	eaq faa fab fac fad fae					
	fbj fbk						
	(g) C:	faa fab fac fad					
	(aq) C:	faa fab(x) fac fad					
H <sub>2</sub> CO <sub>3</sub>	Carbonic acid						
	(aq) C:	faa fab fac fad					
	E-IV:	faa fam(t) fan(t)					
	E-XI:	fac					
CH <sub>4</sub> O	Methanol (Methyl alcohol)						
	(c, ll) C:	eah fbb fbc					
	(c, l) A:	eah					
	B:	eah					
	C:	eah fbf fbg fbh					
	(liq) A:	ead eac ead eae eaq eal(-t,t)					
	eao						
	B:	ead eac ead eaq eal(-t,t)					
	C:	eaq faa fab fac fad fae					
	fbj fbk						
	(g) C:	faa fab fac fad					
	(aq) C:	faa fab(x) fac fad					
CH <sub>4</sub> O <sub>2</sub>	Methyl hydrogen peroxide						
	(liq) C:	eaq fbj fbk					
C <sub>2</sub> HO <sub>4</sub> <sup>-</sup>	Hydrogen oxalate ion (Bioxalate ion)						
	(aq) C:	faa fab fac fad					

**C<sub>2</sub>H<sub>2</sub>O** Ketene  
(c) C: eah  
(liq) C: eaq  
(g) C: fab

**C<sub>2</sub>H<sub>2</sub>O<sub>2</sub>** Glyoxal  
(c) C: eah fab  
(liq) C: eaq fbj fbk  
(aq) C: fab

**C<sub>2</sub>H<sub>2</sub>O<sub>4</sub>** Oxalic acid  
(c) C: eai faa fab fac fad fae  
fbn fbo  
(aq) C: fab(x)  
(in metbanol) C: fab  
(in etbanol) C: fab  
(in 1-propanol) C: fab

**C<sub>2</sub>H<sub>2</sub>O<sub>4</sub>·2H<sub>2</sub>O** Oxalic acid dihydrate  
(c) C: fab

**C<sub>2</sub>H<sub>3</sub>O<sub>2</sub><sup>-</sup>** Acetate ion  
(aq) C: fab

**C<sub>2</sub>H<sub>3</sub>O<sub>3</sub><sup>-</sup>** Hydroxyacetate ion (Glycolate ion)  
(aq) C: fab

**C<sub>2</sub>H<sub>4</sub>O** Acetaldehyde (Ethanal)  
(c) A: eah  
C: eah fbf fbq  
(liq) A: eab eac ead eae eaq eao  
B: eal(-t,t)  
C: eaq fbj fbk fbl  
(g) C: faa fab fac fad fae  
(aq) C: fab

**C<sub>2</sub>H<sub>4</sub>O·H<sub>2</sub>O** Acetaldehyde monohydrate (Ethanal monohydrate)  
(c) C: eah fbf fbq fbh

**C<sub>2</sub>H<sub>4</sub>O** Ethylene oxide  
(c) C: eah fbf fbq fbh  
(liq) C: eaq fbj fbk fbl  
(g) C: faa fab fac fad fae

**C<sub>2</sub>H<sub>4</sub>O<sub>2</sub>** Acetic acid (Ethanoic acid)  
(c, ll) C: eah fbf fbq  
(c, l) A: eah  
C: eah eaj fbb fbc fbf fbq  
fbh  
(liq) A: eab eac ead eae eaq eal(t)  
eao  
B: eal(t)  
C: eaq faa fab fac fad fae  
fbj fbk  
(aq) C: fab(x)  
(in sulfuric acid) C: fab(x)  
(in acetone) C: fab(x)  
(in ethyl ether) C: fab(x)  
(in n-pentane) C: fab(x)  
(in benzene) C: fab(x)

Formate, methyl-  
(c) C: eah fbf fbq  
(liq) C: eaq fab fae fbj fbk  
(g) C: fab  
(aq) C: fab

Hydroxyacetaldehyde  
(c) C: eah

**C<sub>2</sub><sup>18</sup>H<sub>4</sub>O<sub>2</sub>** Deuteroacetic acid (Deuteroethanoic acid)  
(liq) B: eal(t)

**C<sub>2</sub>H<sub>4</sub>O<sub>3</sub>** Hydroxyacetic acid (Glycolic acid)  
(c, ll) C: eah fab fbf fbq  
(c, l) C: eah fab fbf fbq  
(aq) C: fab

**C<sub>2</sub>H<sub>4</sub>O<sub>4</sub>** Dihydroxyacetic acid (Glyoxylic acid)  
(c) C: fab  
(aq) C: fab

Formic acid dimer  
(g) C: faa fab fac fad

**C<sub>2</sub>H<sub>6</sub>O** Ethanol (Ethyl alcohol)  
(c) A: eah  
B: eah  
C: eah fbf fbq fbh  
(liq) A: eab eac ead eae eaq eal(t)  
eao  
B: eab eac ead eaq eal(t)  
C: eaq faa fab fac fad fae  
fbj fbk  
(g) C: faa fab fac fad  
(aq) C: fab(x)  
(in sulfuric acid) C: fab(x)  
(in benzene) C: fab(x)

Ether, methyl (Dimethyl ether)  
(c) A: eah  
C: eah fbf fbq fbh  
(liq) A: eab eac eaq eao  
C: eaq fbj fbk fbl  
(g) C: faa fab fac fad fae  
(aq) C: fab

**C<sub>2</sub>H<sub>6</sub>O<sub>2</sub>** 1,2-Ethanediol (Ethylene glycol)  
(c) C: eah  
(liq) C: eaq faa fab fac fad fbj  
fbk  
(aq) C: fab(x)

Ethyl hydrogen peroxide  
(liq) C: fab

**C<sub>3</sub>H<sub>6</sub>O** Acetone (2-Propanone)  
(c) A: eah  
(liq) A: eab eac ead eae eaq eal(-t,t)  
eao

n-Propanal (Propionaldehyde)  
(c) A: eah  
(liq) A: eab eac ead eae eaq eao  
B: eal(-t,t)

**C<sub>3</sub>H<sub>6</sub>O<sub>2</sub>** n-Propanoic acid (Propionic acid)  
(c) A: eah  
(liq) A: eab eac ead eae eaq eal(t)  
eao  
B: eal(t)

**C<sub>3</sub>H<sub>8</sub>O** Ether, methyl ethyl  
(liq) A: eab eac eaq eao

1-Propanol (n-Propyl alcohol)  
(c) A: eah  
B: eah  
(liq) A: eab eac ead eae eaq eal(t)  
eao  
B: eab eac ead eaq eal(t)

2-Propanol (Isopropyl alcohol)  
(c) A: eah  
B: eah

**CARBON**  
**23-2-1 C<sub>3</sub>H<sub>8</sub>O**

(liq) A: eab eac ead eae eag eal(t)  
 eao  
 B: eab eac ead eag  
**C<sub>4</sub>H<sub>8</sub>O** n-Butanal (Butyraldehyde)  
 (c) A: eah  
 (liq) A: eab eac ead eae eag eao  
 B: eal(-t,t)  
 2-Butanone (Methyl ethyl ketone)  
 (c) A: eah  
 (liq) A: eab eac ead eae eag eal(-t,t)  
 eao  
 Propanal, 2-methyl- (Isobutyraldehyde)  
 (c) A: eah  
 (liq) A: eab eac ead eae eag eao  
**C<sub>4</sub>H<sub>8</sub>O<sub>2</sub>** n-Butanoic acid (Butyric acid)  
 (c) A: eah  
 (liq) A: eab eac ead eae eag eal(t)  
 eao  
 B: eal(t)  
 Propanoic acid, 2-methyl- (Isobutyric acid)  
 (c) A: eah  
 (liq) A: eab eac ead eae eag eao  
**C<sub>4</sub>H<sub>10</sub>O** 1-Butanol (n-Butyl alcohol)  
 (c) A: eah  
 B: eah  
 (liq) A: eab eac ead eae eag eal(t)  
 eao  
 B: eab eac ead eag eal(t)  
 2-Butanol (sec-Butyl alcohol)  
 (liq) A: eab eac ead eae eag eal(t)  
 eao  
 B: eab eac ead eag  
 Ether, ethyl (Diethyl ether)  
 (c) A: eah  
 (liq) A: eab eac ead eae eag eao  
 Ether, methyl isopropyl  
 (liq) A: eab eac ead eag eao  
 Ether, methyl n-propyl  
 (liq) A: eab eac ead eae eag eao  
 1-Propanol, 2-methyl- (Isobutyl alcohol)  
 (liq) A: eab eac ead eae eag eal(t)  
 eao  
 B: eab eac ead eag  
 2-Propanol, 2-methyl (tert-Butyl alcohol)  
 (c) A: eah  
 B: eah  
 (liq) A: eab eac ead eae eag eal(t)  
 eao  
 B: eab eac ead eag  
**C<sub>5</sub>H<sub>10</sub>O** Butanal, 2-methyl-  
 (liq) A: eab eac ead eae eag eao  
 Butanal, 3-methyl- (Isovaleraldehyde)  
 (liq) A: eab eac ead eag eao  
 2-Butanone, 3-methyl- (Methyl isopropyl ketone)  
 (c) A: eah  
 (liq) A: eab eac ead eae eag eal(t)  
 eao  
 n-Pentanal (Valeraldehyde)  
 (c) A: eah  
 (liq) A: eab eac ead eae eag eao  
 B: eal(t)

2-Pentanone (Methyl n-propyl ketone)  
 (c) A: eah  
 (liq) A: eab eac ead eae eag eal(t)  
 eao  
 3-Pentanone (Diethyl ketone)  
 (c) A: eah  
 (liq) A: eab eac ead eae eag eal(t)  
 eao  
 Propanal, 2,2-dimethyl (Pivalaldehyde)  
 (c) A: eah  
 (liq) A: eab eac ead eag eao  
**C<sub>5</sub>H<sub>10</sub>O<sub>2</sub>** Butanoic acid, 2-methyl-  
 (liq) A: eab eac ead eae eag eao  
 Butanoic acid, 3-methyl- (Isovaleric acid)  
 (c) A: eah  
 (liq) A: eab eac ead eae eag eao  
 n-Pentanoic acid (Valeric acid)  
 (c) A: eah  
 (liq) A: eab eac ead eae eag eal(t)  
 eao  
 B: eal(t)  
 Propanoic acid, 2,2-dimethyl- (Pivalic acid)  
 (c) A: eah  
 (liq) A: eac eag  
**C<sub>5</sub>H<sub>12</sub>O** 1-Butanol, 2-methyl-  
 (liq) A: eab eac ead eag eal(t) eao  
 B: eab eac ead eag  
 1-Butanol, 3-methyl-  
 (liq) A: eab eac ead eae eag eal(t)  
 eao  
 B: eab eac ead eag  
 2-Butanol, 2-methyl-  
 (c) A: eah  
 B: eah  
 (liq) A: eab eac ead eag eal(t) eao  
 B: eab eac ead eag  
 2-Butanol, 3-methyl-  
 (liq) A: eab eac ead eag eal(t) eao  
 B: eab eac ead eag  
 Ether, ethyl isopropyl  
 (liq) A: eab eac ead eag eao  
 Ether, ethyl n-propyl  
 (c) A: eah  
 (liq) A: eab eac ead eae eag eao  
 Ether, methyl isobutyl  
 (liq) A: eab eac ead eag eao  
 Ether, methyl n-butyl  
 (c) A: eah  
 (liq) A: eab eac ead eae eag eao  
 Ether, methyl sec-butyl  
 (liq) A: eab eac ead eag eao  
 Ether, methyl tert-butyl  
 (c) A: eah  
 (liq) A: eab eac ead eag eao  
 1-Pentanol (Amyl alcohol)  
 (c) A: eah  
 B: eah  
 (liq) A: eab eac ead eae eag eal(t)  
 eao  
 B: eab eac ead eag eal(t)

2-Pentanol  
(liq) A: eab eac ead eae eag eal(t)  
eao  
B: eab eac ead eag  
3-Pentanol  
(liq) A: eab eac ead eag eal(t) eao  
B: eab eac ead eag  
1-Propanol, 2,2-dimethyl-  
(c) A: eah  
B: eah  
(liq) A: eac eag eal(t)  
B: eac eag  
C<sub>6</sub>H<sub>12</sub>O Butanal, 2-ethyl-  
(c) A: eah  
(liq) A: eab eac ead eag eao  
Butanal, 2,2-dimethyl-  
(liq) A: eab eac ead eag eao  
Butanal, 2,3-dimethyl-  
(liq) A: eab eac ead eag eao  
Butanal, 3,3-dimethyl-  
(liq) A: eab eac ead eag eao  
2-Butanone, 3,3-dimethyl-  
(c) A: eah  
(liq) A: eab eac ead eag eal(t) eao  
n-Hexanal (Caproaldehyde)  
(c) A: eah  
(liq) A: eab eac ead eae eag eao  
B: eal(t)  
2-Hexanone  
(c) A: eah  
(liq) A: eab eac ead eae eag eal(t)  
eao  
3-Hexanone  
(liq) A: eab eac ead eae eag eal(t)  
eao  
Pentanal, 2-methyl-  
(liq) A: eab eac ead eag eao  
Pentanal, 3-methyl-  
(liq) A: eab eac ead eag eao  
Pentanal, 4-methyl- (Isocaproaldehyde)  
(liq) A: eab eac ead eag eao  
2-Pentanone, 3-methyl-  
(liq) A: eab eac ead eag eal(t) eao  
2-Pentanone, 4-methyl-  
(c) A: eah  
(liq) A: eab eac ead eae eag eal(t)  
eao  
3-Pentanone, 2-methyl-  
(liq) A: eab eac ead eag eal(t) eao  
C<sub>6</sub>H<sub>12</sub>O<sub>2</sub> Butanoic acid, 2-ethyl-  
(liq) A: eab eac ead eae eag eao  
Butanoic acid, 2,2-dimethyl-  
(c) A: eah  
(liq) A: eab eac ead eae eag eao  
Butanoic acid, 2,3-dimethyl-  
(liq) A: eab eac ead eae eag eao  
Butanoic acid, 3,3-dimethyl-  
(c) A: eah  
(liq) A: eab eac ead eae eag eao  
n-Hexanoic acid (Caproic acid)  
(c) A: eah

(liq) A: eab eac ead eae eag eal(t)  
eao  
B: eal(t)  
Pentanoic acid, 2-methyl-  
(liq) A: eab eac ead eae eag eao  
Pentanoic acid, 3-methyl-  
(c) A: eah  
(liq) A: eab eac ead eae eag eao  
Pentanoic acid, 4-methyl- (Isocaproic acid)  
(c) A: eah  
(liq) A: eab eac ead eae eag eao  
C<sub>6</sub>H<sub>14</sub>O 1-Butanol, 2-ethyl-  
(liq) A: eab eac ead eag eal(t) eao  
1-Butanol, 2,2-dimethyl-  
(liq) A: eab eac ead eag eal(t) eao  
1-Butanol, 2,3-dimethyl-  
(liq) A: eab eac ead eag eal(t) eao  
1-Butanol, 3,3-dimethyl-  
(liq) A: eab eac ead eag eal(t) eao  
2-Butanol, 2,3-dimethyl-  
(c) A: eah  
(liq) A: eab eac ead eag eal(t) eao  
2-Butanol, 3,3-dimethyl-  
(c) A: eah  
(liq) A: eab eac ead eag eal(t) eao  
Ether, ethyl isobutyl  
(liq) A: eab eac ead eag eao  
Ether, ethyl n-butyl  
(c) A: eah  
(liq) A: eab eac ead eae eag eao  
Ether, ethyl sec-butyl  
(liq) A: eab eac ead eag eao  
Ether, ethyl tert-butyl  
(c) A: eah  
(liq) A: eab eac ead eag eao  
Ether, methyl 1-ethylpropyl  
(liq) A: eac eag  
Ether, methyl 2-methylbutyl  
(liq) A: eab eac ead eag eao  
Ether, methyl 3-methylbutyl  
(liq) A: eab eac ead eag eao  
Ether, methyl 1,1-dimethylpropyl  
(liq) A: eab eac ead eag eao  
Ether, methyl 1,2-dimethylpropyl  
(liq) A: eab eac ead eag eao  
Ether, methyl n-pentyl  
(liq) A: eab eac ead eae eag eao  
Ether, di-isopropyl  
(c) A: eah  
(liq) A: eab eac ead eae eag eao  
Ether, di-n-propyl  
(c) A: eah  
(liq) A: eab eac ead eae eag eao  
Ether, n-propyl isopropyl  
(liq) A: eab eac ead eag eao  
1-Hexanol  
(c) A: eah  
B: eah  
(liq) A: eab eac ead eae eag eal(t)  
eao  
B: eab eac ead eag eal(t)

2-Hexanol  
(liq) A: eab eac ead eae eaq eal(t)  
eao

3-Hexanol  
(liq) A: eab eac ead eaq eal(t) eao

1-Pentanol, 2-methyl-  
(liq) A: eab eac ead eaq eal(t) eao

1-Pentanol, 3-methyl-  
(liq) A: eab eac ead eaq eal(t) eao

1-Pentanol, 4-methyl-  
(liq) A: eab eac ead eaq eal(t) eao

2-Pentanol, 2-methyl-  
(c) A: eah  
(liq) A: eab eac ead eae eaq eal(t)  
eao

2-Pentanol, 3-methyl-  
(liq) A: eab eac ead eaq eal(t) eao

2-Pentanol, 4-methyl-  
(liq) A: eab eac ead eae eaq eal(t)  
eao

3-Pentanol, 2-methyl-  
(liq) A: eab eac ead eae eaq eal(t)  
eao

3-Pentanol, 3-methyl-  
(c) A: eah  
(liq) A: eab eac ead eae eaq eal(t)  
eao

C<sub>7</sub>H<sub>14</sub>O n-Heptanal (Enanthaldehyde)  
(c) A: eah  
(liq) A: eab eac ead eae eaq eao  
B: eal(t)

2-Heptanone  
(c) A: eah  
(liq) A: eab eac ead eae eaq eao

3-Heptanone  
(c) A: eah  
(liq) A: eab eac ead eae eaq eao

4-Heptanone  
(c) A: eah  
(liq) A: eab eac ead eae eaq eao

2-Hexanone, 3-methyl-  
(liq) A: eab eac ead eaq eao

2-Hexanone, 4-methyl-  
(liq) A: eab eac ead eae eaq eao

2-Hexanone, 5-methyl-  
(liq) A: eab eac ead eaq eao

3-Hexanone, 2-methyl-  
(liq) A: eab eac ead eaq eao

3-Hexanone, 4-methyl-  
(liq) A: eab eac ead eaq eao

3-Hexanone, 5-methyl-  
(liq) A: eab eac ead eaq eao

2-Pentanone, 3-ethyl-  
(liq) A: eab eac ead eaq eao

2-Pentanone, 3,3-dimethyl-  
(liq) A: eab eac ead eaq eao

2-Pentanone, 3,4-dimethyl-  
(liq) A: eab eac ead eaq eao

2-Pentanone, 4,4-dimethyl-  
(liq) A: eab eac ead eaq eao

3-Pentanone, 2,2-dimethyl-  
(liq) A: eab eac ead eaq eao

3-Pentanone, 2,4-dimethyl-  
(c) A: eah  
(liq) A: eab eac ead eaq eao

C<sub>7</sub>H<sub>14</sub>O<sub>2</sub> n-Heptanoic acid (Enanthic acid)  
(c) A: eah  
(liq) A: eab eac ead eae eaq eal(t)  
eao  
B: eal(t)

C<sub>7</sub>H<sub>16</sub>O 1-Heptanol  
(c) A: eah  
B: eah  
(liq) A: eab eac ead eae eaq eal(t)  
eao  
B: eab eac ead eaq eal(t)

2-Heptanol  
(liq) A: eab eac ead eae eaq eao

C<sub>8</sub>H<sub>16</sub>O n-Octanal (Caprylaldehyde)  
(c) A: eah  
(liq) A: eab eac ead eae eaq eao  
B: eal(t)

2-Octanone  
(c) A: eah  
(liq) A: eab eac ead eae eaq eao

C<sub>8</sub>H<sub>16</sub>O<sub>2</sub> n-Octanoic acid (Caprylic acid)  
(c) A: eah  
(liq) A: eab eac ead eae eaq eal(t)  
eao  
B: eal(t)

C<sub>8</sub>H<sub>18</sub>O 1-Octanol  
(c) A: eah  
B: eah  
(liq) A: eab eac ead eae eaq eal(t)  
eao  
B: eab eac ead eaq eal(t)

2-Octanol  
(c) A: eah  
(liq) A: eab eac ead eae eaq eao

C<sub>9</sub>H<sub>18</sub>O n-Nonanal (Pelargonaldehyde)  
(c) A: eah  
(liq) A: eab eac ead eae eaq eao  
B: eal(t)

2-Nonanone  
(c) A: eah  
(liq) A: eab eac ead eae eaq eao

n-Nonanoic acid (Pelargonic acid)  
(c) A: eah  
(liq) A: eab eac ead eae eaq eal(t)  
eao  
B: eal(t)

C<sub>9</sub>H<sub>20</sub>O 1-Nonanol  
(c) A: eah  
B: eah  
(liq) A: eab eac ead eae eaq eal(t)  
eao  
B: eab eac ead eaq eal(t)

2-Nonanol  
(c) A: eah  
(liq) A: eab eac ead eaq eao

C<sub>10</sub>H<sub>20</sub>O n-Decanal (Capraldehyde)  
(c) A: eah  
(liq) A: eab eac ead eae eaq eao  
B: eal(t)



2-Decanone  
(c) A: eah  
(liq) A: eab eac ead eae eag eao

C<sub>10</sub>H<sub>20</sub>O<sub>2</sub> n-Decanoic acid (Capric acid)  
(c) A: eah  
(liq) A: eab eac ead eae eag eal(t)  
eao  
B: eal(t)

C<sub>10</sub>H<sub>22</sub>O 1-Decanol  
(c) A: eah  
B: eah  
(liq) A: eab eac ead eae eag eal(t)  
eao  
B: eab eac ead eag eal(t)

2-Decanol  
(c) A: eah  
(liq) A: eab eac ead eae eag eao

C<sub>11</sub>H<sub>22</sub>O n-Undecanal  
(c) A: eah  
(liq) A: eab eac ead eae eag eao  
B: eal(t)

2-Undecanone  
(c) A: eah  
(liq) A: eab eac ead eae eag eao

C<sub>11</sub>H<sub>22</sub>O<sub>2</sub> n-Undecanoic acid  
(c) A: eah  
(liq) A: eab eac ead eae eag eal(t)  
eao  
B: eal(t)

C<sub>11</sub>H<sub>24</sub>O 1-Undecanol  
(c) A: eah  
B: eah  
(liq) A: eab eac ead eae eag eal(t)  
eao  
B: eab eac ead eag eal(t)

2-Undecanol  
(c) A: eah  
(liq) A: eab eac ead eae eag eao

C<sub>12</sub>H<sub>24</sub>O n-Dodecanal (Lauraldehyde)  
(c) A: eah  
(liq) A: eab eac ead eae eag eao  
B: eal(t)

2-Dodecanone  
(c) A: eah  
(liq) A: eab eac ead eae eag eao

C<sub>12</sub>H<sub>24</sub>O<sub>2</sub> n-Dodecanoic acid (Lauric acid)  
(c) A: eah  
(liq) A: eab eac ead eae eag eal(t)  
eao  
B: eal(t)

C<sub>12</sub>H<sub>26</sub>O 1-Dodecanol  
(c) A: eah  
B: eah  
(liq) A: eab eac ead eae eag eal(t)  
eao  
B: eab eac ead eag eal(t)

2-Dodecanol  
(c) A: eah  
(liq) A: eab eac ead eae eag eao

C<sub>13</sub>H<sub>26</sub>O n-Tridecanal  
(c) A: eah

(liq) A: eab eac ead eae eag eao  
B: eal(t)

2-Tridecanone  
(c) A: eah  
(liq) A: eab eac ead eae eag eao

C<sub>13</sub>H<sub>26</sub>O<sub>2</sub> n-Tridecanoic acid  
(c) A: eah  
(liq) A: eab eac ead eae eag eal(t)  
eao  
B: eal(t)

C<sub>13</sub>H<sub>28</sub>O 1-Tridecanol  
(c) A: eah  
B: eah  
(liq) A: eab eac ead eae eag eal(t)  
eao  
B: eab eac ead eag eal(t)

2-Tridecanol  
(c) A: eah  
(liq) A: eab eac ead eae eag eao

C<sub>14</sub>H<sub>28</sub>O n-Tetradecanal (Myristaldehyde)  
(c) A: eah  
(liq) A: eab eac ead eae eag eao  
B: eal(t)

2-Tetradecanone  
(c) A: eah  
(liq) A: eab eac ead eae eag eao

C<sub>14</sub>H<sub>28</sub>O<sub>2</sub> n-Tetradecanoic acid (Myristic acid)  
(c) A: eah  
(liq) A: eab eac ead eae eag eal(t)  
eao  
B: eal(t)

C<sub>14</sub>H<sub>30</sub>O 1-Tetradecanol  
(c) A: eah  
B: eah  
(liq) A: eab eac ead eae eag eal(t)  
eao  
B: eab eac ead eag eal(t)

2-Tetradecanol  
(c) A: eah  
(liq) A: eab eac ead eae eag eao

C<sub>15</sub>H<sub>30</sub>O n-Pentadecanal  
(c) A: eah  
(liq) A: eab eac ead eae eag eao  
B: eal(t)

2-Pentadecanone  
(c) A: eah  
(liq) A: eab eac ead eae eag eao

C<sub>15</sub>H<sub>30</sub>O<sub>2</sub> n-Pentadecanoic acid  
(c) A: eah  
(liq) A: eab eac ead eae eag eal(t)  
eao  
B: eal(t)

C<sub>15</sub>H<sub>32</sub>O 1-Pentadecanol  
(c) A: eah  
B: eah  
(liq) A: eab eac ead eae eag eal(t)  
eao  
B: eab eac ead eag eal(t)

2-Pentadecanol  
(c) A: eah  
(liq) A: eab eac ead eae eag eao



**CARBON**  
**23-2-1 C<sub>16</sub>H<sub>32</sub>O**

C <sub>16</sub> H <sub>32</sub> O	n-Hexadecanal (Palmitaldehyde)
(c)	A: eah
(liq)	A: eab eac ead eae eag eao
	B: eal(t)
	2-Hexadecanone
(c)	A: eah
(liq)	A: eab eac ead eae eag eao
C <sub>16</sub> H <sub>32</sub> O <sub>2</sub>	n-Hexadecanoic acid (Palmitic acid)
(c)	A: eah
(liq)	A: eab eac ead eae eag eal(t)
	eao
	B: eal(t)
C <sub>16</sub> H <sub>34</sub> O	1-Hexadecanol
(c)	A: eah
	B: eah
(liq)	A: eab eac ead eae eag eal(t)
	eao
	B: eab eac ead eag eal(t)
	2-Hexadecanol
(c)	A: eah
(liq)	A: eab eac ead eae eag eao
C <sub>17</sub> H <sub>34</sub> O	n-Heptadecanal (Margaraldehyde)
(c)	A: eah
(liq)	A: eab eac ead eae eag eao
	B: eal(t)
	2-Heptadecanone
(c)	A: eah
(liq)	A: eab eac ead eae eag eao
C <sub>17</sub> H <sub>34</sub> O <sub>2</sub>	n-Heptadecanoic acid (Margaric acid)
(c)	A: eah
(liq)	A: eab eac ead eae eag eal(t)
	eao
	B: eal(t)
C <sub>17</sub> H <sub>36</sub> O	1-Heptadecanol
(c)	A: eah
	B: eah
(liq)	A: eab eac ead eae eag eal(t)
	eao
	B: eab eac ead eag eal(t)
	2-Heptadecanol
(c)	A: eah
(liq)	A: eab eac ead eae eag eao
C <sub>18</sub> H <sub>36</sub> O	n-Octadecanal (Stearaldehyde)
(c)	A: eah
(liq)	A: eab eac ead eae eag eao
	B: eal(t)
	2-Octadecanone
(c)	A: eah
(liq)	A: eab eac ead eae eag eao
C <sub>18</sub> H <sub>36</sub> O <sub>2</sub>	n-Octadecanoic acid (Stearic acid)
(c)	A: eah
(liq)	A: eab eac ead eae eag eal(t)
	eao
	B: eal(t)
C <sub>18</sub> H <sub>38</sub> O	1-Octadecanol
(c)	A: eah
	B: eah
(liq)	A: eab eac ead eae eag eal(t)
	eao
	B: eab eac ead eag eal(t)

	2-Octadecanol
(c)	A: eah
(liq)	A: eab eac ead eae eag eao
C <sub>19</sub> H <sub>38</sub> O	n-Nonadecanal
(c)	A: eah
(liq)	A: eab eac ead eae eag eao
	B: eal(t)
	2-Nonadecanone
(c)	A: eah
(liq)	A: eab eac ead eae eag eao
C <sub>19</sub> H <sub>38</sub> O <sub>2</sub>	n-Nonadecanoic acid
(c)	A: eah
(liq)	A: eab eac ead eae eag eal(t)
	eao
	B: eal(t)
C <sub>19</sub> H <sub>40</sub> O	1-Nonadecanol
(c)	A: eah
	B: eah
(liq)	A: eab eac ead eae eag eal(t)
	eao
	B: eab eac ead eag eal(t)
	2-Nonadecanol
(c)	A: eah
(liq)	A: eab eac ead eae eag eao
C <sub>20</sub> H <sub>40</sub> O	n-Eicosanal (Arachidaldehyde)
(c)	A: eah
(liq)	A: eab eac ead eae eag eao
	B: eal(t)
	2-Eicosanone
(c)	A: eah
(liq)	A: eab eac ead eae eag eao
C <sub>20</sub> H <sub>40</sub> O <sub>2</sub>	n-Eicosanoic acid (Arachidic acid)
(c)	A: eah
(liq)	A: eab eac ead eae eag eal(t)
	eao
	B: eal(t)
C <sub>20</sub> H <sub>42</sub> O	1-Eicosanol
(c)	A: eah
	B: eah
(liq)	A: eab eac ead eae eag eal(t)
	eao
	B: eab eac ead eag eal(t)
	2-Eicosanol
(c)	A: eah
(liq)	A: eab eac ead eae eag eao

**23-9**

CF <sub>4</sub>	Methane, tetrafluoro- (Carbon tetrafluoride)
(c, II)	C: eaj fbb fbc
	E-XI: eaj fbb
(c, I)	B: eah
	C: eah fbf fbg
	E-XI: eah fae(-t) fbf
(liq)	B: eac eaq
	C: eaq fbj fbk
	E-III: eaq eal(-t) fbi(-t) fbj fbk
	E-XI: eaq fae fbj
(g)	C: faa fab fac fad
	E-XI: fac fae(-t)
	E-XIII: fae(t) fai(t) fal(t)



Butane, 2,2-difluoro-  
(c) B: eah  
(liq) B: eab eac ead eaq  
Butane, 2,3-difluoro-  
(liq) B: eab eac ead eaq  
Propane, 1,1-difluoro-2-methyl-  
(liq) B: eab eac ead eaq  
Propane, 1,2-difluoro-2-methyl-  
(liq) B: eab eac ead eaq  
Propane, 1,3-difluoro-2-methyl-  
(liq) B: eab eac ead eaq  
C<sub>4</sub>F<sub>3</sub>H<sub>7</sub> Butane, 1,1,1-trifluoro-  
(c) B: eah  
(liq) B: eab eac ead eaq  
C<sub>5</sub>FH<sub>9</sub> 1-Butene, 1-fluoro-cis-2-methyl-  
(liq) B: eab ead  
1-Butene, 1-fluoro-trans-2-methyl-  
(liq) B: eab ead  
1-Butene, 1-fluoro-cis-3-methyl-  
(liq) B: eab ead  
1-Butene, 1-fluoro-trans-3-methyl-  
(liq) B: eab ead  
1-Butene, 2-fluoro-3-methyl-  
(liq) B: eab ead  
1-Butene, 3-fluoro-2-methyl-  
(liq) B: eab ead  
1-Butene, 3-fluoro-3-methyl-  
(liq) B: eab ead  
1-Butene, 4-fluoro-2-methyl-  
(liq) B: eab ead  
1-Butene, 4-fluoro-3-methyl-  
(liq) B: eab ead  
cis-2-Butene, 1-fluoro-2-methyl-  
(liq) B: eab ead  
trans-2-Butene, 1-fluoro-2-methyl-  
(liq) B: eab ead  
2-Butene, 1-fluoro-3-methyl-  
(liq) B: eab ead  
2-Butene, 2-fluoro-3-methyl-  
(liq) B: eab ead  
1-Pentene, cis-1-fluoro-  
(liq) B: eab ead  
1-Pentene, trans-1-fluoro-  
(liq) B: eab ead  
1-Pentene, 2-fluoro-  
(liq) B: eab ead  
1-Pentene, 3-fluoro-  
(liq) B: eab ead  
1-Pentene, 4-fluoro-  
(liq) B: eab ead  
1-Pentene, 5-fluoro-  
(liq) B: eab ead  
cis-2-Pentene, 1-fluoro-  
(liq) B: eab ead  
trans-2-Pentene, 1-fluoro-  
(liq) B: eab ead  
cis-2-Pentene, 2-fluoro-  
(liq) B: eab ead  
trans-2-Pentene, 2-fluoro-  
(liq) B: eab ead  
cis-2-Pentene, 3-fluoro-  
(liq) B: eab ead

trans-2-Pentene, 3-fluoro-  
(liq) B: eab ead  
cis-2-Pentene, 4-fluoro-  
(liq) B: eab ead  
trans-2-Pentene, 4-fluoro-  
(liq) B: eab ead  
cis-2-Pentene, 5-fluoro-  
(liq) B: eab ead  
trans-2-Pentene, 5-fluoro-  
(liq) B: eab ead  
1-Propene, 3-fluoro-2-ethyl-  
(liq) B: eab ead  
C<sub>5</sub>FH<sub>11</sub> Butane, 1-fluoro-2-methyl-  
(liq) B: eab eac ead eaq  
Butane, 1-fluoro-3-methyl-  
(liq) B: eab eac ead eaq  
Butane, 2-fluoro-2-methyl-  
(c) B: eah  
(liq) B: eab eac ead eaq eal(-t,t)  
Butane, 2-fluoro-3-methyl-  
(liq) B: eab eac ead eaq  
Pentane, 1-fluoro-  
(c) B: eah  
(liq) B: eab eac ead eaq eal(-t,t)  
Pentane, 2-fluoro-  
(liq) B: eab eac ead eaq  
Pentane, 3-fluoro-  
(liq) B: eab eac ead eaq  
Propane, 1-fluoro-2,2-dimethyl-  
(liq) B: eab eac ead eaq  
C<sub>5</sub>F<sub>2</sub>H<sub>10</sub> Butane, 1,1-difluoro-2-methyl-  
(liq) B: eab ead  
Butane, 1,1-difluoro-3-methyl-  
(liq) B: eab ead  
Butane, 1,2-difluoro-2-methyl-  
(liq) B: eab ead  
Butane, 1,2-difluoro-3-methyl-  
(liq) B: eab ead  
Butane, 1,3-difluoro-2-methyl-  
(liq) B: eab ead  
Butane, 1,3-difluoro-3-methyl-  
(liq) B: eab ead  
Butane, 1,4-difluoro-2-methyl-  
(liq) B: eab ead  
Butane, 2,2-difluoro-3-methyl-  
(liq) B: eab ead  
Butane, 2,3-difluoro-2-methyl-  
(liq) B: eab ead  
Pentane, 1,1-difluoro-  
(liq) B: eab eac ead eaq eal(-t,t)  
Pentane, 1,2-difluoro-  
(liq) B: eab eac ead eaq  
Pentane, 1,3-difluoro-  
(liq) B: eab eac ead eaq  
Pentane, 1,4-difluoro-  
(liq) B: eab eac ead eaq  
Pentane, 1,5-difluoro-  
(liq) B: eab eac ead eaq  
Pentane, 2,2-difluoro-  
(c) B: eah  
(liq) B: eab eac ead eaq



**CARBON**

23-9-2 C<sub>12</sub>F<sub>2</sub>H<sub>24</sub>

C <sub>12</sub> F <sub>2</sub> H <sub>24</sub>	Dodecane, 1,1-difluoro-				
	(liq) B:	eab	eac	ead	eag
C <sub>12</sub> F <sub>3</sub> H <sub>23</sub>	Dodecane, 1,1,1-trifluoro-				
	(liq) B:	eab	eac	ead	eag
C <sub>13</sub> FH <sub>25</sub>	1-Tridecene, cis-1-fluoro-				
	(liq) B:	eab	ead		
	1-Tridecene, trans-1-fluoro-				
	(liq) B:	eab	ead		
C <sub>13</sub> FH <sub>27</sub>	Tridecane, 1-fluoro-				
	(c) B:	eah			
	(liq) B:	eab	eac	ead	eag eal(t)
C <sub>13</sub> F <sub>2</sub> H <sub>26</sub>	Tridecane, 1,1-difluoro-				
	(liq) B:	eab	eac	ead	eag
C <sub>13</sub> F <sub>3</sub> H <sub>25</sub>	Tridecane, 1,1,1-trifluoro-				
	(liq) B:	eab	eac	ead	eag
C <sub>14</sub> FH <sub>27</sub>	1-Tetradecene, cis-1-fluoro-				
	(liq) B:	eab	ead		
	1-Tetradecene, trans-1-fluoro-				
	(liq) B:	eab	ead		
C <sub>14</sub> FH <sub>29</sub>	Tetradecane, 1-fluoro-				
	(c) B:	eah			
	(liq) B:	eab	eac	ead	eag eal(t)
C <sub>14</sub> F <sub>2</sub> H <sub>28</sub>	Tetradecane, 1,1-difluoro-				
	(liq) B:	eab	eac	ead	eag
C <sub>14</sub> F <sub>3</sub> H <sub>27</sub>	Tetradecane, 1,1,1-trifluoro-				
	(liq) B:	eab	eac	ead	eag
C <sub>15</sub> FH <sub>29</sub>	1-Pentadecene, cis-1-fluoro-				
	(liq) B:	eab	ead		
	1-Pentadecene, trans-1-fluoro-				
	(liq) B:	eab	ead		
C <sub>15</sub> FH <sub>31</sub>	Pentadecane, 1-fluoro-				
	(c) B:	eah			
	(liq) B:	eab	eac	ead	eag eal(t)
C <sub>15</sub> F <sub>2</sub> H <sub>30</sub>	Pentadecane, 1,1-difluoro-				
	(liq) B:	eab	eac	ead	eag
C <sub>15</sub> F <sub>3</sub> H <sub>29</sub>	Pentadecane, 1,1,1-trifluoro-				
	(liq) B:	eab	eac	ead	eag
C <sub>16</sub> FH <sub>31</sub>	1-Hexadecene, cis-1-fluoro-				
	(liq) B:	eab	ead		
	1-Hexadecene, trans-1-fluoro-				
	(liq) B:	eab	ead		
C <sub>16</sub> FH <sub>33</sub>	Hexadecane, 1-fluoro-				
	(c) B:	eah			
	(liq) B:	eab	eac	ead	eag eal(t)
C <sub>16</sub> F <sub>2</sub> H <sub>32</sub>	Hexadecane, 1,1-difluoro-				
	(liq) B:	eab	eac	ead	eag
C <sub>16</sub> F <sub>3</sub> H <sub>31</sub>	Hexadecane, 1,1,1-trifluoro-				
	(liq) B:	eab	eac	ead	eag
C <sub>17</sub> FH <sub>33</sub>	1-Heptadecene, cis-1-fluoro-				
	(liq) B:	eab	ead		
	1-Heptadecene, trans-1-fluoro-				
	(liq) B:	eab	ead		
C <sub>17</sub> FH <sub>35</sub>	Heptadecane, 1-fluoro-				
	(c) B:	eah			
	(liq) B:	eab	eac	ead	eag eal(t)
C <sub>17</sub> F <sub>2</sub> H <sub>34</sub>	Heptadecane, 1,1-difluoro-				
	(liq) B:	eab	eac	ead	eag
C <sub>17</sub> F <sub>3</sub> H <sub>33</sub>	Heptadecane, 1,1,1-trifluoro-				
	(liq) B:	eab	eac	ead	eag
C <sub>18</sub> FH <sub>35</sub>	1-Octadecene, cis-1-fluoro-				
	(liq) B:	eab	ead		
	1-Octadecene, trans-1-fluoro-				
	(liq) B:	eab	ead		
C <sub>18</sub> FH <sub>37</sub>	Octadecane, 1-fluoro-				
	(c) B:	eah			
	(liq) B:	eab	eac	ead	eag eal(t)
C <sub>18</sub> F <sub>2</sub> H <sub>36</sub>	Octadecane, 1,1-difluoro-				
	(liq) B:	eab	eac	ead	eag
C <sub>18</sub> F <sub>3</sub> H <sub>35</sub>	Octadecane, 1,1,1-trifluoro-				
	(liq) B:	eab	eac	ead	eag
C <sub>19</sub> FH <sub>37</sub>	1-Nonadecene, cis-1-fluoro-				
	(liq) B:	eab	ead		
	1-Nonadecene, trans-1-fluoro-				
	(liq) B:	eab	ead		
C <sub>19</sub> FH <sub>39</sub>	Nonadecane, 1-fluoro-				
	(c) B:	eah			
	(liq) B:	eab	eac	ead	eag eal(t)
C <sub>19</sub> F <sub>2</sub> H <sub>38</sub>	Nonadecane, 1,1-difluoro-				
	(liq) B:	eab	eac	ead	eag
C <sub>19</sub> F <sub>3</sub> H <sub>37</sub>	Nonadecane, 1,1,1-trifluoro-				
	(liq) B:	eab	eac	ead	eag
C <sub>20</sub> FH <sub>39</sub>	1-Eicosene, cis-1-fluoro-				
	(liq) B:	eab	ead		
	1-Eicosene, trans-1-fluoro-				
	(liq) B:	eab	ead		
C <sub>20</sub> FH <sub>41</sub>	Eicosane, 1-fluoro-				
	(c) B:	eah			
	(liq) B:	eab	eac	ead	eag eal(t)
C <sub>20</sub> F <sub>2</sub> H <sub>40</sub>	Eicosane, 1,1-difluoro-				
	(liq) B:	eab	eac	ead	eag
C <sub>20</sub> F <sub>3</sub> H <sub>39</sub>	Eicosane, 1,1,1-trifluoro-				
	(liq) B:	eab	eac	ead	eag
C <sub>21</sub> FH <sub>43</sub>	Heneicosane, 1-fluoro-				
	(c) B:	eah			
	(liq) B:	eab	eac	ead	eag
C <sub>21</sub> F <sub>2</sub> H <sub>42</sub>	Heneicosane, 1,1-difluoro-				
	(liq) B:	eab	eac	ead	eag
C <sub>22</sub> FH <sub>45</sub>	Docosane, 1-fluoro-				
	(c) B:	eah			
	(liq) B:	eab	eac	ead	eag
C <sub>22</sub> F <sub>2</sub> H <sub>44</sub>	Docosane, 1,1-difluoro-				
	(liq) B:	eab	eac	ead	eag
C <sub>23</sub> FH <sub>47</sub>	Tricosane, 1-fluoro-				
	(c) B:	eah			
	(liq) B:	eab	eac	ead	eag
C <sub>23</sub> F <sub>2</sub> H <sub>46</sub>	Tricosane, 1,1-difluoro-				
	(liq) B:	eab	eac	ead	eag
C <sub>24</sub> FH <sub>49</sub>	Tetracosane, 1-fluoro-				
	(c) B:	eah			
	(liq) B:	eab	eac	ead	eag
C <sub>24</sub> F <sub>2</sub> H <sub>48</sub>	Tetracosane, 1,1-difluoro-				
	(liq) B:	eab	eac	ead	eag
C <sub>25</sub> FH <sub>51</sub>	Pentacosane, 1-fluoro-				
	(c) B:	eah			
	(liq) B:	eab	eac	ead	eag
C <sub>25</sub> F <sub>2</sub> H <sub>50</sub>	Pentacosane, 1,1-difluoro-				
	(liq) B:	eab	eac	ead	eag
C <sub>26</sub> FH <sub>53</sub>	Hexacosane, 1-fluoro-				
	(c) B:	eah			
	(liq) B:	eab	eac	ead	eag
C <sub>26</sub> F <sub>2</sub> H <sub>52</sub>	Hexacosane, 1,1-difluoro-				
	(liq) B:	eab	eac	ead	eag

C<sub>27</sub>FH<sub>53</sub> Heptacosane, 1-fluoro-  
(c) B: eah  
(liq) B: eab eac ead eaq

C<sub>27</sub>F<sub>2</sub>H<sub>54</sub> Heptacosane, 1,1-difluoro-  
(liq) B: eab eac ead eaq

C<sub>28</sub>FH<sub>57</sub> Octacosane, 1-fluoro-  
(c) B: eah  
(liq) B: eab eac ead eaq

C<sub>28</sub>F<sub>2</sub>H<sub>58</sub> Octacosane, 1,1-difluoro-  
(liq) B: eab eac ead eaq

C<sub>29</sub>FH<sub>59</sub> Nonacosane, 1-fluoro-  
(c) B: eah  
(liq) B: eab eac ead eaq

C<sub>29</sub>F<sub>2</sub>H<sub>60</sub> Nonacosane, 1,1-difluoro-  
(liq) B: eab eac ead eaq

C<sub>30</sub>FH<sub>61</sub> Triacontane, 1-fluoro-  
(c) B: eah  
(liq) B: eab eac ead eaq

C<sub>30</sub>F<sub>2</sub>H<sub>62</sub> Triacontane, 1,1-difluoro-  
(liq) B: eab eac ead eaq

C<sub>31</sub>FH<sub>63</sub> Hentriacontane, 1-fluoro-  
(c) B: eah  
(liq) B: eab eac ead eaq

C<sub>31</sub>F<sub>2</sub>H<sub>64</sub> Hentriacontane, 1,1-difluoro-  
(liq) B: eab eac ead eaq

C<sub>32</sub>FH<sub>65</sub> Dotriacontane, 1-fluoro-  
(c) B: eah  
(liq) B: eab eac ead eaq

C<sub>32</sub>F<sub>2</sub>H<sub>66</sub> Dotriacontane, 1,1-difluoro-  
(liq) B: eab eac ead eaq

C<sub>33</sub>FH<sub>67</sub> Tritriacontane, 1-fluoro-  
(c) B: eah  
(liq) B: eab eac ead eaq

C<sub>33</sub>F<sub>2</sub>H<sub>68</sub> Tritriacontane, 1,1-difluoro-  
(liq) B: eab eac ead eaq

C<sub>34</sub>FH<sub>69</sub> Tetratriacontane, 1-fluoro-  
(c) B: eah  
(liq) B: eab eac ead eaq

C<sub>34</sub>F<sub>2</sub>H<sub>70</sub> Tetratriacontane, 1,1-difluoro-  
(liq) B: eab eac ead eaq

C<sub>35</sub>FH<sub>71</sub> Pentatriacontane, 1-fluoro-  
(c) B: eah  
(liq) B: eab eac ead eaq

C<sub>35</sub>F<sub>2</sub>H<sub>72</sub> Pentatriacontane, 1,1-difluoro-  
(liq) B: eab eac ead eaq

C<sub>36</sub>FH<sub>73</sub> Hexatriacontane, 1-fluoro-  
(c) B: eah  
(liq) B: eab eac ead eaq

C<sub>36</sub>F<sub>2</sub>H<sub>74</sub> Hexatriacontane, 1,1-difluoro-  
(liq) B: eab eac ead eaq

C<sub>37</sub>FH<sub>75</sub> Heptatriacontane, 1-fluoro-  
(c) B: eah  
(liq) B: eab eac ead eaq

C<sub>37</sub>F<sub>2</sub>H<sub>76</sub> Heptatriacontane, 1,1-difluoro-  
(liq) B: eab eac ead eaq

C<sub>38</sub>FH<sub>77</sub> Octatriacontane, 1-fluoro-  
(c) B: eab  
(liq) B: eab eac ead eaq

C<sub>38</sub>F<sub>2</sub>H<sub>78</sub> Octatriacontane, 1,1-difluoro-  
(liq) B: eab eac ead eaq

C<sub>39</sub>FH<sub>79</sub> Nonatriacontane, 1-fluoro-  
(c) B: eah  
(liq) B: eab eac ead eaq

C<sub>39</sub>F<sub>2</sub>H<sub>80</sub> Nonatriacontane, 1,1-difluoro-  
(liq) B: eab eac ead eaq

C<sub>40</sub>FH<sub>81</sub> Tetracontane, 1-fluoro-  
(c) B: eah  
(liq) B: eab eac ead eaq

C<sub>40</sub>F<sub>2</sub>H<sub>82</sub> Tetracontane, 1,1-difluoro-  
(liq) B: eab eac ead eaq

23-9-2-1

C<sub>2</sub>FH<sub>3</sub>O<sub>2</sub> Acetic acid, fluoro-  
(c) C: eah fab  
Acetyl fluoride  
(liq) C: eaq fbj fbk

C<sub>2</sub>FH<sub>3</sub>O Ethanal, 2-fluoro-  
(c) C: eah  
(liq) C: eaq fab fbj fbk

C<sub>2</sub>F<sub>2</sub>H<sub>2</sub>O<sub>2</sub> Acetic acid, difluoro-  
(c) C: eah  
(liq) C: eaq fab

C<sub>2</sub>F<sub>2</sub>H<sub>4</sub>O Ethanol, 2,2-difluoro-  
(c) C: eah  
(liq) C: eaq fab

C<sub>2</sub>F<sub>3</sub>HO<sub>2</sub> Acetic acid, trifluoro-  
(c) C: eah  
(liq) C: eaq

C<sub>2</sub>F<sub>3</sub>H<sub>3</sub>O Ethanol, 2,2,2-trifluoro-  
(c) C: eah  
(liq) C: eaq

23-10

CCl<sub>4</sub> Methane, tetrachloro- (Carbon tetrachloride)  
(c, II) C: eaj fbb fbc  
E-XI: eaj fbb  
(c, I) B: eah  
C: eah fbf fbg fbh  
E-V: eah fbf fbg  
E-XI: eah fbf  
(c) E-XI: fae(-t)  
(liq) B: eab eac ead eaq  
C: eaq faa fab fac fad fae  
fbj fbk  
E-III: eaq eal(-t,t) fbi(-t,t)  
fbj(-t,t) fbk  
E-XI: fac fae  
E-XIII: fae  
(g) C: faa fab fac fad fae  
E-XI: fac  
E-XIII: fae(t) fai(t) fal(t)

C<sub>2</sub>Cl<sub>2</sub> Ethyne, dichloro-  
(liq) C: eaq

C<sub>2</sub>Cl<sub>4</sub> Ethene, tetrachloro-  
(c) C: eah fbf fbg  
(liq) C: eaq fab fae fbj fbk

C<sub>2</sub>Cl<sub>6</sub> Ethane, hexachloro-  
(c, II) C: eaj fbb fbc  
(c, I) C: eai fbn fbo  
(c) C: fab fae

23-10-1	
CCl <sub>2</sub> O	Carbonyl chloride (Phosgene) (c) C: eah fbf fbj E-XI: eah fae(-t) fbj (liq) C: eaq fbj fbk E-III: eaq eal(-t) fbj(-t,t) fbj fbk E-XI: eaq fae(-t) fbj (g) C: faa fab fac fad fae E-XI: fac fae E-XIII: fae(t) fai(t) fal(t)
C <sub>2</sub> Cl <sub>3</sub> O <sub>2</sub> <sup>-</sup>	Acetate ion, trichloro- (aq) C: fab
C <sub>2</sub> Cl <sub>4</sub> O	Acetyl chloride, trichloro- (liq) C: fab
C <sub>2</sub> Cl <sub>4</sub> O <sub>2</sub>	Formate, trichloromethyl chloro- (liq) C: eaq fbj fbk
23-10-2	
CClH <sub>3</sub>	Methane, chloro- (c) B: eah C: eah fbf fbj fbh (liq) B: eab eac ead eaq eal(-t) C: eaq fbj fbk (g) C: faa fab fac fad fae
CClH <sub>3</sub> ·9H <sub>2</sub> O	Methane, chloro-, nonahydrate (c) C: fab
CCl <sub>2</sub> H <sub>2</sub>	Methane, dichloro- (c) B: eah C: eah fbf fbj (liq) B: eab eac ead eaq eal(-t,t) C: eaq faa fab fac fad fae fbj fbk (g) C: faa fab fac fad fae
CCl <sub>3</sub> H	Methane, trichloro- (Chloroform) (c) B: eah C: eah fbf fbj (liq) B: eab eac ead eaq C: eaq faa fab fac fad fae fbj fbk (g) C: faa fab fac fad fae
C <sub>2</sub> ClH <sub>3</sub>	Ethene, chloro- (c) B: eah C: eah (liq) B: eab eac ead eaq C: eaq fbj fbk (g) C: fab
C <sub>2</sub> ClH <sub>5</sub>	Ethane, chloro- (c) B: eah C: eah fbf fbj fbh (liq) B: eab eac ead eaq eal(-t,t) C: eaq fbj fbk (g) C: faa fab fac fad fae
C <sub>2</sub> Cl <sub>2</sub> H <sub>2</sub>	Ethene, 1,1-dichloro- (c) C: eah (liq) C: eaq fbj fbk Ethene, cis-1,2-dichloro- (c) C: eaq fbj fbk (liq) C: eah fae Ethene, trans-1,2-dichloro- (c) C: eah (liq) C: eaq fae fbj fbk

C <sub>2</sub> Cl <sub>2</sub> H <sub>4</sub>	Ethane, 1,1-dichloro- (c) B: eah C: eah fbf fbj (liq) B: eab eac ead eaq eal(-t,t) C: eaq fab fbj fbk Ethane, 1,2-dichloro- (c) B: eah C: eah fbf fbj fbh (liq) B: eab eac ead eaq C: eaq faa fab fac fad fae fbj fbk
C <sub>2</sub> Cl <sub>3</sub> H	Ethane, trichloro- (c) C: eah (liq) C: eaq fae fbj fbk
C <sub>2</sub> Cl <sub>3</sub> H <sub>3</sub>	Ethane, 1,1,1-trichloro- (c, II) C: eaj fbb fbc (c, I) B: eah C: eah fbf fbj (liq) B: eab eac ead eaq C: eaq fac fae fbj fbk Ethane, 1,1,2-trichloro- (c) B: eah C: eah (liq) B: eab eac ead eaq C: eaq fbj fbk
C <sub>2</sub> Cl <sub>4</sub> H <sub>2</sub>	Ethane, 1,1,1,2-tetrachloro- (c) B: eah C: eah (liq) B: eab eac ead eaq C: eaq fbj fbk Ethane, 1,1,2,2-tetrachloro- (c) C: eah (liq) C: eaq fae fbj fbk
C <sub>2</sub> Cl <sub>5</sub> H	Ethane, pentachloro- (c) C: eah fbf fbj (liq) C: eaq fae fbj fbk
C <sub>3</sub> ClH <sub>5</sub>	1-Propene, cis-1-chloro- (c) B: eah (liq) B: eab eac ead eaq 1-Propene, trans-1-chloro- (c) B: eah (liq) B: eab eac ead eaq 1-Propene, 2-chloro- (c) B: eah (liq) B: eab eac ead eaq 1-Propene, 3-chloro- (c) B: eah (liq) B: eab eac ead eaq
C <sub>3</sub> ClH <sub>6</sub>	Propane, 1-chloro- (c) B: eah (liq) B: eab eac ead eaq eal(-t,t)
C <sub>3</sub> Cl <sub>2</sub> H <sub>6</sub>	Propane, 2-chloro- (c) B: eah (liq) B: eab eac ead eaq Propane, 1,1-dichloro- (liq) B: eab eac ead eaq eal(t) Propane, 1,2-dichloro- (c) B: eah (liq) B: eab eac ead eaq Propane, 1,3-dichloro- (c) B: eah (liq) B: eab eac ead eaq



	Propane, 2,2-dichloro-				Propane, 2-chloro-2-methyl-			
	(c) B: eah				(c) B: eah			
<b>C<sub>3</sub>Cl<sub>3</sub>H<sub>6</sub></b>	(liq) B: eab eac ead eaq				(liq) B: eab eac ead eaq			
	Propane, 1,1,1-trichloro-			<b>C<sub>4</sub>Cl<sub>2</sub>H<sub>6</sub></b>	Butane, 1,1-dichloro-			eal(t)
	(liq) B: eab eac ead eaq				(liq) B: eab eac ead eaq			
	Propane, 1,1,2-trichloro-				Butane, 1,2-dichloro-			
	(liq) B: eab eac ead eaq				(liq) B: eab eac ead eaq			
	Propane, 1,1,3-trichloro-				Butane, 1,3-dichloro-			
	(c) B: eah				(liq) B: eab eac ead eaq			
	(liq) B: eab eac ead eaq				Butane, 1,4-dichloro-			
	Propane, 1,2,2-trichloro-				(c) B: eah			
	(liq) B: eab eac ead eaq				(liq) B: eab eac ead eaq			
	Propane, 1,2,3-trichloro-				Butane, 2,2-dichloro-			
	(c) B: eah				(liq) B: eab eac ead eaq			
<b>C<sub>3</sub>Cl<sub>4</sub>H<sub>4</sub></b>	(liq) B: eab eac ead eaq				Butane, 2,3-dichloro-			
	Propane, 1,1,1,2-tetrachloro-				(liq) B: eab eac ead eaq			
	(c) B: eah				Propane, 1,1-dichloro-2-methyl-			
	(liq) B: eab eac ead eaq				(liq) B: eab eac ead eaq			
	Propane, 1,1,1,3-tetrachloro-				Propane, 1,2-dichloro-2-methyl-			
	(liq) B: eab eac ead eaq				(liq) B: eab eac ead eaq			
	Propane, 1,1,2,2-tetrachloro-				Propane, 1,3-dichloro-2-methyl-			
	(c) B: eah			<b>C<sub>4</sub>Cl<sub>3</sub>H<sub>7</sub></b>	(liq) B: eab eac ead eaq			
	(liq) B: eab eac ead eaq				Butane, 1,1,1-trichloro-			
	Propane, 1,1,2,3-tetrachloro-				(liq) B: eab eac ead eaq			
	(liq) B: eab eac ead eaq				Butane, 1,1,3-trichloro-			
	Propane, 1,1,3,3-tetrachloro-				(liq) B: eab ead			
	(liq) B: eab ead				Butane, 1,2,3-trichloro-			
	Propane, 1,2,2,3-tetrachloro-				(liq) B: eab eac ead eaq			
	(liq) B: eab eac ead eaq				Butane, 2,3,3-trichloro-			
	Propane, 1,2,3,3-tetrachloro-				(liq) B: eab eac ead eaq			
	(liq) B: eab ead				Propane, 1,1,2-trichloro-2-methyl-			
<b>C<sub>4</sub>ClH<sub>7</sub></b>	1-Butene, cis-1-chloro-				(liq) B: eab eac ead eaq			
	(liq) B: eab eac ead eaq				Propane, 1,1,3-trichloro-2-methyl-			
	1-Butene, trans-1-chloro-				(c) B: eah			
	(liq) B: eab eac ead eaq				(liq) B: eab ead			
	1-Butene, 2-chloro-				Propane, 1,2,3-trichloro-2-methyl-			
	(liq) B: eab eac ead eaq			<b>C<sub>5</sub>ClH<sub>9</sub></b>	(liq) B: eab eac ead eaq			
	1-Butene, 3-chloro-				1-Butene, 1-chloro-cis-2-methyl-			
	(liq) B: eab eac ead eaq				(liq) B: eab eac ead eaq			
	1-Butene, 4-chloro-				1-Butene, 1-chloro-trans-2-methyl-			
	(liq) B: eab eac ead eaq				(liq) B: eab eac ead eaq			
	cis-2-Butene, 1-chloro-				1-Butene, 1-chloro-cis-3-methyl-			
	(liq) B: eab eac ead eaq				(liq) B: eab eac ead eaq			
	trans-2-Butene, 1-chloro-				1-Butene, 1-chloro-trans-3-methyl-			
	(liq) B: eab eac ead eaq				(liq) B: eab eac ead eaq			
	cis-2-Butene, 2-chloro-				1-Butene, 2-chloro-3-methyl-			
	(liq) B: eab eac ead eaq				(liq) B: eab eac ead eaq			
	trans-2-Butene, 2-chloro-				1-Butene, 3-chloro-2-methyl-			
	(liq) B: eab eac ead eaq				(liq) B: eab eac ead eaq			
	1-Propene, 1-chloro-2-methyl-				1-Butene, 3-chloro-3-methyl-			
	(liq) B: eab eac ead eaq				(liq) B: eab eac ead eaq			
	1-Propene, 3-chloro-2-methyl-				1-Butene, 4-chloro-2-methyl-			
	(liq) B: eab eac ead eaq				(liq) B: eab eac ead eaq			
<b>C<sub>4</sub>ClH<sub>8</sub></b>	Butane, 1-chloro-				1-Butene, 4-chloro-3-methyl-			
	(c) B: eah				(liq) B: eab eac ead eaq			
	(liq) B: eab eac ead eaq		eal(-t,t)		cis-2-Butene, 1-chloro-2-methyl-			
	Butane, 2-chloro-				(liq) B: eab eac ead eaq			
	(c) B: eah				trans-2-Butene, 1-chloro-2-methyl-			
	(liq) B: eab eac ead eaq				(liq) B: eab eac ead eaq			
	Propane, 1-chloro-2-methyl-				2-Butene, 1-chloro-3-methyl-			
	(c) B: eah				(liq) B: eab eac ead eaq			
	(liq) B: eab eac ead eaq							



	2-Butene, 2-chloro-3-methyl-								
	(liq) B:	eab	eac	ead	eaq				
	1-Pentene, cis-1-chloro-								
	(liq) B:	eab	eac	ead	eaq				
	1-Pentene, trans-1-chloro-								
	(liq) B:	eab	eac	ead	eaq				
	1-Pentene, 2-chloro-								
	(liq) B:	eab	eac	ead	eaq				
	1-Pentene, 3-chloro-								
	(liq) B:	eab	eac	ead	eaq				
	1-Pentene, 4-chloro-								
	(liq) B:	eab	eac	ead	eaq				
	1-Pentene, 5-chloro-								
	(liq) B:	eab	eac	ead	eaq				
	cis-2-Pentene, 1-chloro-								
	(liq) B:	eab	eac	ead	eaq				
	trans-2-Pentene, 1-chloro-								
	(liq) B:	eab	eac	ead	eaq				
	cis-2-Pentene, 2-chloro-								
	(liq) B:	eab	eac	ead	eaq				
	trans-2-Pentene, 2-chloro-								
	(liq) B:	eab	eac	ead	eaq				
	cis-2-Pentene, 3-chloro-								
	(liq) B:	eab	eac	ead	eaq				
	trans-2-Pentene, 3-chloro-								
	(liq) B:	eab	eac	ead	eaq				
	cis-2-Pentene, 4-chloro-								
	(liq) B:	eab	eac	ead	eaq				
	trans-2-Pentene, 4-chloro-								
	(liq) B:	eab	eac	ead	eaq				
	cis-2-Pentene, 5-chloro-								
	(liq) B:	eab	eac	ead	eaq				
	trans-2-Pentene, 5-chloro-								
	(liq) B:	eab	eac	ead	eaq				
	1-Propene, 3-chloro-2-ethyl-								
	(liq) B:	eab	eac	ead	eaq				
C <sub>5</sub> ClH <sub>11</sub>	Butane, 1-chloro-2-methyl-								
	(liq) B:	eab	eac	ead	eaq				
	Butane, 1-chloro-3-methyl-								
	(c) B:	eah							
	(liq) B:	eab	eac	ead	eaq				
	Butane, 2-chloro-2-methyl-								
	(c) B:	eah							
	(liq) B:	eab	eac	ead	eaq				
	Butane, 2-chloro-3-methyl-								
	(liq) B:	eab	eac	ead	eaq				
	Pentane, 1-chloro-								
	(c) B:	eah							
	(liq) B:	eab	eac	ead	eaq	eal(t)			
	Pentane, 2-chloro-								
	(c) B:	eah							
	(liq) B:	eab	eac	ead	eaq				
	Pentane, 3-chloro-								
	(c) B:	eah							
	(liq) B:	eab	eac	ead	eaq				
	Propane, 1-chloro-2,2-dimethyl-								
	(c) B:	eah							
	(liq) B:	eab	eac	ead	eaq				
C <sub>5</sub> Cl <sub>2</sub> H <sub>10</sub>	Butane, 1,1-dichloro-2-methyl-								
	(liq) B:	eab	ead						
	Butane, 1,1-dichloro-3-methyl-								
	(liq) B:	eab	eac	ead	eaq				
	Butane, 1,2-dichloro-2-methyl-								
	(liq) B:	eab	ead						
	Butane, 1,2-dichloro-3-methyl-								
	(liq) B:	eab	ead						
	Butane, 1,3-dichloro-2-methyl-								
	(liq) B:	eab	ead						
	Butane, 1,3-dichloro-3-methyl-								
	(liq) B:	eab	ead						
	Butane, 1,4-dichloro-2-methyl-								
	(liq) B:	eab	ead						
	Butane, 2,2-dichloro-3-methyl-								
	(liq) B:	eab	ead						
	Butane, 2,3-dichloro-2-methyl-								
	(liq) B:	eab	ead						
	Pentane, 1,1-dichloro-								
	(liq) B:	eab	eac	ead	eaq	eal(t)			
	Pentane, 1,2-dichloro-								
	(liq) B:	eab	eac	ead	eaq				
	Pentane, 1,3-dichloro-								
	(liq) B:	eab	eac	ead	eaq				
	Pentane, 1,4-dichloro-								
	(liq) B:	eab	eac	ead	eaq				
	Pentane, 1,5-dichloro-								
	(c) B:	eah							
	(liq) B:	eab	eac	ead	eaq				
	Pentane, 2,2-dichloro-								
	(liq) B:	eab	eac	ead	eaq				
	Pentane, 2,3-dichloro-								
	(liq) B:	eab	eac	ead	eaq				
	Pentane, 2,4-dichloro-								
	(liq) B:	eab	eac	ead	eaq				
	Pentane, 3,3-dichloro-								
	(liq) B:	eab	eac	ead	eaq				
	Propane, 1,3-dichloro-2-ethyl-								
	(liq) B:	eab	ead						
	Propane, 1,1-dichloro-2,2-dimethyl-								
	(liq) B:	eab	ead						
	Propane, 1,3-dichloro-2,2-dimethyl-								
	(liq) B:	eab	ead						
C <sub>5</sub> Cl <sub>3</sub> H <sub>8</sub>	Pentane, 1,1,1-trichloro-								
	(liq) B:	eab	eac	ead	eaq				
C <sub>6</sub> ClH <sub>11</sub>	1-Hexene, cis-1-chloro-								
	(liq) B:	eab	eac	ead	eaq				
	1-Hexene, trans-1-chloro-								
	(liq) B:	eab	eac	ead	eaq				
C <sub>6</sub> ClH <sub>13</sub>	Butane, 1-chloro-2-ethyl-								
	(liq) B:	eab	eac	ead	eaq				
	Butane, 1-chloro-2,2-dimethyl-								
	(liq) B:	eab	eac	ead	eaq				
	Butane, 1-chloro-2,3-dimethyl-								
	(liq) B:	eab	eac	ead	eaq				
	Butane, 1-chloro-3,3-dimethyl-								
	(liq) B:	eab	eac	ead	eaq				
	Butane, 2-chloro-2,3-dimethyl-								
	(c) B:	eah							
	(liq) B:	eab	eac	ead	eaq				
	Butane, 2-chloro-3,3-dimethyl-								
	(c) B:	eah							
	(liq) B:	eab	eac	ead	eaq				
	Hexane, 1-chloro-								
	(c) B:	eah							
	(liq) B:	eab	eac	ead	eaq	eal(t)			

	Hexane, 2-chloro-						
	(liq) B:	eab	eac	ead	eag		
	Hexane, 3-chloro-						
	(liq) B:	eab	eac	ead	eag		
	Pentane, 1-chloro-2-methyl-						
	(liq) B:	eab	eac	ead	eag		
	Pentane, 1-chloro-3-methyl-						
	(liq) B:	eab	eac	ead	eag		
	Pentane, 1-chloro-4-methyl-						
	(liq) B:	eab	eac	ead	eag		
	Pentane, 2-chloro-2-methyl-						
	(liq) B:	eab	eac	ead	eag		
	Pentane, 2-chloro-3-methyl-						
	(liq) B:	eab	ead				
	Pentane, 2-chloro-4-methyl-						
	(liq) B:	eab	eac	ead	eag		
	Pentane, 3-chloro-2-methyl-						
	(liq) B:	eab	ead				
	Pentane, 3-chloro-3-methyl-						
	(liq) B:	eab	eac	ead	eag		
C <sub>6</sub> Cl <sub>2</sub> H <sub>12</sub>	Hexane, 1,1-dichloro-					eal(t)	
	(liq) B:	eab	eac	ead	eag		
C <sub>6</sub> Cl <sub>3</sub> H <sub>11</sub>	Hexane, 1,1,1-trichloro-						
	(liq) B:	eab	eac	ead	eag		
C <sub>7</sub> ClH <sub>13</sub>	1-Heptene, cis-1-chloro-						
	(liq) B:	eab	eac	ead	eag		
	1-Heptene, trans-1-chloro-						
	(liq) B:	eab	eac	ead	eag		
C <sub>7</sub> ClH <sub>15</sub>	Heptane, 1-chloro-						
	(c) B:	eah					
	(liq) B:	eab	eac	ead	eag	eal(t)	
C <sub>7</sub> Cl <sub>2</sub> H <sub>14</sub>	Heptane, 1,1-dichloro-						
	(liq) B:	eab	eac	ead	eag	eal(t)	
C <sub>7</sub> Cl <sub>3</sub> H <sub>13</sub>	Heptane, 1,1,1-trichloro-						
	(liq) B:	eab	eac	ead	eag		
C <sub>8</sub> ClH <sub>15</sub>	1-Octene, cis-1-chloro-						
	(liq) B:	eab	eac	ead	eag		
	1-Octene, trans-1-chloro-						
	(liq) B:	eab	eac	ead	eag		
C <sub>8</sub> ClH <sub>17</sub>	Octane, 1-chloro-						
	(c) B:	eah					
	(liq) B:	eab	eac	ead	eag	eal(t)	
C <sub>8</sub> Cl <sub>2</sub> H <sub>16</sub>	Octane, 1,1-dichloro-						
	(liq) B:	eab	eac	ead	eag	eal(t)	
C <sub>8</sub> Cl <sub>3</sub> H <sub>15</sub>	Octane, 1,1,1-trichloro-						
	(liq) B:	eab	eac	ead	eag		
C <sub>9</sub> ClH <sub>17</sub>	1-Nonene, cis-1-chloro-						
	(liq) B:	eab	eac	ead	eag		
	1-Nonene, trans-1-chloro-						
	(liq) B:	eab	eac	ead	eag		
C <sub>9</sub> ClH <sub>19</sub>	Nonane, 1-chloro-						
	(c) B:	eah					
	(liq) B:	eab	eac	ead	eag	eal(t)	
C <sub>9</sub> Cl <sub>2</sub> H <sub>18</sub>	Nonane, 1,1-dichloro-						
	(liq) B:	eab	eac	ead	eag	eal(t)	
C <sub>9</sub> Cl <sub>3</sub> H <sub>17</sub>	Nonane, 1,1,1-trichloro-						
	(liq) B:	eab	eac	ead	eag		
C <sub>10</sub> ClH <sub>19</sub>	1-Decene, cis-1-chloro-						
	(liq) B:	eab	eac	ead	eag		
	1-Decene, trans-1-chloro-						
	(liq) B:	eab	eac	ead	eag		
C <sub>10</sub> ClH <sub>21</sub>	Decane, 1-chloro-						
	(c) B:	eah					
	(liq) B:	eab	eac	ead	eag	eal(t)	
C <sub>10</sub> Cl <sub>2</sub> H <sub>20</sub>	Decane, 1,1-dichloro-						
	(liq) B:	eab	eac	ead	eag	eal(t)	
C <sub>10</sub> Cl <sub>3</sub> H <sub>19</sub>	Decane, 1,1,1-trichloro-						
	(liq) B:	eab	eac	ead	eag		
C <sub>11</sub> ClH <sub>21</sub>	1-Undecene, cis-1-chloro-						
	(liq) B:	eab	eac	ead	eag		
	1-Undecene, trans-1-chloro-						
	(liq) B:	eab	eac	ead	eag		
C <sub>11</sub> ClH <sub>23</sub>	Undecane, 1-chloro-						
	(c) B:	eah					
	(liq) B:	eab	eac	ead	eag	eal(t)	
C <sub>11</sub> Cl <sub>2</sub> H <sub>22</sub>	Undecane, 1,1-dichloro-						
	(liq) B:	eab	eac	ead	eag		
C <sub>11</sub> Cl <sub>3</sub> H <sub>21</sub>	Undecane, 1,1,1-trichloro-						
	(liq) B:	eab	eac	ead	eag		
C <sub>12</sub> ClH <sub>23</sub>	1-Dodecene, cis-1-chloro-						
	(liq) B:	eab	eac	ead	eag		
	1-Dodecene, trans-1-chloro-						
	(liq) B:	eab	eac	ead	eag		
C <sub>12</sub> ClH <sub>25</sub>	Dodecane, 1-chloro-						
	(c) B:	eah					
	(liq) B:	eab	eac	ead	eag	eal(t)	
C <sub>12</sub> Cl <sub>2</sub> H <sub>24</sub>	Dodecane, 1,1-dichloro-						
	(liq) B:	eab	eac	ead	eag		
C <sub>12</sub> Cl <sub>3</sub> H <sub>23</sub>	Dodecane, 1,1,1-trichloro-						
	(liq) B:	eab	eac	ead	eag		
C <sub>13</sub> ClH <sub>25</sub>	1-Tridecene, cis-1-chloro-						
	(liq) B:	eab	eac	ead	eag		
	1-Tridecene, trans-1-chloro-						
	(liq) B:	eab	eac	ead	eag		
C <sub>13</sub> ClH <sub>27</sub>	Tridecane, 1-chloro-						
	(c) B:	eah					
	(liq) B:	eab	eac	ead	eag	eal(t)	
C <sub>13</sub> Cl <sub>2</sub> H <sub>26</sub>	Tridecane, 1,1-dichloro-						
	(liq) B:	eab	eac	ead	eag		
C <sub>13</sub> Cl <sub>3</sub> H <sub>25</sub>	Tridecane, 1,1,1-trichloro-						
	(liq) B:	eab	eac	ead	eag		
C <sub>14</sub> ClH <sub>27</sub>	1-Tetradecene, cis-1-chloro-						
	(liq) B:	eab	eac	ead	eag		
	1-Tetradecene, trans-1-chloro-						
	(liq) B:	eab	eac	ead	eag		
C <sub>14</sub> ClH <sub>29</sub>	Tetradecane, 1-chloro-						
	(c) B:	eah					
	(liq) B:	eab	eac	ead	eag	eal(t)	
C <sub>14</sub> Cl <sub>2</sub> H <sub>28</sub>	Tetradecane, 1,1-dichloro-						
	(liq) B:	eab	eac	ead	eag		
C <sub>14</sub> Cl <sub>3</sub> H <sub>27</sub>	Tetradecane, 1,1,1-trichloro-						
	(liq) B:	eab	eac	ead	eag		
C <sub>15</sub> ClH <sub>29</sub>	1-Pentadecene, cis-1-chloro-						
	(liq) B:	eab	eac	ead	eag		
	1-Pentadecene, trans-1-chloro-						
	(liq) B:	eab	eac	ead	eag		
C <sub>15</sub> ClH <sub>31</sub>	Pentadecane, 1-chloro-						
	(c) B:	eah					
	(liq) B:	eab	eac	ead	eag	eal(t)	
C <sub>15</sub> Cl <sub>2</sub> H <sub>30</sub>	Pentadecane, 1,1-dichloro-						
	(liq) B:	eab	eac	ead	eag		
C <sub>15</sub> Cl <sub>3</sub> H <sub>29</sub>	Pentadecane, 1,1,1-trichloro-						
	(liq) B:	eab	eac	ead	eag		

**CARBON**  
**23-10-2 C<sub>16</sub>ClH<sub>31</sub>**

C <sub>16</sub> ClH <sub>31</sub>	1-Hexadecene, cis-1-chloro- (liq) B: eab eac ead eaq	
	1-Hexadecene, trans-1-chloro- (liq) B: eab eac ead eaq	
C <sub>16</sub> ClH <sub>33</sub>	Hexadecane, 1-chloro- (c) B: eah	
	(liq) B: eab eac ead eaq	eal(t)
C <sub>16</sub> Cl <sub>2</sub> H <sub>32</sub>	Hexadecane, 1,1-dichloro- (liq) B: eab eac ead eaq	
C <sub>16</sub> Cl <sub>3</sub> H <sub>31</sub>	Hexadecane, 1,1,1-trichloro- (liq) B: eab eac ead eaq	
C <sub>17</sub> ClH <sub>33</sub>	1-Heptadecene, cis-1-chloro- (liq) B: eab eac ead eaq	
	1-Heptadecene, trans-1-chloro- (liq) B: eab eac ead eaq	
C <sub>17</sub> ClH <sub>35</sub>	Heptadecane, 1-chloro- (c) B: eah	
	(liq) B: eab eac ead eaq	eal(t)
C <sub>17</sub> Cl <sub>2</sub> H <sub>34</sub>	Heptadecane, 1,1-dichloro- (liq) B: eab eac ead eaq	
C <sub>17</sub> Cl <sub>3</sub> H <sub>33</sub>	Heptadecane, 1,1,1-trichloro- (liq) B: eab eac ead eaq	
C <sub>18</sub> ClH <sub>35</sub>	1-Octadecene, cis-1-chloro- (liq) B: eab eac ead eaq	
	1-Octadecene, trans-1-chloro- (liq) B: eab eac ead eaq	
C <sub>18</sub> ClH <sub>37</sub>	Octadecane, 1-chloro- (c) B: eah	
	(liq) B: eab eac ead eaq	eal(t)
C <sub>18</sub> Cl <sub>2</sub> H <sub>36</sub>	Octadecane, 1,1-dichloro- (liq) B: eab eac ead eaq	
C <sub>18</sub> Cl <sub>3</sub> H <sub>35</sub>	Octadecane, 1,1,1-trichloro- (liq) B: eab eac ead eaq	
C <sub>19</sub> ClH <sub>37</sub>	1-Nonadecene, cis-1-chloro- (liq) B: eab eac ead eaq	
	1-Nonadecene, trans-1-chloro- (liq) B: eab eac ead eaq	
C <sub>19</sub> ClH <sub>39</sub>	Nonadecane, 1-chloro- (c) B: eah	
	(liq) B: eab eac ead eaq	eal(t)
C <sub>19</sub> Cl <sub>2</sub> H <sub>38</sub>	Nonadecane, 1,1-dichloro- (liq) B: eab eac ead eaq	
C <sub>19</sub> Cl <sub>3</sub> H <sub>37</sub>	Nonadecane, 1,1,1-trichloro- (liq) B: eab eac ead eaq	
C <sub>20</sub> ClH <sub>39</sub>	1-Eicosene, cis-1-chloro- (liq) B: eab eac ead eaq	
	1-Eicosene, trans-1-chloro- (liq) B: eab eac ead eaq	
C <sub>20</sub> ClH <sub>41</sub>	Eicosane, 1-chloro- (c) B: eah	
	(liq) B: eab eac ead eaq	eal(t)
C <sub>20</sub> Cl <sub>2</sub> H <sub>40</sub>	Eicosane, 1,1-dichloro- (liq) B: eab eac ead eaq	
C <sub>20</sub> Cl <sub>3</sub> H <sub>39</sub>	Eicosane, 1,1,1-trichloro- (liq) B: eab eac ead eaq	
C <sub>21</sub> ClH <sub>43</sub>	Heneicosane, 1-chloro- (c) B: eah	
	(liq) B: eab eac ead eaq	
C <sub>21</sub> Cl <sub>2</sub> H <sub>42</sub>	Heneicosane, 1,1-dichloro- (liq) B: eab eac ead eaq	

C <sub>22</sub> ClH <sub>45</sub>	Docosane, 1-chloro- (c) B: eah	
	(liq) B: eab eac ead eaq	
C <sub>22</sub> Cl <sub>2</sub> H <sub>44</sub>	Docosane, 1,1-dichloro- (liq) B: eab eac ead eaq	
C <sub>23</sub> ClH <sub>47</sub>	Tricosane, 1-chloro- (c) B: eah	
	(liq) B: eab eac ead eaq	
C <sub>23</sub> Cl <sub>2</sub> H <sub>46</sub>	Tricosane, 1,1-dichloro- (liq) B: eab eac ead eaq	
C <sub>24</sub> ClH <sub>49</sub>	Tetracosane, 1-chloro- (c) B: eah	
	(liq) B: eab eac ead eaq	
C <sub>24</sub> Cl <sub>2</sub> H <sub>48</sub>	Tetracosane, 1,1-dichloro- (liq) B: eab eac ead eaq	
C <sub>25</sub> ClH <sub>51</sub>	Pentacosane, 1-chloro- (c) B: eah	
	(liq) B: eab eac ead eaq	
C <sub>25</sub> Cl <sub>2</sub> H <sub>50</sub>	Pentacosane, 1,1-dichloro- (liq) B: eab eac ead eaq	
C <sub>26</sub> ClH <sub>53</sub>	Hexacosane, 1-chloro- (c) B: eah	
	(liq) B: eab eac ead eaq	
C <sub>26</sub> Cl <sub>2</sub> H <sub>52</sub>	Hexacosane, 1,1-dichloro- (liq) B: eab eac ead eaq	
C <sub>27</sub> ClH <sub>55</sub>	Heptacosane, 1-chloro- (c) B: eah	
	(liq) B: eab eac ead eaq	
C <sub>27</sub> Cl <sub>2</sub> H <sub>54</sub>	Heptacosane, 1,1-dichloro- (liq) B: eab eac ead eaq	
C <sub>28</sub> ClH <sub>57</sub>	Octacosane, 1-chloro- (c) B: eah	
	(liq) B: eab eac ead eaq	
C <sub>28</sub> Cl <sub>2</sub> H <sub>56</sub>	Octacosane, 1,1-dichloro- (liq) B: eab eac ead eaq	
C <sub>29</sub> ClH <sub>59</sub>	Nonacosane, 1-chloro- (c) B: eah	
	(liq) B: eab eac ead eaq	
C <sub>29</sub> Cl <sub>2</sub> H <sub>58</sub>	Nonacosane, 1,1-dichloro- (liq) B: eab eac ead eaq	
C <sub>30</sub> ClH <sub>61</sub>	triacontane, 1-chloro- (c) B: eah	
	(liq) B: eab eac ead eaq	
C <sub>30</sub> Cl <sub>2</sub> H <sub>60</sub>	triacontane, 1,1-dichloro- (liq) B: eab eac ead eaq	
C <sub>31</sub> ClH <sub>63</sub>	hentriacontane, 1-chloro- (c) B: eah	
	(liq) B: eab eac ead eaq	
C <sub>31</sub> Cl <sub>2</sub> H <sub>62</sub>	hentriacontane, 1,1-dichloro- (liq) B: eab eac ead eaq	
C <sub>32</sub> ClH <sub>65</sub>	dotriacontane, 1-chloro- (c) B: eah	
	(liq) B: eab eac ead eaq	
C <sub>32</sub> Cl <sub>2</sub> H <sub>64</sub>	dotriacontane, 1,1-dichloro- (liq) B: eab eac ead eaq	
C <sub>33</sub> ClH <sub>67</sub>	tritriacontane, 1-chloro- (c) B: eah	
	(liq) B: eab eac ead eaq	
C <sub>33</sub> Cl <sub>2</sub> H <sub>66</sub>	tritriacontane, 1,1-dichloro- (liq) B: eab eac ead eaq	

C <sub>34</sub> ClH <sub>68</sub>	Tetratriacontane, 1-chloro-				
	(c) B: eah				
	(liq) B: eab eac ead eaq				
C <sub>34</sub> Cl <sub>2</sub> H <sub>68</sub>	Tetratriacontane, 1,1-dichloro-				
	(liq) B: eab eac ead eaq				
C <sub>35</sub> ClH <sub>71</sub>	Pentatriacontane, 1-chloro-				
	(c) B: eah				
	(liq) B: eab eac ead eaq				
C <sub>35</sub> Cl <sub>2</sub> H <sub>70</sub>	Pentatriacontane, 1,1-dichloro-				
	(liq) B: eab eac ead eaq				
C <sub>36</sub> ClH <sub>73</sub>	Hexatriacontane, 1-chloro-				
	(c) B: eah				
	(liq) B: eab eac ead eaq				
C <sub>36</sub> Cl <sub>2</sub> H <sub>72</sub>	Hexatriacontane, 1,1-dichloro-				
	(liq) B: eab eac ead eaq				
C <sub>37</sub> ClH <sub>75</sub>	Heptatriacontane, 1-chloro-				
	(c) B: eah				
	(liq) B: eab eac ead eaq				
C <sub>37</sub> Cl <sub>2</sub> H <sub>74</sub>	Heptatriacontane, 1,1-dichloro-				
	(liq) B: eab eac ead eaq				
C <sub>38</sub> ClH <sub>77</sub>	Octatriacontane, 1-chloro-				
	(c) B: eah				
	(liq) B: eab eac ead eaq				
C <sub>38</sub> Cl <sub>2</sub> H <sub>76</sub>	Octatriacontane, 1,1-dichloro-				
	(liq) B: eab eac ead eaq				
C <sub>39</sub> ClH <sub>79</sub>	Nonatriacontane, 1-chloro-				
	(c) B: eah				
	(liq) B: eab eac ead eaq				
C <sub>39</sub> Cl <sub>2</sub> H <sub>78</sub>	Nonatriacontane, 1,1-dichloro-				
	(liq) B: eab eac ead eaq				
C <sub>40</sub> ClH <sub>81</sub>	Tetracontane, 1-chloro-				
	(c) B: eah				
	(liq) B: eab eac ead eaq				
C <sub>40</sub> Cl <sub>2</sub> H <sub>80</sub>	Tetracontane, 1,1-dichloro-				
	(liq) B: eab eac ead eaq				
<b>23-10-2-1</b>					
C <sub>2</sub> ClH <sub>2</sub> O <sub>2</sub> <sup>-</sup>	Acetate ion, chloro-				
	(aq) C: fab				
C <sub>2</sub> ClH <sub>3</sub> O	Acetaldehyde, chloro-				
	(liq) C: eaq fab				
	Acetyl chloride				
	(c) C: eah				
	(liq) C: eaq fab fae fbj fbk				
C <sub>2</sub> ClH <sub>3</sub> O <sub>2</sub>	Acetic acid, chloro-				
	(c, III) C: eah fab fbj fbq				
	(c, II) C: eah fab fbj fbq				
	(c, I) C: eah fab fae fbj fbq fbh				
	(liq) C: eaq fbj fbk				
	(aq) C: fab				
C <sub>2</sub> ClH <sub>5</sub> O	Ethanol, 2-chloro-				
	(c) C: eah				
	(liq) C: eaq fab fbj fbk				
	Ether, chloromethyl methyl				
	(liq) C: eaq				
C <sub>2</sub> ClH <sub>7</sub> O	Ether hydrochloride, methyl				
	(g) C: faa fab fac fad				
C <sub>2</sub> Cl <sub>2</sub> HO <sub>2</sub> <sup>-</sup>	Acetate ion, dichloro-				
	(aq) C: fab				
C <sub>2</sub> Cl <sub>2</sub> H <sub>2</sub> O	Acetaldehyde, dichloro-				
	(liq) C: eaq				

C <sub>2</sub> Cl <sub>2</sub> H <sub>2</sub> O·H <sub>2</sub> O	Acetaldehyde, dichloro-, monohydrate				
	(c) C: eah				
C <sub>2</sub> Cl <sub>2</sub> H <sub>2</sub> O	Acetyl chloride, chloro-				
	(liq) C: eaq fab				
C <sub>2</sub> Cl <sub>2</sub> H <sub>2</sub> O <sub>2</sub>	Acetic acid, dichloro-				
	(c) C: eah fbj fbq fbh				
	(liq) C: eaq fab fae fbj fbk				
	(aq) C: fab				
C <sub>2</sub> Cl <sub>3</sub> HO	Acetaldehyde, trichloro- (Chloral)				
	(c) C: eah				
	(liq) C: eaq fab fae fbj fbk				
	(aq) C: fab				
C <sub>2</sub> Cl <sub>3</sub> HO·H <sub>2</sub> O	Acetaldehyde, trichloro-, monohydrate				
	(c) C: eah fab fae fbj fbq fbh				
	(aq) C: fab				
	(in trichlorometbane) C: fab				
C <sub>2</sub> Cl <sub>3</sub> HO <sub>2</sub>	Acetic acid, trichloro-				
	(c) C: eah fab fae fbj fbq fbh				
	(liq) C: eaq fbj fbk				
	(aq) C: fab				
	(in ethanol) C: fab				
	(in acetone) C: fab				
	(in ethyl ether) C: fab				
	(in n-petane) C: fab				
C <sub>2</sub> Cl <sub>3</sub> H <sub>3</sub> O	Ethanol, 2,2,2-trichloro-				
	(c) C: eah				
	(liq) C: eaq				

**23-10-9**

CClF <sub>3</sub>	Methane, chlorotrifluoro-				
	(c) C: eah				
	(liq) C: eaq fbj fbk				
	(g) C: fae				
CCl <sub>2</sub> F <sub>2</sub>	Methane, dichlorodifluoro-				
	(c) C: eah fbj fbq				
	(liq) C: eaq fbj fbk				
	(g) C: fae				
CCl <sub>3</sub> F	Methane, trichlorofluoro-				
	(c) C: eah fbj fbq				
	(liq) C: eaq fae fbj fbk fbl				
	(g) C: fac fae				
C <sub>2</sub> ClF <sub>3</sub>	Ethene, chlorotrifluoro-				
	(c) C: eah				
	(liq) C: eaq fbj fbk				
C <sub>2</sub> ClF <sub>5</sub>	Ethane, chloropentafluoro-				
	(liq) C: eaq				
C <sub>2</sub> Cl <sub>2</sub> F <sub>2</sub>	Ethene, 1,1-dichloro-2,2-difluoro-				
	(c) C: eah				
	(liq) C: eaq				
	Ethene, cis-1,2-dichloro-1,2-difluoro-				
	(c) C: eah				
	(liq) C: eaq				
	Ethene, trans-1,2-dichloro-1,2-difluoro-				
	(c) C: eah				
	(liq) C: eaq				
C <sub>2</sub> Cl <sub>2</sub> F <sub>4</sub>	Ethane, 1,1-dichloro-1,2,2,2-tetrafluoro-				
	(liq) C: eaq				
	Ethane, 1,2-dichloro-1,1,2,2-tetrafluoro-				
	(c) C: eah				
	(liq) C: eaq fbj fbk				

**CARBON**  
23-10-9 C<sub>2</sub>Cl<sub>3</sub>F

C<sub>2</sub>Cl<sub>3</sub>F Ethene, trichlorofluoro-  
(c) C: eah  
(liq) C: eaq  
C<sub>2</sub>Cl<sub>3</sub>F<sub>3</sub> Ethane, 1,1,1-trichloro-2,2,2-trifluoro-  
(c) C: eah  
(liq) C: eaq  
Ethane, 1,1,2-trichloro-1,2,2-trifluoro-  
(c) C: eah  
(liq) C: eae eaq fbj fbk fbl  
C<sub>2</sub>Cl<sub>4</sub>F<sub>2</sub> Ethane, 1,1,1,2-tetrachloro-2,2-difluoro-  
(c) C: eah  
(liq) C: eaq  
C<sub>2</sub>Cl<sub>5</sub>F Ethane, pentachlorofluoro-  
(c) C: eah  
(liq) C: eaq

**23-10-9-1**

CClFO Carbonyl chloride fluoride  
(c) C: eah  
(liq) C: eaq fbj fbk  
(g) E-XIII: fae(t) fai(t) fal(t)  
C<sub>2</sub>ClF<sub>3</sub>O Acetyl chloride, trifluoro-  
(c) C: eah  
(liq) C: eaq fbj fbk  
C<sub>2</sub>Cl<sub>2</sub>F<sub>2</sub>O Acetyl chloride, chlorodifluoro-  
(liq) C: eaq

**23-10-9-2**

CClFH<sub>2</sub> Methane, chlorofluoro-  
(liq) C: eaq fbj fbk  
(g) C: fae  
CClF<sub>2</sub>H Methane, chlorodifluoro-  
(c) C: eah  
(liq) C: eaq fbj fbk  
(g) C: fae  
CCl<sub>2</sub>FH Methane, dichlorofluoro-  
(c) C: eah  
(liq) C: eaq fbj fbk  
(g) C: fae  
C<sub>2</sub>ClF<sub>2</sub>H<sub>3</sub> Ethane, 1-chloro-1,1-difluoro-  
(c) C: eah fbj fbq fbh  
(liq) C: eaq fbj fbk  
Ethane, 2-chloro-1,1-difluoro-  
(liq) C: eaq  
C<sub>2</sub>ClF<sub>3</sub>H<sub>2</sub> Ethane, 1-chloro-1,2,2-trifluoro-  
(liq) C: eaq  
C<sub>2</sub>Cl<sub>2</sub>FH Ethene, 1,1-dichloro-2-fluoro-  
(liq) C: eaq  
C<sub>2</sub>Cl<sub>2</sub>F<sub>2</sub>H<sub>2</sub> Ethane, 1,1-dichloro-2,2-difluoro-  
(liq) C: eaq  
C<sub>2</sub>Cl<sub>3</sub>FH<sub>2</sub> Ethane, 1,1,2-trichloro-2-fluoro-  
(liq) C: eaq  
C<sub>2</sub>Cl<sub>4</sub>FH Ethane, 1,1,1,2-tetrachloro-2-fluoro-  
(liq) C: eaq

**23-10-9-2-1**

C<sub>2</sub>ClF<sub>2</sub>O Acetyl chloride, fluoro-  
(liq) C: eaq fbj fbk  
Acetyl fluoride, chloro-  
(liq) C: eaq fbj fbk  
C<sub>2</sub>ClF<sub>2</sub>HO Acetyl chloride, difluoro-  
(liq) C: eaq

C<sub>2</sub>ClF<sub>2</sub>HO<sub>2</sub> Acetic acid, chlorodifluoro-  
(c) C: eah  
(liq) C: eaq  
C<sub>2</sub>Cl<sub>2</sub>FHO Acetyl fluoride, dichloro-  
(liq) C: eaq

**23-11**

CB<sub>4</sub> Methane, tetrabromo- (Carbon tetrabromide)  
(c, II, α) C: eaj fae fbb fbc  
E-XIII: fae fai fal fbb  
(c, I, β) B: eah  
C: eah fbj fbq  
E-V: eah fbj fbq  
E-XIII: fae fai(t) fal(t) fbf  
(liq) B: eac eaq  
C: eaq fbj fbk  
E-XIII: fae fai(t) fal(t)  
(g) C: faa fab fac fad fae  
E-XI: fac  
E-XIII: fae(t) fai(t) fal(t)  
C<sub>2</sub>Br<sub>4</sub> Ethene, tetrabromo-  
(c) C: eah eai fbn fbo

**23-11-1**

CBr<sub>2</sub>O Carbonyl bromide  
(liq) C: eaq fab fbj fbk  
(g) C: fab

**23-11-2**

CBrH<sub>3</sub> Methane, bromo-  
(c, II) C: eaj fbb fbc  
(c, I) C: eah fbj fbq  
(c) B: eah  
(liq) B: eab eac ead eaq eal(-,t)  
C: eaq fbj fbk  
(g) C: faa fab fac fad fae  
CBr<sub>2</sub>H<sub>2</sub> Methane, dibromo-  
(c) B: eah  
C: eah fbj fbq  
(liq) B: eab eac ead eaq eal(t)  
C: eaq fbj fbk  
(g) C: faa fab fac fad fae  
CBr<sub>3</sub>H Methane, tribromo- (Bromoform)  
(c) B: eah  
C: eah fbj fbq  
(liq) B: eab eac ead eaq  
C: eaq faa fab fac fad fbj  
fbk  
(g) C: faa fab fac fad fae  
C<sub>2</sub>BrH<sub>3</sub> Ethene, bromo-  
(c) B: eah  
C: eah fbj fbq  
(liq) B: eab eac ead eaq  
C: eaq  
C<sub>2</sub>BrH<sub>5</sub> Ethane, bromo-  
(c) B: eah  
C: eah fbj fbq  
(liq) B: eab eac ead eaq eal(-,t)  
C: eaq fab fae fbj fbk fbl  
(g) C: fab fae

C <sub>2</sub> Br <sub>2</sub> H <sub>3</sub>	Ethene, 1,1-dibromo-									
	(liq) C: eaq									
	Ethene, cis-1,2-dibromo-									
	(c) C: eah									
	(liq) C: eaq									
	Ethene, trans-1,2-dibromo-									
	(c) C: eah									
	(liq) C: eaq									
C <sub>2</sub> Br <sub>3</sub> H <sub>4</sub>	Ethane, 1,1-dibromo-									
	(c) B: eah									
	(liq) B: eab eac ead eaq eal(t)									
	C: eaq									
	Ethane, 1,2-dibromo-									
	(c, l) C: eaj fbb fbc fbd									
	(c, l) B: eah									
	C: eah fbf fbq fbh									
	(liq) B: eab eac ead eaq									
	C: eaq faa fab fac fad fae									
	fbj fbk									
C <sub>2</sub> Br <sub>3</sub> H <sub>3</sub>	Ethane, 1,1,1-tribromo-									
	(liq) B: eab eac ead eaq									
	Ethane, 1,1,2-tribromo-									
	(c) B: eah									
	C: eah									
	(liq) B: eab eac ead eaq									
	C: eaq fbj fbk									
C <sub>2</sub> Br <sub>4</sub> H <sub>2</sub>	Ethane, 1,1,1,2-tetrabromo-									
	(liq) B: eab eac ead eaq									
	C: eaq									
	Ethane, 1,1,2,2-tetrabromo-									
	(c) B: eah									
	C: eah fbf fbq									
	(liq) B: eab eac ead eaq									
	C: eaq fbj fbk									
C <sub>2</sub> Br <sub>5</sub> H	Ethane, pentabromo-									
	(c) C: eah									
C <sub>3</sub> Br <sub>5</sub> H <sub>6</sub>	1-Propene, cis-1-bromo-									
	(c) B: eah									
	(liq) B: eab eac ead eaq									
	1-Propene, trans-1-bromo-									
	(c) B: eah									
	(liq) B: eab eac ead eaq									
	1-Propene, 2-bromo-									
	(liq) B: eab eac ead eaq									
	1-Propene, 3-bromo-									
	(liq) B: eab eac ead eaq									
C <sub>3</sub> Br <sub>7</sub> H <sub>7</sub>	Propane, 1-bromo-									
	(c) B: eah									
	(liq) B: eab eac ead eaq eal(-t,t)									
	Propane, 2-bromo-									
	(c) B: eah									
	(liq) B: eab eac ead eaq									
C <sub>3</sub> Br <sub>7</sub> H <sub>6</sub>	Propane, 1,1-dibromo-									
	(liq) B: eab eac ead eaq eal(t)									
	Propane, 1,2-dibromo-									
	(c) B: eah									
	(liq) B: eab eac ead eaq									
	Propane, 1,3-dibromo-									
	(c) B: eah									
	(liq) B: eab eac ead eaq									
	Propane, 2,2-dibromo-									
	(liq) B: eab eac ead eaq									
C <sub>3</sub> Br <sub>3</sub> H <sub>6</sub>	Propane, 1,1,1-tribromo-									
	(liq) B: eab eac ead eaq									
	Propane, 1,1,2-tribromo-									
	(liq) B: eab eac ead eaq									
	Propane, 1,1,3-tribromo-									
	(liq) B: eab eac ead eaq									
	Propane, 1,2,2-tribromo-									
	(liq) B: eab eac ead eaq									
	Propane, 1,2,3-tribromo-									
	(c) B: eah									
	(liq) B: eab eac ead eaq									
C <sub>3</sub> Br <sub>4</sub> H <sub>4</sub>	Propane, 1,1,1,2-tetrabromo-									
	(liq) B: eab eac ead eaq									
	Propane, 1,1,1,3-tetrabromo-									
	(liq) B: eac ead eaq									
	Propane, 1,1,2,2-tetrabromo-									
	(liq) B: eab eac ead eaq									
	Propane, 1,1,2,3-tetrabromo-									
	(liq) B: eac eaq									
	Propane, 1,1,3,3-tetrabromo-									
	(liq) B: eab eac ead eaq									
	Propane, 1,2,2,3-tetrabromo-									
	(c) B: eah									
	(liq) B: eab eac ead eaq									
C <sub>4</sub> Br <sub>7</sub> H <sub>7</sub>	1-Butene, cis-1-bromo-									
	(liq) B: eab eac ead eaq									
	1-Butene, trans-1-bromo-									
	(c) B: eah									
	(liq) B: eab eac ead eaq									
	1-Butene, 2-bromo-									
	(c) B: eah									
	(liq) B: eab eac ead eaq									
	1-Butene, 3-bromo-									
	(liq) B: eab eac ead eaq									
	1-Butene, 4-bromo-									
	(liq) B: eab eac ead eaq									
	cis-2-Butene, 1-bromo-									
	(liq) B: eab eac ead eaq									
	trans-2-Butene, 1-bromo-									
	(liq) B: eab eac ead eaq									
	cis-2-Butene, 2-bromo-									
	(c) B: eah									
	(liq) B: eab eac ead eaq									
	trans-2-Butene, 2-bromo-									
	(c) B: eah									
	(liq) B: eab eac ead eaq									
	1-Propene, 1-bromo-2-methyl-									
	(liq) B: eab eac ead eaq									
	1-Propene, 3-bromo-2-methyl-									
	(liq) B: eab eac ead eaq									
C <sub>4</sub> Br <sub>8</sub> H <sub>8</sub>	Butane, 1-bromo-									
	(c) B: eah									
	(liq) B: eab eac ead eaq eal(t)									
	Butane, 2-bromo-									
	(c) B: eah									
	(liq) B: eab eac ead eaq									
	Propane, 1-bromo-2-methyl-									
	(c) B: eah									
	(liq) B: eab eac ead eaq									
	Propane, 2-bromo-2-methyl-									
	(c) B: eah									
	(liq) B: eab eac ead eaq									





C <sub>5</sub> Br <sub>2</sub> H <sub>10</sub>	Butane, 1,1-dibromo-2-methyl-			
	(liq) B: eab ead			
	Butane, 1,1-dibromo-3-methyl-			
	(liq) B: eab ead			
	Butane, 1,2-dibromo-2-methyl-			
	(c) B: eah			
	(liq) B: eab eac ead eaq			
	Butane, 1,2-dibromo-3-methyl-			
	(liq) B: eab ead			
	Butane, 1,3-dibromo-2-methyl-			
	(liq) B: eab ead			
	Butane, 1,3-dibromo-3-methyl-			
	(liq) B: eab ead			
	Butane, 1,4-dibromo-2-methyl-			
	(liq) B: eab ead			
	Butane, 2,2-dibromo-3-methyl-			
	(liq) B: eab ead			
	Butane, 2,3-dibromo-2-methyl-			
	(c) B: eah			
	(liq) B: eab eac ead eaq			
	Pentane, 1,1-dibromo-			
	(liq) B: eab eac ead eaq eal(t)			
	Pentane, 1,2-dibromo-			
	(liq) B: eab eac ead eaq			
	Pentane, 1,3-dibromo-			
	(liq) B: eab eac ead eaq			
	Pentane, 1,4-dibromo-			
	(c) B: eah			
	(liq) B: eab eac ead eaq			
	Pentane, 1,5-dibromo-			
	(c) B: eah			
	(liq) B: eab eac ead eaq			
	Pentane, 2,2-dibromo-			
	(liq) B: eab eac ead eaq			
	Pentane, 2,3-dibromo-			
	(liq) B: eab eac ead eaq			
Pentane, 2,4-dibromo-				
(liq) B: eab eac ead eaq				
Pentane, 3,3-dibromo-				
(liq) B: eab eac ead eaq				
Propane, 1,3-dibromo-2-ethyl-				
(liq) B: eab ead				
Propane, 1,1-dibromo-2,2-dimethyl-				
(c) B: eah				
(liq) B: eab eac ead eaq				
Propane, 1,3-dibromo-2,2-dimethyl-				
(liq) B: eab eac ead eaq				
C <sub>5</sub> Br <sub>3</sub> H <sub>8</sub>	Pentane, 1,1,1-tribromo-			
(liq) B: eab eac ead eaq				
C <sub>5</sub> BrH <sub>11</sub>	1-Hexene, cis-1-bromo-			
(liq) B: eab eac ead eaq				
	1-Hexene, trans-1-bromo-			
(liq) B: eab eac ead eaq				
C <sub>6</sub> BrH <sub>13</sub>	Butane, 1-bromo-2-ethyl-			
(liq) B: eab eac ead eaq				
	Butane, 1-bromo-2,2-dimethyl-			
(liq) B: eab ead				
	Butane, 1-bromo-2,3-dimethyl-			
(liq) B: eab eac ead eaq				
	Butane, 1-bromo-3,3-dimethyl-			
(liq) B: eab eac ead eaq				
	Butane, 2-bromo-2,3-dimethyl-			
(c) B: eah				
(liq) B: eab ead				
	Butane, 2-bromo-3,3-dimethyl-			
(c) B: eah				
(liq) B: eab eac ead eaq eal(t)				
	Hexane, 1-bromo-			
(c) B: eah				
(liq) B: eab eac ead eaq eal(t)				
	Hexane, 2-bromo-			
(liq) B: eab eac ead eaq				
	Hexane, 3-bromo-			
(liq) B: eab eac ead eaq				
	Pentane, 1-bromo-2-methyl-			
(liq) B: eab eac ead eaq				
	Pentane, 1-bromo-3-methyl-			
(liq) B: eab eac ead eaq				
	Pentane, 1-bromo-4-methyl-			
(liq) B: eab eac ead eaq				
	Pentane, 2-bromo-2-methyl-			
(liq) B: eab ead				
	Pentane, 2-bromo-3-methyl-			
(liq) B: eab ead				
	Pentane, 2-bromo-4-methyl-			
(c) B: eah				
(liq) B: eab eac ead eaq				
	Pentane, 3-bromo-2-methyl-			
(liq) B: eab ead				
	Pentane, 3-bromo-3-methyl-			
(c) B: eah				
(liq) B: eab ead				
C <sub>6</sub> Br <sub>2</sub> H <sub>12</sub>	Hexane, 1,1-dibromo-			
(liq) B: eab eac ead eaq eal(t)				
C <sub>6</sub> Br <sub>3</sub> H <sub>11</sub>	Hexane, 1,1,1-tribromo-			
(liq) B: eab eac ead eaq				
C <sub>7</sub> BrH <sub>13</sub>	1-Heptene, cis-1-bromo-			
(c) B: eah				
(liq) B: eab eac ead eaq				
	1-Heptene, trans-1-bromo-			
(c) B: eah				
(liq) B: eab eac ead eaq				
C <sub>7</sub> BrH <sub>15</sub>	Heptane, 1-bromo-			
(c) B: eah				
(liq) B: eab eac ead eaq eal(t)				
C <sub>7</sub> Br <sub>2</sub> H <sub>14</sub>	Heptane, 1,1-dibromo-			
(liq) B: eab eac ead eaq eal(t)				
C <sub>7</sub> Br <sub>3</sub> H <sub>13</sub>	Heptane, 1,1,1-tribromo-			
(liq) B: eab eac ead eaq				
C <sub>8</sub> BrH <sub>15</sub>	1-Octene, cis-1-bromo-			
(liq) B: eab eac ead eaq				
	1-Octene, trans-1-bromo-			
(liq) B: eab eac ead eaq				
C <sub>8</sub> BrH <sub>17</sub>	Octane, 1-bromo-			
(c) B: eah				
(liq) B: eab eac ead eaq eal(t)				
C <sub>9</sub> Br <sub>2</sub> H <sub>16</sub>	Octane, 1,1-dibromo-			
(liq) B: eab eac ead eaq eal(t)				
C <sub>8</sub> Br <sub>3</sub> H <sub>15</sub>	Octane, 1,1,1-tribromo-			
(liq) B: eab eac ead eaq				
C <sub>9</sub> BrH <sub>17</sub>	1-Nonene, cis-1-bromo-			
(liq) B: eab eac ead eaq				



	1-Nonene, trans-1-bromo-								
	(liq) B:	eab	eac	ead	eaq				
C <sub>9</sub> BrH <sub>19</sub>	Nonane, 1-bromo								
	(c) B:	eah							
	(liq) B:	eab	eac	ead	eaq	eal(t)			
C <sub>9</sub> Br <sub>2</sub> H <sub>18</sub>	Nonane, 1,1-dibromo								
	(liq) B:	eab	eac	ead	eaq	eal(t)			
C <sub>9</sub> Br <sub>3</sub> H <sub>17</sub>	Nonane, 1,1,1-tribromo-								
	(liq) B:	eab	eac	ead	eaq				
C <sub>10</sub> BrH <sub>19</sub>	1-Decene, cis-1-bromo-								
	(liq) B:	eab	eac	ead	eaq				
	1-Decene, trans-1-bromo-								
	(liq) B:	eab	eac	ead	eaq				
C <sub>10</sub> BrH <sub>21</sub>	Decane, 1-bromo-								
	(c) B:	eah							
	(liq) B:	eab	eac	ead	eaq	eal(t)			
C <sub>10</sub> Br <sub>2</sub> H <sub>20</sub>	Decane, 1,1-dibromo-								
	(liq) B:	eab	eac	ead	eaq	eal(t)			
C <sub>10</sub> Br <sub>3</sub> H <sub>19</sub>	Decane, 1,1,1-tribromo-								
	(liq) B:	eab	eac	ead	eaq				
C <sub>11</sub> BrH <sub>21</sub>	1-Undecene, cis-1-bromo-								
	(liq) B:	eab	eac	ead	eaq				
	1-Undecene, trans-1-bromo-								
	(liq) B:	eab	eac	ead	eaq				
C <sub>11</sub> BrH <sub>23</sub>	Undecane, 1-bromo-								
	(c) B:	eah							
	(liq) B:	eab	eac	ead	eaq	eal(t)			
C <sub>11</sub> Br <sub>2</sub> H <sub>22</sub>	Undecane, 1,1-dibromo-								
	(liq) B:	eab	eac	ead	eaq				
C <sub>11</sub> Br <sub>3</sub> H <sub>21</sub>	Undecane, 1,1,1-tribromo-								
	(liq) B:	eab	eac	ead	eaq				
C <sub>12</sub> BrH <sub>23</sub>	1-Dodecene, cis-1-bromo-								
	(liq) B:	eab	eac	ead	eaq				
	1-Dodecene, trans-1-bromo-								
	(liq) B:	eab	eac	ead	eaq				
C <sub>12</sub> BrH <sub>25</sub>	Dodecane, 1-bromo-								
	(c) B:	eah							
	(liq) B:	eab	eac	ead	eaq	eal(t)			
C <sub>12</sub> Br <sub>2</sub> H <sub>24</sub>	Dodecane, 1,1-dibromo-								
	(liq) B:	eab	eac	ead	eaq				
C <sub>12</sub> Br <sub>3</sub> H <sub>23</sub>	Dodecane, 1,1,1-tribromo-								
	(liq) B:	eab	eac	ead	eaq				
C <sub>13</sub> BrH <sub>25</sub>	1-Tridecene, cis-1-bromo-								
	(liq) B:	eab	eac	ead	eaq				
	1-Tridecene, trans-1-bromo-								
	(liq) B:	eab	eac	ead	eaq				
C <sub>13</sub> BrH <sub>27</sub>	Tridecane, 1-bromo-								
	(c) B:	eah							
	(liq) B:	eab	eac	ead	eaq	eal(t)			
C <sub>13</sub> Br <sub>2</sub> H <sub>26</sub>	Tridecane, 1,1-dibromo-								
	(liq) B:	eab	eac	ead	eaq				
C <sub>13</sub> Br <sub>3</sub> H <sub>25</sub>	Tridecane, 1,1,1-tribromo-								
	(liq) B:	eab	eac	ead	eaq				
C <sub>14</sub> BrH <sub>27</sub>	1-Tetradecene, cis-1-bromo-								
	(liq) B:	eab	eac	ead	eaq				
	1-Tetradecene, trans-1-bromo-								
	(liq) B:	eab	eac	ead	eaq				
C <sub>14</sub> BrH <sub>29</sub>	Tetradecane, 1-bromo-								
	(c) B:	eah							
	(liq) B:	eab	eac	ead	eaq	eal(t)			
C <sub>14</sub> Br <sub>2</sub> H <sub>28</sub>	Tetradecane, 1,1-dibromo-								
	(liq) B:	eab	eac	ead	eaq				
C <sub>14</sub> Br <sub>3</sub> H <sub>27</sub>	Tetradecane, 1,1,1-tribromo-								
	(liq) B:	eab	eac	ead	eaq				
C <sub>15</sub> Br <sub>3</sub> H <sub>29</sub>	1-Pentadecene, cis-1-bromo-								
	(liq) B:	eab	eac	ead	eaq				
	1-Pentadecene, trans-1-bromo-								
	(liq) B:	eab	eac	ead	eaq				
C <sub>15</sub> BrH <sub>31</sub>	Pentadecane, 1-bromo-								
	(c) B:	eah							
	(liq) B:	eab	eac	ead	eaq	eal(t)			
C <sub>15</sub> Br <sub>2</sub> H <sub>30</sub>	Pentadecane, 1,1-dibromo-								
	(liq) B:	eab	eac	ead	eaq				
C <sub>15</sub> Br <sub>3</sub> H <sub>29</sub>	Pentadecane, 1,1,1-tribromo-								
	(liq) B:	eab	eac	ead	eaq				
C <sub>16</sub> BrH <sub>31</sub>	1-Hexadecene, cis-1-bromo-								
	(liq) B:	eab	eac	ead	eaq				
	1-Hexadecene, trans-1-bromo-								
	(liq) B:	eab	eac	ead	eaq				
C <sub>16</sub> BrH <sub>33</sub>	Hexadecane, 1-bromo-								
	(c) B:	eah							
	(liq) B:	eab	eac	ead	eaq	eal(t)			
C <sub>16</sub> Br <sub>2</sub> H <sub>32</sub>	Hexadecane, 1,1-dibromo-								
	(liq) B:	eab	eac	ead	eaq				
C <sub>16</sub> Br <sub>3</sub> H <sub>31</sub>	Hexadecane, 1,1,1-tribromo-								
	(liq) B:	eab	eac	ead	eaq				
C <sub>17</sub> BrH <sub>33</sub>	1-Heptadecene, cis-1-bromo-								
	(liq) B:	eab	eac	ead	eaq				
	1-Heptadecene, trans-1-bromo-								
	(liq) B:	eab	eac	ead	eaq				
C <sub>17</sub> BrH <sub>35</sub>	Heptadecane, 1-bromo-								
	(c) B:	eah							
	(liq) B:	eab	eac	ead	eaq	eal(t)			
C <sub>17</sub> Br <sub>2</sub> H <sub>34</sub>	Heptadecane, 1,1-dibromo-								
	(liq) B:	eab	eac	ead	eaq				
C <sub>17</sub> Br <sub>3</sub> H <sub>33</sub>	Heptadecane, 1,1,1-tribromo-								
	(liq) B:	eab	eac	ead	eaq				
C <sub>18</sub> BrH <sub>35</sub>	1-Octadecene, cis-1-bromo-								
	(liq) B:	eab	eac	ead	eaq				
	1-Octadecene, trans-1-bromo-								
	(liq) B:	eab	eac	ead	eaq				
C <sub>18</sub> BrH <sub>37</sub>	Octadecane, 1-bromo-								
	(c) B:	eah							
	(liq) B:	eab	eac	ead	eaq	eal(t)			
C <sub>18</sub> Br <sub>2</sub> H <sub>36</sub>	Octadecane, 1,1-dibromo-								
	(liq) B:	eab	eac	ead	eaq				
C <sub>18</sub> Br <sub>3</sub> H <sub>35</sub>	Octadecane, 1,1,1-tribromo-								
	(liq) B:	eab	eac	ead	eaq				
C <sub>19</sub> BrH <sub>37</sub>	1-Nonadecene, cis-1-bromo-								
	(liq) B:	eab	eac	ead	eaq				
	1-Nonadecene, trans-1-bromo-								
	(liq) B:	eab	eac	ead	eaq				
C <sub>19</sub> BrH <sub>39</sub>	Nonadecane, 1-bromo-								
	(c) B:	eah							
	(liq) B:	eab	eac	ead	eaq	eal(t)			
C <sub>19</sub> Br <sub>2</sub> H <sub>38</sub>	Nonadecane, 1,1-dibromo-								
	(liq) B:	eab	eac	ead	eaq				
C <sub>19</sub> Br <sub>3</sub> H <sub>37</sub>	Nonadecane, 1,1,1-tribromo-								
	(liq) B:	eab	eac	ead	eaq				
C <sub>20</sub> BrH <sub>39</sub>	1-Eicosene, cis-1-bromo-								
	(liq) B:	eab	eac	ead	eaq				
	1-Eicosene, trans-1-bromo-								
	(liq) B:	eab	eac	ead	eaq				

C<sub>20</sub>BrH<sub>41</sub> Eicosane, 1-bromo-  
(c) B: eal  
(liq) B: eab eac ead eaq eal(t)

C<sub>20</sub>Br<sub>2</sub>H<sub>40</sub> Eicosane, 1,1-dibromo  
(liq) B: eab eac ead eaq

C<sub>20</sub>Br<sub>3</sub>H<sub>39</sub> Eicosane, 1,1,1-tribromo-  
(liq) B: eab eac ead eaq

C<sub>21</sub>BrH<sub>43</sub> Heneicosane, 1-bromo-  
(c) B: eah  
(liq) B: eab eac ead eaq

C<sub>21</sub>Br<sub>2</sub>H<sub>42</sub> Heneicosane, 1,1-dibromo-  
(liq) B: eab eac ead eaq

C<sub>22</sub>BrH<sub>45</sub> Docosane, 1-bromo-  
(c) B: eah  
(liq) B: eab eac ead eaq

C<sub>22</sub>Br<sub>2</sub>H<sub>44</sub> Docosane, 1,1-dibromo-  
(liq) B: eab eac ead eaq

C<sub>23</sub>BrH<sub>47</sub> Tricosane, 1-bromo-  
(c) B: eah  
(liq) B: eab eac ead eaq

C<sub>23</sub>Br<sub>2</sub>H<sub>46</sub> Tricosane, 1,1-dibromo-  
(liq) B: eah eac ead eaq

C<sub>24</sub>BrH<sub>49</sub> Tetracosane, 1-bromo-  
(c) B: eah  
(liq) B: eab eac ead eaq

C<sub>24</sub>Br<sub>2</sub>H<sub>48</sub> Tetracosane, 1,1-dibromo-  
(liq) B: eab eac ead eaq

C<sub>25</sub>BrH<sub>51</sub> Pentacosane, 1-bromo-  
(c) B: eah  
(liq) B: eab eac ead eaq

C<sub>25</sub>Br<sub>2</sub>H<sub>50</sub> Pentacosane, 1,1-dibromo-  
(liq) B: eab eac ead eaq

C<sub>26</sub>BrH<sub>53</sub> Hexacosane, 1-bromo-  
(c) B: eah  
(liq) B: eab eac ead eaq

C<sub>26</sub>Br<sub>2</sub>H<sub>52</sub> Hexacosane, 1,1-dibromo-  
(liq) B: eab eac ead eaq

C<sub>27</sub>BrH<sub>55</sub> Heptacosane, 1-bromo-  
(c) B: eah  
(liq) B: eab eac ead eaq

C<sub>27</sub>Br<sub>2</sub>H<sub>54</sub> Heptacosane, 1,1-dibromo-  
(liq) B: eab eac ead eaq

C<sub>28</sub>BrH<sub>57</sub> Octacosane, 1-bromo-  
(c) B: eah  
(liq) B: eab eac ead eaq

C<sub>28</sub>Br<sub>2</sub>H<sub>56</sub> Octacosane, 1,1-dibromo-  
(liq) B: eab eac ead eaq

C<sub>29</sub>BrH<sub>59</sub> Nonacosane, 1-bromo-  
(c) B: eah  
(liq) B: eab eac ead eaq

C<sub>29</sub>Br<sub>2</sub>H<sub>58</sub> Nonacosane, 1,1-dibromo-  
(liq) B: eab eac ead eaq

C<sub>30</sub>BrH<sub>61</sub> Triacontane, 1-bromo-  
(c) B: eah  
(liq) B: eab eac ead eaq

C<sub>30</sub>Br<sub>2</sub>H<sub>60</sub> Triacontane, 1,1-dibromo-  
(liq) B: eab eac ead eaq

C<sub>31</sub>BrH<sub>63</sub> Hentriacontane, 1-bromo-  
(c) B: eah  
(liq) B: eab eac ead eaq

C<sub>31</sub>Br<sub>2</sub>H<sub>62</sub> Hentriacontane, 1,1-dibromo-  
(c) B: eah  
(liq) B: eab eac ead eaq

C<sub>32</sub>BrH<sub>65</sub> Dotriacontane, 1-bromo-  
(c) B: eah  
(liq) B: eab eac ead eaq

C<sub>32</sub>Br<sub>2</sub>H<sub>64</sub> Dotriacontane, 1,1-dibromo-  
(liq) B: eab eac ead eaq

C<sub>33</sub>BrH<sub>67</sub> Tritriacontane, 1-bromo-  
(c) B: eah  
(liq) B: eab eac ead eaq

C<sub>33</sub>Br<sub>2</sub>H<sub>66</sub> Tritriacontane, 1,1-dibromo-  
(liq) B: eab eac ead eaq

C<sub>34</sub>BrH<sub>69</sub> Tetratriacontane, 1-bromo-  
(c) B: eah  
(liq) B: eab eac ead eaq

C<sub>34</sub>Br<sub>2</sub>H<sub>68</sub> Tetratriacontane, 1,1-dibromo-  
(liq) B: eab eac ead eaq

C<sub>35</sub>BrH<sub>71</sub> Pentatriacontane, 1-bromo-  
(c) B: eah  
(liq) B: eab eac ead eaq

C<sub>35</sub>Br<sub>2</sub>H<sub>70</sub> Pentatriacontane, 1,1-dibromo-  
(liq) B: eab eac ead eaq

C<sub>36</sub>BrH<sub>73</sub> Hexatriacontane, 1-bromo-  
(c) B: eah  
(liq) B: eab eac ead eaq

C<sub>36</sub>Br<sub>2</sub>H<sub>72</sub> Hexatriacontane, 1,1-dibromo-  
(liq) B: eab eac ead eaq

C<sub>37</sub>BrH<sub>75</sub> Heptatriacontane, 1-bromo-  
(c) B: eah  
(liq) B: eab eac ead eaq

C<sub>37</sub>Br<sub>2</sub>H<sub>74</sub> Heptatriacontane, 1,1-dibromo-  
(liq) B: eab eac ead eaq

C<sub>38</sub>BrH<sub>77</sub> Octatriacontane, 1-bromo-  
(c) B: eah  
(liq) B: eab eac ead eaq

C<sub>38</sub>Br<sub>2</sub>H<sub>76</sub> Octatriacontane, 1,1-dibromo-  
(liq) B: eab eac ead eaq

C<sub>39</sub>BrH<sub>79</sub> Nonatriacontane, 1-bromo-  
(c) B: eah  
(liq) B: eab eac ead eaq

C<sub>39</sub>Br<sub>2</sub>H<sub>78</sub> Nonatriacontane, 1,1-dibromo-  
(liq) B: eab eac ead eaq

C<sub>40</sub>BrH<sub>81</sub> Tetracontane, 1-bromo-  
(c) B: eah  
(liq) B: eab eac ead eaq

C<sub>40</sub>Br<sub>2</sub>H<sub>80</sub> Tetracontane, 1,1-dibromo-  
(liq) B: eab eac ead eaq

23-11-2-1

C<sub>2</sub>BrH<sub>3</sub>O Acetaldehyde, bromo-  
(liq) C: eaq  
Acetyl bromide  
(c) C: eah  
(liq) C: eaq fab fbj fbk

C<sub>2</sub>BrH<sub>3</sub>O<sub>2</sub> Acetic acid, bromo-  
(c) C: eah  
(liq) C: eaq fbj fbk

C<sub>2</sub>BrH<sub>3</sub>O Ether, bromomethyl methyl  
(liq) C: eaq

**CARBON**

23-11-2-1 C<sub>2</sub>Br<sub>2</sub>H<sub>2</sub>O

- C<sub>2</sub>Br<sub>2</sub>H<sub>2</sub>O Acetyl bromide, bromo-  
(liq) C: eaq  
 C<sub>2</sub>Br<sub>2</sub>H<sub>2</sub>O<sub>2</sub> Acetic acid, dibromo-  
(c) C: eah  
(liq) C: eaq  
 C<sub>2</sub>Br<sub>2</sub>H<sub>4</sub>O Ether, bromomethyl  
(liq) C: eaq fbj fbk  
 C<sub>2</sub>Br<sub>3</sub>HO Acetaldehyde, tribromo- (Bromal)  
(liq) C: eaq fbj fbk  
 C<sub>2</sub>Br<sub>3</sub>HO·H<sub>2</sub>O Acetaldehyde, tribromo-, monohydrate  
(c) C: eah fab fae fbf fbq fbh  
(aq) C: fab  
 C<sub>2</sub>Br<sub>3</sub>HO<sub>2</sub> Acetic acid, tribromo-  
(c) C: eah

**23-11-9**

- CBrF<sub>3</sub> Methane, bromotrifluoro-  
(liq) C: eaq  
(g) C: fae  
 CBr<sub>2</sub>F<sub>2</sub> Methane, dibromodifluoro-  
(liq) C: eaq  
(g) C: fae  
 CBr<sub>3</sub>F Methane, tribromofluoro-  
(liq) C: eaq fae  
 C<sub>2</sub>BrF<sub>3</sub> Ethene, bromotrifluoro-  
(liq) C: eaq  
 C<sub>2</sub>BrF<sub>5</sub> Ethane, bromopentafluoro-  
(liq) C: eaq  
 C<sub>2</sub>Br<sub>2</sub>F<sub>4</sub> Ethane, 1,2-dibromo-1,1,2,2-tetrafluoro-  
(c) C: eah  
(liq) C: eaq fbj fbk  
 C<sub>2</sub>Br<sub>3</sub>F Ethene, tribromofluoro-  
(liq) C: eaq  
 C<sub>2</sub>Br<sub>4</sub>F<sub>2</sub> Ethane, 1,1,1,2-tetrabromo-2,2-difluoro-  
(c) C: eah  
(liq) C: eaq

**23-11-9-1**

- C<sub>2</sub>BrF<sub>3</sub>O Acetyl bromide, trifluoro-  
(c) C: eah  
(liq) C: eaq fbj fbk

**23-11-9-2**

- CBrFH<sub>2</sub> Methane, bromofluoro-  
(g) C: fae  
 CBrF<sub>2</sub>H Methane, bromodifluoro-  
(liq) C: eaq  
(g) C: fae  
 CBr<sub>2</sub>FH Methane, dibromofluoro-  
(liq) C: eaq  
(g) C: fae  
 C<sub>2</sub>BrFH<sub>2</sub> Ethene, 1-bromo-1-fluoro-  
(liq) C: eaq  
 C<sub>2</sub>BrFH<sub>4</sub> Ethane, 1-bromo-2-fluoro-  
(liq) C: eaq  
 C<sub>2</sub>BrF<sub>2</sub>H Ethene, 2-bromo-1,1-difluoro-  
(liq) C: eaq  
 C<sub>2</sub>BrF<sub>2</sub>H<sub>3</sub> Ethane, 2-bromo-1,1-difluoro-  
(liq) C: eaq  
 C<sub>2</sub>BrF<sub>3</sub>H<sub>2</sub> Ethane, 1-bromo-1,1,2-trifluoro-  
(liq) C: eaq

- Ethane, 2-bromo-1,1,1-trifluoro-  
(liq) C: eaq  
 C<sub>2</sub>Br<sub>2</sub>FH<sub>3</sub> Ethane, 1,1-dibromo-2-fluoro-  
(liq) C: eaq  
 Ethane, 1,2-dibromo-1-fluoro-  
(c) C: eah  
(liq) C: eaq  
 C<sub>2</sub>Br<sub>2</sub>F<sub>2</sub>H<sub>2</sub> Ethane, 1,1-dibromo-2,2-difluoro-  
(liq) C: eaq  
 Ethane, 1,2-dibromo-1,1-difluoro-  
(liq) C: eaq  
 C<sub>2</sub>Br<sub>2</sub>F<sub>3</sub>H Ethane, 1,2-dibromo-1,1,2-trifluoro-  
(liq) C: eaq  
 C<sub>2</sub>Br<sub>3</sub>FH<sub>2</sub> Ethane, 1,1,2-tribromo-1-fluoro-  
(liq) C: eaq  
 Ethane, 1,1,2-tribromo-2-fluoro-  
(liq) C: eaq  
 C<sub>2</sub>Br<sub>3</sub>F<sub>2</sub>H Ethane, 1,2,2-tribromo-1,1-difluoro-  
(liq) C: eaq  
 C<sub>2</sub>Br<sub>4</sub>FH Ethane, 1,1,1,2-tetrabromo-1-fluoro-  
(liq) C: eaq

**23-11-9-2-1**

- C<sub>2</sub>BrFH<sub>2</sub>O<sub>2</sub> Acetic acid, bromofluoro-  
(c) C: eah  
(liq) C: eaq  
 C<sub>2</sub>Br<sub>2</sub>FHO Acetyl bromide, bromofluoro-  
(liq) C: eaq

**23-11-10**

- CBrCl<sub>3</sub> Methane, bromotrichloro-  
(g) C: fae  
 CBr<sub>2</sub>Cl<sub>2</sub> Methane, dibromodichloro-  
(g) C: fae  
 CBr<sub>3</sub>Cl Methane, tribromochloro-  
(g) C: fae  
 C<sub>2</sub>Br<sub>2</sub>Cl<sub>2</sub> Ethene, 1,2-dibromo-1,2-dichloro-  
(c) C: eah  
(liq) C: eaq  
 C<sub>2</sub>Br<sub>2</sub>Cl<sub>4</sub> Ethane, 1,2-dibromo-1,1,2,2-tetrachloro-  
(c) C: eah fbn fbo

**23-11-10-1**

- C<sub>2</sub>BrCl<sub>3</sub>O Acetyl bromide, trichloro-  
(liq) C: eaq fbj fbk  
 C<sub>2</sub>Br<sub>2</sub>Cl<sub>2</sub>O Acetyl chloride, dibromochloro-  
(liq) C: eaq

**23-11-10-2**

- CBrClH<sub>2</sub> Methane, bromochloro-  
(g) C: fae  
 CBrCl<sub>2</sub>H Methane, bromodichloro-  
(g) C: fae  
 CBr<sub>2</sub>ClH Methane, dibromochloro-  
(g) C: fae  
 C<sub>2</sub>BrClH<sub>2</sub> Ethene, cis-1-bromo-2-chloro-  
(c) C: eah  
(liq) C: eaq  
 Ethene, trans-1-bromo-2-chloro-  
(c) C: eah  
(liq) C: eaq

C<sub>2</sub>BrClH<sub>4</sub> Ethane, 1-bromo-1-chloro-

(c) C: eah

(liq) C: eaq fbj fbk

Ethane, 1-bromo-2-chloro-

(c) C: eah fbf fbg fbh

(liq) C: eaq fae fbj fbk

C<sub>2</sub>BrCl<sub>2</sub>H Ethene, cis-1-bromo-1,2-dichloro-

(c) C: eah

(liq) C: eaq

Ethane, trans-1-bromo-1,2-dichloro-

(c) C: eah

C<sub>2</sub>BrCl<sub>2</sub>H Ethene, 2-bromo-1,1-dichloro-

(c) C: eah

(liq) C: eaq

C<sub>2</sub>BrCl<sub>2</sub>H<sub>2</sub> Ethane, 2-bromo-1,1-dichloro-

(liq) C: eaq

C<sub>2</sub>BrCl<sub>2</sub>H<sub>2</sub> Ethane, 1-bromo-1,2,2-trichloro-

(c) C: eah

(liq) C: eaq

C<sub>2</sub>Br<sub>2</sub>Cl<sub>2</sub>H<sub>2</sub> Ethane, 1,2-dibromo-1,1-dichloro-

(c) C: eah

(liq) C: eaq

Ethane, 1,2-dibromo-1,2-dichloro-

(c) C: eah

(liq) C: eaq fbj fbk

C<sub>2</sub>Br<sub>2</sub>Cl<sub>2</sub>H Ethane, 1,2-dibromo-1,1,2-trichloro-

(c) C: eah

Ethane, 2,2-dibromo-1,1,1-trichloro-

(c) C: eah

C<sub>2</sub>Br<sub>3</sub>ClH<sub>2</sub> Ethane, 1,1,2-tribromo-2-chloro-

(c) C: eah

(liq) C: eaq

C<sub>2</sub>Br<sub>3</sub>Cl<sub>2</sub>H Ethane, 1,1,2-tribromo-1,2-dichloro-

(c) C: eah

(liq) C: eaq

Ethane, 1,2,2-tribromo-1,1-dichloro-

(c) C: eah

(liq) C: eaq

23-11-10-2-1

C<sub>2</sub>BrClH<sub>2</sub>O Acetyl chloride, bromo-

(liq) C: eaq

23-11-10-9

C<sub>2</sub>Br<sub>2</sub>ClF<sub>3</sub> Ethane, 1,2-dibromo-1-chloro-1,2,2-trifluoro-

(liq) C: eaq

C<sub>2</sub>Br<sub>2</sub>Cl<sub>2</sub>F<sub>2</sub> Ethane, 1,2-dibromo-1,1-dichloro-2,2-difluoro-

(c) C: eah

(liq) C: eaq

Ethane, 1,2-dibromo-1,2-dichloro-1,2-difluoro-

(c) C: eah

(liq) C: eaq

C<sub>2</sub>Br<sub>2</sub>Cl<sub>2</sub>F Ethane, 1,2-dibromo-1,1,2-trichloro-2-fluoro-

(c) C: eah

23-11-10-9-1

C<sub>2</sub>BrClF<sub>2</sub>O Acetyl fluoride, bromochlorofluoro-

(liq) C: eaq

23-11-10-9-2

CBrClFH Methane, bromochlorofluoro-

(g) C: fae

C<sub>2</sub>Br<sub>2</sub>Cl<sub>2</sub>FH Ethane, 1,2-dibromo-1,1-dichloro-2-fluoro-

(liq) C: eaq

23-11-10-9-2-1

C<sub>2</sub>BrClFHO Acetyl chloride, bromofluoro-

(liq) C: eaq

C<sub>2</sub>BrClFHO<sub>2</sub> Acetic acid, bromochlorofluoro-

(c) C: eah

(liq) C: eaq

23-12

Cl<sub>4</sub> Methane, tetraiodo-

(c) C: eah

C<sub>2</sub>I<sub>4</sub> Ethene, tetraiodo-

(c) C: eah fab

23-12-2

CIH<sub>3</sub> Methane, iodo-

(c) B: eah

C: eah

(liq) C: eab eac ead eal(-,t)

C: eaq faa fab fac fad fbj

fbk

(g) C: faa fab fac fad fae

Cl<sub>2</sub>H<sub>2</sub> Methane, di-iodo-

(c, II) C: eah fbf fbg

(c, I) B: eah

C: eah fbf fbg

(liq) B: eab eac ead eaq eal(t)

C: eaq fab

(g) C: fae

Cl<sub>3</sub>H Methane, tri-iodo- (Iodoform)

(c) B: eab eah

C: eah fab fbf fbg

C<sub>2</sub>IH<sub>3</sub> Ethene, iodo-

(liq) B: eab eac ead eaq

C<sub>2</sub>IH<sub>5</sub> Ethane, iodo-

(c) B: eah

C: eah

(liq) B: eab eac ead eaq eal(-,t)

C: eaq fab fae fbj fbk

C<sub>2</sub>I<sub>2</sub>H<sub>2</sub> Ethene, 1,1-di-iodo-

(c) C: eah

Ethane, cis-1,2-di-iodo-

(c) C: eah

(liq) C: eaq

Ethane, trans-1,2-di-iodo-

(c) C: eah eal fbn fbo

(liq) C: eaq

C<sub>2</sub>I<sub>2</sub>H<sub>4</sub> Ethane, 1,1-di-iodo-

(liq) B: eab eac ead eaq eal(t)

Ethane, 1,2-di-iodo-

(c) B: eah

C: eah eal fab fbn fbo

(liq) B: eab eac ead eaq

C<sub>2</sub>I<sub>3</sub>H<sub>3</sub> Ethane, 1,1,1-tri-iodo-

(c) B: eah

C<sub>3</sub>IH<sub>5</sub> 1-Propene, cis-1-iodo-

(liq) B: eab ead

1-Propene, trans-1-iodo-

(liq) B: eab ead

1-Propene, 2-iodo  
(liq) B: eab eac ead eaq

1-Propene, 3-iodo  
(c) B: eah  
(liq) B: eab eac ead eaq

C<sub>3</sub>IH<sub>7</sub> Propane, 1-iodo  
(c) B: eah  
(liq) B: eab eac ead eaq eal(t)

Propane, 2-iodo  
(c) B: eah  
(liq) B: eab eac ead eaq

C<sub>3</sub>I<sub>2</sub>H<sub>6</sub> Propane, 1,1-di-iodo  
(liq) B: eab ead

Propane, 1,2-di-iodo  
(liq) B: eab eac ead eaq

Propane, 1,3-di-iodo  
(c) B: eah  
(liq) B: eab eac ead eaq

Propane, 2,2-di-iodo  
(liq) B: eab eac ead eaq

C<sub>4</sub>IH<sub>7</sub> 1-Butene, cis-1-iodo  
(liq) B: eab eac ead eaq

1-Butene, trans-1-iodo  
(liq) B: eab eac ead eaq

1-Butene, 2-iodo  
(liq) B: eab ead

1-Butene, 3-iodo  
(liq) B: eab ead

1-Butene, 4-iodo  
(liq) B: eab ead

cis-2-Butene, 1-iodo  
(liq) B: eab eac ead eaq

trans-2-Butene, 1-iodo  
(liq) B: eab eac ead eaq

cis-2-Butene, 2-iodo  
(liq) B: eab ead

trans-2-Butene, 2-iodo  
(liq) B: eab ead

1-Propene, 1-iodo-2-methyl-  
(liq) B: eab ead

1-Propene, 3-iodo-2-methyl-  
(liq) B: eab ead

C<sub>4</sub>IH<sub>6</sub> Butane, 1-iodo  
(c) B: eah  
(liq) B: eab eac ead eaq eal(t)

Butane, 2-iodo  
(c) B: eah  
(liq) B: eab eac ead eaq

Propane, 1-iodo-2-methyl-  
(c) B: eah  
(liq) B: eab eac ead eaq

Propane, 2-iodo-2-methyl-  
(c) B: eah  
(liq) B: eab eac ead eaq

C<sub>4</sub>I<sub>2</sub>H<sub>6</sub> Butane, 1,1-di-iodo  
(liq) B: eab ead

Butane, 1,2-di-iodo  
(liq) B: eab ead

Butane, 1,3-di-iodo  
(liq) B: eab ead

Butane, 1,4-di-iodo  
(c) B: eah  
(liq) B: eab ead

Butane, 2,2-di-iodo  
(liq) B: eab ead

Butane, 2,3-di-iodo  
(liq) B: eab ead

Propane, 1,1-di-iodo-2-methyl-  
(liq) B: eab ead

Propane, 1,2-di-iodo-2-methyl-  
(liq) B: eab ead

Propane, 1,3-di-iodo-2-methyl-  
(liq) B: eab ead

C<sub>5</sub>IH<sub>6</sub> 1-Butene, 1-iodo-cis-2-methyl-  
(liq) B: eab ead

1-Butene, 1-iodo-trans-2-methyl-  
(liq) B: eab ead

1-Butene, 1-iodo-cis-3-methyl-  
(liq) B: eab ead

1-Butene, 1-iodo-trans-3-methyl-  
(liq) B: eab ead

1-Butene, 2-iodo-3-methyl-  
(liq) B: eab ead

1-Butene, 3-iodo-2-methyl-  
(liq) B: eab ead

1-Butene, 3-iodo-3-methyl-  
(liq) B: eab ead

1-Butene, 4-iodo-2-methyl-  
(liq) B: eab ead

1-Butene, 4-iodo-3-methyl-  
(liq) B: eab ead

cis-2-Butene, 1-iodo-2-methyl-  
(liq) B: eab ead

trans-2-Butene, 1-iodo-2-methyl-  
(liq) B: eab ead

2-Butene, 1-iodo-3-methyl-  
(liq) B: eab ead

2-Butene, 2-iodo-3-methyl-  
(liq) B: eab ead

1-Pentene, cis-1-iodo  
(liq) B: eab eac ead eaq

1-Pentene, trans-1-iodo  
(liq) B: eab eac ead eaq

1-Pentene, 2-iodo  
(liq) B: eab ead

1-Pentene, 3-iodo  
(liq) B: eab ead

1-Pentene, 4-iodo  
(liq) B: eab ead

1-Pentene, 5-iodo  
(liq) B: eab eac ead eaq

cis-2-Pentene, 1-iodo  
(liq) B: eab ead

trans-2-Pentene, 1-iodo  
(liq) B: eab ead

cis-2-Pentene, 2-iodo  
(liq) B: eab ead

trans-2-Pentene, 2-iodo  
(liq) B: eab ead

cis-2-Pentene, 3-iodo  
(liq) B: eab ead

trans-2-Pentene, 3-iodo-  
(liq) B: eab ead  
cis-2-Pentene, 4-iodo-  
(liq) B: eab ead  
trans-2-Pentene, 4-iodo-  
(liq) B: eab ead  
cis-2-Pentene, 5-iodo-  
(liq) B: eab ead  
trans-2-Pentene, 5-iodo-  
(liq) B: eab ead  
1-Propene, 3-iodo-2-ethyl-  
(liq) B: eab ead  
**C<sub>5</sub>IH<sub>11</sub>** Butane, 1-iodo-2-methyl-  
(liq) B: eab eac ead eaq  
Butane, 1-iodo-3-methyl-  
(liq) B: eab eac ead eaq  
Butane, 2-iodo-2-methyl-  
(liq) B: eab eac ead eaq  
Butane, 2-iodo-3-methyl-  
(liq) B: eab eac ead eaq  
Pentane, 1-iodo-  
(c) B: eah  
(liq) B: eab eac ead eaq eal(t)  
Pentane, 2-iodo-  
(liq) B: eab eac ead eaq  
Pentane, 3-iodo-  
(liq) B: eab eac ead eaq  
Propane, 1-iodo-2,2-dimethyl-  
(liq) B: eab eac ead eaq  
**C<sub>5</sub>I<sub>2</sub>H<sub>10</sub>** Butane, 1,1-di-iodo-2-methyl-  
(liq) B: eab ead  
Butane, 1,1-di-iodo-3-methyl-  
(liq) B: eab ead  
Butane, 1,2-di-iodo-2-methyl-  
(liq) B: eab ead  
Butane, 1,2-di-iodo-3-methyl-  
(liq) B: eab ead  
Butane, 1,3-di-iodo-2-methyl-  
(liq) B: eab ead  
Butane, 1,3-di-iodo-3-methyl-  
(liq) B: eab ead  
Butane, 1,4-di-iodo-2-methyl-  
(liq) B: eab ead  
Butane, 2,2-di-iodo-3-methyl-  
(liq) B: eab ead  
Butane, 2,3-di-iodo-2-methyl-  
(liq) B: eab ead  
Pentane, 1,1-di-iodo-  
(liq) B: eab ead  
Pentane, 1,2-di-iodo-  
(liq) B: eab ead  
Pentane, 1,3-di-iodo-  
(liq) B: eab ead  
Pentane, 1,4-di-iodo-  
(liq) B: eab ead  
Pentane, 1,5-di-iodo-  
(c) B: eah  
(liq) B: eab ead  
Pentane, 2,2-di-iodo-  
(liq) B: eab ead  
Pentane, 2,3-di-iodo-  
(liq) B: eab ead

Pentane, 2,4-di-iodo-  
(liq) B: eab ead  
Pentane, 3,3-di-iodo-  
(liq) B: eab ead  
Propane, 1,3-di-iodo-2-ethyl-  
(liq) B: eab ead  
Propane, 1,1-di-iodo-2,2-dimethyl-  
(liq) B: eab ead  
Propane, 1,3-di-iodo-2,2-dimethyl-  
(liq) B: eab ead  
**C<sub>6</sub>IH<sub>11</sub>** 1-Hexene, cis-1-iodo-  
(liq) B: eab eac ead eaq  
1-Hexene, trans-1-iodo-  
(liq) B: eab eac ead eaq  
**C<sub>6</sub>IH<sub>13</sub>** Butane, 1-iodo-2-ethyl-  
(liq) B: eab eac ead eaq  
Butane, 1-iodo-2,2-dimethyl-  
(liq) B: eab ead  
Butane, 1-iodo-2,3-dimethyl-  
(liq) B: eab eac ead eaq  
Butane, 1-iodo-3,3-dimethyl-  
(liq) B: eab eac ead eaq  
Butane, 2-iodo-2,3-dimethyl-  
(liq) B: eab ead  
Butane, 2-iodo-3,3-dimethyl-  
(liq) B: eab eac ead eaq  
Hexane, 1-iodo-  
(c) B: eah  
(liq) B: eab eac ead eaq eal(t)  
Hexane, 2-iodo-  
(liq) B: eab eac ead eaq  
Hexane, 3-iodo-  
(liq) B: eab eac ead eaq  
Pentane, 1-iodo-2-methyl-  
(liq) B: eab eac ead eaq  
Pentane, 1-iodo-3-methyl-  
(liq) B: eab eac ead eaq  
Pentane, 1-iodo-4-methyl-  
(liq) B: eab eac ead eaq  
Pentane, 2-iodo-2-methyl-  
(liq) B: eab ead  
Pentane, 2-iodo-3-methyl-  
(liq) B: eab ead  
Pentane, 2-iodo-4-methyl-  
(liq) B: eab eac ead eaq  
Pentane, 3-iodo-2-methyl-  
(liq) B: eab ead  
Pentane, 3-iodo-3-methyl-  
(liq) B: eab ead  
**C<sub>6</sub>I<sub>2</sub>H<sub>12</sub>** Hexane, 1,1-di-iodo-  
(liq) B: eab ead  
**C<sub>7</sub>IH<sub>13</sub>** 1-Heptene, cis-1-iodo-  
(liq) B: eab eac ead eaq  
1-Heptene, trans-1-iodo-  
(liq) B: eab eac ead eaq  
**C<sub>7</sub>IH<sub>15</sub>** Heptane, 1-iodo-  
(c) B: eah  
(liq) B: eab eac ead eaq eal(t)  
**C<sub>7</sub>I<sub>2</sub>H<sub>14</sub>** Heptane, 1,1-di-iodo-  
(liq) B: eab ead

C <sub>8</sub> H <sub>15</sub>	1-Octene, cis-1-iodo- (liq) B: eab eac ead eaq	
	1-Octene, trans-1-iodo- (liq) B: eab eac ead eaq	
C <sub>8</sub> H <sub>17</sub>	Octane, 1-iodo- (c) B: eah (liq) B: eab eac ead eaq eal(t)	
C <sub>8</sub> I <sub>2</sub> H <sub>16</sub>	Octane, 1,1-di-iodo- (liq) B: eab ead	
C <sub>9</sub> H <sub>17</sub>	1-Nonene, cis-1-iodo- (liq) B: eab eac ead eaq	
	1-Nonene, trans-1-iodo- (liq) B: eab eac ead eaq	
C <sub>9</sub> H <sub>19</sub>	Nonane, 1-iodo- (c) B: eah (liq) B: eab eac ead eaq eal(t)	
C <sub>9</sub> I <sub>2</sub> H <sub>18</sub>	Nonane, 1,1-di-iodo- (liq) B: eab ead	
C <sub>10</sub> H <sub>19</sub>	1-Decene, cis-1-iodo- (liq) B: eab eac ead eaq	
	1-Decene, trans-1-iodo- (liq) B: eab eac ead eaq	
C <sub>10</sub> H <sub>21</sub>	Decane, 1-iodo- (c) B: eah (liq) B: eab eac ead eaq eal(t)	
C <sub>10</sub> I <sub>2</sub> H <sub>20</sub>	Decane, 1,1-di-iodo- (liq) B: eab ead	
C <sub>11</sub> H <sub>21</sub>	1-Undecene, cis-1-iodo- (liq) B: eab eac ead eaq	
	1-Undecene, trans-1-iodo- (liq) B: eab eac ead eaq	
C <sub>11</sub> H <sub>23</sub>	Undecane, 1-iodo- (c) B: eah (liq) B: eab eac ead eaq eal(t)	
C <sub>11</sub> I <sub>2</sub> H <sub>22</sub>	Undecane, 1,1-di-iodo- (liq) B: eab ead	
C <sub>12</sub> H <sub>23</sub>	1-Dodecene, cis-1-iodo- (liq) B: eab eac ead eaq	
	1-Dodecene, trans-1-iodo- (liq) B: eab eac ead eaq	
C <sub>12</sub> H <sub>25</sub>	Dodecane, 1-iodo- (c) B: eah (liq) B: eab eac ead eaq eal(t)	
C <sub>12</sub> I <sub>2</sub> H <sub>24</sub>	Dodecane, 1,1-di-iodo- (liq) B: eab ead	
C <sub>13</sub> H <sub>25</sub>	1-Tridecene, cis-1-iodo- (liq) B: eab eac ead eaq	
	1-Tridecene, trans-1-iodo- (liq) B: eab eac ead eaq	
C <sub>13</sub> H <sub>27</sub>	Tridecane, 1-iodo- (c) B: eah (liq) B: eab eac ead eaq eal(t)	
C <sub>13</sub> I <sub>2</sub> H <sub>26</sub>	Tridecane, 1,1-di-iodo- (liq) B: eab ead	
C <sub>14</sub> H <sub>27</sub>	1-Tetradecene, cis-1-iodo- (liq) B: eab eac ead eaq	
	1-Tetradecene, trans-1-iodo- (liq) B: eab eac ead eaq	
C <sub>14</sub> H <sub>29</sub>	Tetradecane, 1-iodo- (c) B: eah (liq) B: eab eac ead eaq eal(t)	
C <sub>14</sub> I <sub>2</sub> H <sub>28</sub>	Tetradecane, 1,1-di-iodo- (liq) B: eab ead	
C <sub>15</sub> H <sub>29</sub>	1-Pentadecene, cis-1-iodo- (liq) B: eab eac ead eaq	
	1-Pentadecene, trans-1-iodo- (liq) B: eab eac ead eaq	
C <sub>15</sub> H <sub>31</sub>	Pentadecane, 1-iodo- (c) B: eah (liq) B: eab eac ead eaq eal(t)	
C <sub>15</sub> I <sub>2</sub> H <sub>30</sub>	Pentadecane, 1,1-di-iodo- (liq) B: eab ead	
C <sub>16</sub> H <sub>31</sub>	1-Hexadecene, cis-1-iodo- (liq) B: eab eac ead eaq	
	1-Hexadecene, trans-1-iodo- (liq) B: eab eac ead eaq	
C <sub>16</sub> H <sub>33</sub>	Hexadecane, 1-iodo- (c) B: eah (liq) B: eab eac ead eaq eal(t)	
C <sub>16</sub> I <sub>2</sub> H <sub>32</sub>	Hexadecane, 1,1-di-iodo- (liq) B: eab ead	
C <sub>17</sub> H <sub>33</sub>	1-Heptadecene, cis-1-iodo- (liq) B: eab eac ead eaq	
	1-Heptadecene, trans-1-iodo- (liq) B: eab eac ead eaq	
C <sub>17</sub> H <sub>35</sub>	Heptadecane, 1-iodo- (c) B: eah (liq) B: eab eac ead eaq eal(t)	
C <sub>17</sub> I <sub>2</sub> H <sub>34</sub>	Heptadecane, 1,1-di-iodo- (liq) B: eab ead	
C <sub>18</sub> H <sub>35</sub>	1-Octadecene, cis-1-iodo- (liq) B: eab eac ead eaq	
	1-Octadecene, trans-1-iodo- (liq) B: eab eac ead eaq	
C <sub>18</sub> H <sub>37</sub>	Octadecane, 1-iodo- (c) B: eah (liq) B: eab eac ead eaq eal(t)	
C <sub>18</sub> I <sub>2</sub> H <sub>36</sub>	Octadecane, 1,1-di-iodo- (liq) B: eab ead	
C <sub>19</sub> H <sub>37</sub>	1-Nonadecene, cis-1-iodo- (liq) B: eab eac ead eaq	
	1-Nonadecene, trans-1-iodo- (liq) B: eab eac ead eaq	
C <sub>19</sub> H <sub>39</sub>	Nonadecane, 1-iodo- (c) B: eah (liq) B: eab eac ead eaq eal(t)	
C <sub>19</sub> I <sub>2</sub> H <sub>38</sub>	Nonadecane, 1,1-di-iodo- (liq) B: eab ead	
C <sub>20</sub> H <sub>39</sub>	1-Eicosene, cis-1-iodo- (liq) B: eab eac ead eaq	
	1-Eicosene, trans-1-iodo- (liq) B: eab eac ead eaq	
C <sub>20</sub> H <sub>41</sub>	Eicosane, 1-iodo- (c) B: eah (liq) B: eab eac ead eaq eal(t)	
C <sub>20</sub> I <sub>2</sub> H <sub>40</sub>	Eicosane, 1,1-di-iodo- (liq) B: eab ead	
C <sub>21</sub> H <sub>43</sub>	Heneicosane, 1-iodo- (c) B: eah (liq) B: eab eac ead eaq	
C <sub>21</sub> I <sub>2</sub> H <sub>42</sub>	Heneicosane, 1,1-di-iodo- (liq) B: eab ead	



C<sub>22</sub>IH<sub>45</sub> Docosane, 1-iodo  
(c) B: eah  
(liq) B: eab eac ead eaq

C<sub>22</sub>I<sub>2</sub>H<sub>44</sub> Docosane, 1,1-di-iodo  
(liq) B: eab ead

C<sub>23</sub>IH<sub>47</sub> Tricosane, 1-iodo  
(c) B: eah  
(liq) B: eab eac ead eaq

C<sub>23</sub>I<sub>2</sub>H<sub>46</sub> Tricosane, 1,1-di-iodo  
(liq) B: eab ead

C<sub>24</sub>IH<sub>49</sub> Tetracosane, 1-iodo  
(c) B: eah  
(liq) B: eab eac ead eaq

C<sub>24</sub>I<sub>2</sub>H<sub>48</sub> Tetracosane, 1,1-di-iodo  
(liq) B: eab ead

C<sub>25</sub>IH<sub>51</sub> Pentacosane, 1-iodo  
(c) B: eah  
(liq) B: eab eac ead eaq

C<sub>25</sub>I<sub>2</sub>H<sub>50</sub> Pentacosane, 1,1-di-iodo  
(liq) B: eab ead

C<sub>26</sub>IH<sub>53</sub> Hexacosane, 1-iodo  
(c) B: eah  
(liq) B: eab eac ead eaq

C<sub>26</sub>I<sub>2</sub>H<sub>52</sub> Hexacosane, 1,1-di-iodo  
(liq) B: eab ead

C<sub>27</sub>IH<sub>55</sub> Heptacosane, 1-iodo  
(c) B: eah  
(liq) B: eab eac ead eaq

C<sub>27</sub>I<sub>2</sub>H<sub>54</sub> Heptacosane, 1,1-di-iodo  
(liq) B: eab ead

C<sub>28</sub>IH<sub>57</sub> Octacosane, 1-iodo  
(c) B: eah  
(liq) B: eab eac ead eaq

C<sub>28</sub>I<sub>2</sub>H<sub>56</sub> Octacosane, 1,1-di-iodo  
(liq) B: eab ead

C<sub>29</sub>IH<sub>59</sub> Nonacosane, 1-iodo  
(c) B: eah  
(liq) B: eab eac ead eaq

C<sub>29</sub>I<sub>2</sub>H<sub>58</sub> Nonacosane, 1,1-di-iodo  
(liq) B: eab ead

C<sub>30</sub>IH<sub>61</sub> Triacontane, 1-iodo  
(c) B: eah  
(liq) B: eab eac ead eaq

C<sub>30</sub>I<sub>2</sub>H<sub>60</sub> Triacontane, 1,1-di-iodo  
(liq) B: eab ead

C<sub>31</sub>IH<sub>63</sub> Hentriacontane, 1-iodo  
(c) B: eah  
(liq) B: eab eac ead eaq

C<sub>31</sub>I<sub>2</sub>H<sub>62</sub> Hentriacontane, 1,1-di-iodo  
(liq) B: eab ead

C<sub>32</sub>IH<sub>65</sub> Dotriacontane, 1-iodo  
(c) B: eah  
(liq) B: eab eac ead eaq

C<sub>32</sub>I<sub>2</sub>H<sub>64</sub> Dotriacontane, 1,1-di-iodo  
(liq) B: eab ead

C<sub>33</sub>IH<sub>67</sub> Tritriacontane, 1-iodo  
(c) B: eah  
(liq) B: eab eac ead eaq

C<sub>33</sub>I<sub>2</sub>H<sub>66</sub> Tritriacontane, 1,1-di-iodo  
(liq) B: eab ead

C<sub>34</sub>IH<sub>69</sub> Tetratriacontane, 1-iodo  
(c) B: eah  
(liq) B: eab eac ead eaq

C<sub>34</sub>I<sub>2</sub>H<sub>68</sub> Tetratriacontane, 1,1-di-iodo  
(liq) B: eab ead

C<sub>35</sub>IH<sub>71</sub> Pentatriacontane, 1-iodo  
(c) B: eah  
(liq) B: eab eac ead eaq

C<sub>35</sub>I<sub>2</sub>H<sub>70</sub> Pentatriacontane, 1,1-di-iodo  
(liq) B: eab ead

C<sub>36</sub>IH<sub>73</sub> Hexatriacontane, 1-iodo  
(c) B: eah  
(liq) B: eab eac ead eaq

C<sub>36</sub>I<sub>2</sub>H<sub>72</sub> Hexatriacontane, 1,1-di-iodo  
(liq) B: eab ead

C<sub>37</sub>IH<sub>75</sub> Heptatriacontane, 1-iodo  
(c) B: eah  
(liq) B: eab eac ead eaq

C<sub>37</sub>I<sub>2</sub>H<sub>74</sub> Heptatriacontane, 1,1-di-iodo  
(liq) B: eab ead

C<sub>38</sub>IH<sub>77</sub> Octatriacontane, 1-iodo  
(c) B: eah  
(liq) B: eab eac ead eaq

C<sub>38</sub>I<sub>2</sub>H<sub>76</sub> Octatriacontane, 1,1-di-iodo  
(liq) B: eab ead

C<sub>39</sub>IH<sub>79</sub> Nonatriacontane, 1-iodo  
(c) B: eah  
(liq) B: eab eac ead eaq

C<sub>39</sub>I<sub>2</sub>H<sub>78</sub> Nonatriacontane, 1,1-di-iodo  
(liq) B: eab ead

C<sub>40</sub>IH<sub>81</sub> Tetracontane, 1-iodo  
(c) B: eah  
(liq) B: eab eac ead eaq

C<sub>40</sub>I<sub>2</sub>H<sub>80</sub> Tetracontane, 1,1-di-iodo  
(liq) B: eab ead

23-12-2-1

C<sub>2</sub>IH<sub>3</sub>O Acetyl iodide  
(liq) C: eaq fab

C<sub>2</sub>IH<sub>3</sub>O<sub>2</sub> Acetic acid, iodo-  
(c) C: eah

C<sub>2</sub>IH<sub>3</sub>O Ethanol, 2-iodo-  
(liq) C: eaq

Ether, iodomethyl methyl  
(liq) C: eaq

23-12-9-2

ClF<sub>2</sub>H Methane, iododifluoro-  
(c) C: eah  
(liq) C: eaq fbj fbk

Cl<sub>2</sub>FH Methane, di-iodofluoro-  
(c) C: eah  
(liq) C: eaq fbj fbk

C<sub>2</sub>IF<sub>2</sub>H<sub>3</sub> Ethane, 1-iodo-2,2-difluoro-  
(liq) C: eaq

C<sub>2</sub>IF<sub>3</sub>H<sub>2</sub> Ethane, 1-iodo-2,2-trifluoro-  
(liq) C: eaq

23-12-9-2-1

C<sub>2</sub>IFH<sub>2</sub>O<sub>2</sub> Acetic acid, iodofluoro-  
(c) C: eah



	<b>23-12-10-1</b>	
C <sub>2</sub> ICl <sub>3</sub> O	Acetyl iodide, trichloro-	
	(liq) C: eaq	
	<b>23-12-10-2</b>	
C <sub>2</sub> IClH <sub>2</sub>	Ethene, 1-iodo-cis-2-chloro-	
	(c) C: eah	
	(liq) C: eaq	
	Ethene, 1-iodo-trans-2-chloro-	
	(c) C: eah	
	(liq) C: eaq	
	<b>23-12-10-2-1</b>	
C <sub>2</sub> IClH <sub>2</sub> O	Acetyl chloride, iodo-	
	(liq) C: eaq	
	<b>23-12-11-2</b>	
C <sub>2</sub> IBrH <sub>4</sub>	Ethane, 1-iodo-2-bromo-	
	(c) C: fab	
	<b>23-14</b>	
CS	Carbon monosulfide	
	(g) C: fac fae	
	E-XI: fac	
	E-XIII: fae(t) fai(t) fal(t)	
½(CS) <sub>n</sub>	poly-Carbon monosulfide	
	(c) C: fab	
CS <sub>2</sub>	Carbon disulfide	
	(c) C: eah fbf fbq	
	E-V: eah fbf fbq	
	E-XI: eah fae(-t) fbf	
	(liq) C: eaq faa fab fac fad fae	
	fbj fbk	
	E-III: eaq eal(-t,t) fbi(-t,t)	
	fbj(-t,t) fbk	
	E-VII: faa fab	
	E-XI: fac fae(-t)	
	(g) C: faa fab fac fad fae	
	E-VII: faa(t) fab(t)	
	E-XI: fac	
	E-XIII: fae(t) fai(t) fal(t)	
C <sub>3</sub> S <sub>2</sub>	Tricarbon disulfide (Carbon subsulfide)	
	(liq) E-III: eaq eal(-t-t) fbi(t) fbj	
	fbk	
	<b>23-14-1</b>	
CSO	Carbonyl sulfide (Carbon oxysulfide)	
	(c) C: eah fbf fbq fbh	
	E-XI: eah fae(-t) fbf	
	(liq) C: eaq fbj fbk	
	E-III: eaq eal(-t) fbi(-t) fbj	
	fbk	
	E-XI: eaq fae(-t) fbj	
	(g) C: faa fab fac fad fae	
	E-VII: faa(t) fab(t)	
	E-XI: fac fae(-t)	
	E-XIII: fae(t) fai(t) fal(t)	
	<b>23-14-2</b>	
CSH <sub>4</sub>	Methanethiol (Methyl mercaptan)	
	(c, II) C: eaj fbb fbc	

	(c, I) A: eaa eah fbf fbq	
	C: eah fbf fbq fbh	
	(liq) A: eab eac eaq eal(-t,t) eao	
	C: eaq fbj fbk	
	(g) C: faa fab fac fad fae	
CS <sub>3</sub> H <sub>2</sub>	Trithiocarbonic acid	
	(c) C: eah	
C <sub>2</sub> SH <sub>4</sub>	Thiacyclopropane (Ethylene sulfide)	
	(c) A: eah	
	(liq) A: eab eac ead eae eaq eao	
C <sub>2</sub> SH <sub>6</sub>	Ethanethiol (Ethyl mercaptan)	
	(c) A: eaa eah fbf fbq	
	C: eah	
	(liq) A: eab eac ead eae eaq eal(-t,t)	
	eao	
	C: eaq fab fbj fbk	
	2-Thiapropane (Dimethyl sulfide)	
	(c) A: eaa eah fbf fbq	
	C: eah fbf fbq fbh	
	(liq) A: eab eac ead eae eaq eal(-t,t)	
	eao	
	C: eaq faa fab fac fad fae	
	fbj fbk	
	(g) C: faa fab fac fad	
C <sub>3</sub> SH <sub>6</sub>	Thiacyclopropane, 2-methyl-	
	(c) A: eah	
	(liq) A: eab eac ead eae eaq eao	
C <sub>3</sub> SH <sub>8</sub>	1-Propanethiol (n-Propyl mercaptan)	
	(c) A: eaa eah fbf fbq	
	(liq) A: eab eac ead eae eaq eal(-t,t)	
	eao	
	2-Propanethiol (Isopropyl mercaptan)	
	(c) A: eaa eah fbf fbq	
	(liq) A: eab eac ead eae eaq eal(-t,t)	
	eao	
	2-Thiabutane (Methyl ethyl sulfide)	
	(c) A: eah fbf fbq	
	(liq) A: eab eac ead eae eaq eal(-t,t)	
	eao	
C <sub>4</sub> SH <sub>4</sub>	Thiophene	
	(c) A: eaa eah fbf fbq	
	(liq) A: eab eac ead eae eaq eal(t)	
	eao	
C <sub>4</sub> SH <sub>6</sub>	Thiacyclopentane (Tetrahydrothiophene)	
	(c) A: eah	
	(liq) A: eab eac ead eae eaq eal(t)	
	eao	
	Thiacyclopropane, 2-ethyl-	
	(liq) A: eab eac ead eaq eao	
	Thiacyclopropane, 2,2-dimethyl-	
	(liq) A: eac ead eaq	
C <sub>4</sub> SH <sub>10</sub>	1-Butanethiol (n-Butyl mercaptan)	
	(c) A: eaa eah fbf fbq	
	(liq) A: eab eac ead eae eaq eal(-t,t)	
	eao	
	2-Butanethiol (sec-Butyl mercaptan)	
	(c) A: eaa eah fbf fbq	
	(liq) A: eab eac ead eae eaq eal(-t,t)	
	eao	
	1-Propanethiol, 2-methyl- (Isobutyl mercaptan)	
	(c) A: eah	

(liq) A: eab eac ead eae eaq eal(-t,t)  
eao  
2-Propanethiol, 2-methyl- (tert-Butyl mercaptan)  
(c) A: eaa eah fbf fbq  
(liq) A: eab eac ead eae eaq eal(t)  
eao  
2-Thiabutane, 3-methyl- (Methyl isopropyl sulfide)  
(c) A: eaa eah fbf fbq  
(liq) A: eab eac ead eae eaq eal(-t,t)  
eao  
2-Thiapentane (Methyl n-propyl sulfide)  
(c) A: eaa eah fbf fbq  
(liq) A: eab eac ead eae eaq eal(-t,t)  
eao  
3-Thiapentane (Diethyl sulfide)  
(c) A: eaa eah fbf fbq  
(liq) A: eab eac ead eae eaq eal(-t,t)  
eao  
C<sub>5</sub>SH<sub>8</sub> Thiophene, 2-methyl-  
(c) A: eaa eah fbf fbq  
(liq) A: eab eac ead eae eaq eal(t)  
eao  
Thiophene, 3-methyl-  
(c) A: eaa eah fbf fbq  
(liq) A: eab eac ead eae eaq eal(t)  
eao  
C<sub>5</sub>SH<sub>10</sub> Thiacyclohexane  
(c) A: eah  
(liq) A: eab eac ead eae eaq eal(t)  
eao  
Thiacyclopentane, 2-methyl-  
(c) A: eah  
(liq) A: eab eac ead eae eaq eal(t)  
eao  
Thiacyclopentane, 3-methyl-  
(c) A: eah  
(liq) A: eab eac ead eae eaq eal(t)  
eao  
C<sub>5</sub>SH<sub>12</sub> 1-Butanethiol, 2-methyl-  
(liq) A: eab eac ead eae eaq eal(t) eao  
1-Butanethiol, 3-methyl-  
(liq) A: eab eac ead eae eaq eal(t)  
eao  
2-Butanethiol, 2-methyl-  
(c) A: eah  
(liq) A: eab eac ead eae eaq eal(-t,t)  
eao  
2-Butanethiol, 3-methyl-  
(liq) A: eab eac ead eae eaq eal(t) eao  
1-Pentanethiol  
(c) A: eaa eah fbf fbq  
(liq) A: eab eac ead eae eaq eal(t)  
eao  
2-Pentanethiol  
(c) A: eah  
(liq) A: eab eac ead eae eaq eal(t)  
eao  
3-Pentanethiol  
(c) A: eah  
(liq) A: eab eac ead eae eaq eal(t) eao

1-Propanethiol, 2,2-dimethyl-  
(c) A: eah  
(liq) A: eab eac ead eae eaq eal(t) eao  
2-Thiabutane, 3,3-dimethyl-  
(c) A: eah  
(liq) A: eab eac ead eae eaq eal(-t,t)  
eao  
2-Thiahexane  
(c) A: eah  
(liq) A: eab eac ead eae eaq eal(t)  
eao  
3-Thiahexane  
(c) A: eaa eah fbf fbq  
(liq) A: eab eac ead eae eaq eal(t)  
eao  
2-Thiapentane, 3-methyl-  
(liq) A: eab eac ead eae eaq eal(t) eao  
2-Thiapentane, 4-methyl-  
(c) A: eah  
(liq) A: eab eac ead eae eaq eal(t)  
eao  
3-Thiapentane, 2-methyl-  
(c) A: eaa eah fbf fbq  
(liq) A: eab eac ead eae eaq eal(t)  
eao  
C<sub>6</sub>SH<sub>6</sub> Benzenethiol (Thiophenol)  
(c) A: eah  
(liq) A: eab eac ead eae eaq eal(t)  
eao  
C<sub>6</sub>SH<sub>8</sub> Thiophene, 2-ethyl-  
(liq) A: eab eac ead eae eaq eao  
Thiophene, 3-ethyl-  
(c) A: eah  
(liq) A: eab eac ead eae eaq eao  
Thiophene, 2,3-dimethyl-  
(c) A: eah  
(liq) A: eab eac ead eae eaq eao  
Thiophene, 2,4-dimethyl-  
(liq) A: eab eac ead eae eaq eao  
Thiophene, 2,5-dimethyl-  
(c) A: eah  
(liq) A: eab eac ead eae eaq eao  
Thiophene, 3,4-dimethyl-  
(liq) A: eab eac ead eae eaq eao  
C<sub>6</sub>SH<sub>12</sub> Thiacyclohexane, 2-methyl-  
(c) A: eah  
(liq) A: eab eac ead eae eaq eal(t)  
eao  
Thiacyclohexane, 3-methyl-  
(c) A: eah  
(liq) A: eab eac ead eae eaq eal(t)  
eao  
Thiacyclohexane, 4-methyl-  
(c) A: eah  
(liq) A: eab eac ead eae eaq eal(t)  
eao  
Thiacyclopentane, 3-ethyl-  
(liq) A: eab eac ead eae eaq eao  
Thiacyclopentane, 2,cis-5-dimethyl-  
(c) A: eah  
(liq) A: eab eac ead eae eaq eal(t)  
eao

	Thiacyclopentane, 2,trans-5-dimethyl-						
	(c) A:	eah					
	(liq) A:	eab eac ead eae eag eal(t)					
	eao						
C <sub>6</sub> SH <sub>14</sub>	1-Hexanethiol						
	(c) A:	eah					
	(liq) A:	eab eac ead eae eag eao					
	2-Hexanethiol						
	(c) A:	eah					
	(liq) A:	eab eac ead eae eag eao					
	2-Thiaheptane						
	(c) A:	eah					
	(liq) A:	eab eac ead eae eag eal(t)					
	eao						
	3-Thiaheptane						
	(c) A:	eah					
	(liq) A:	eab eac ead eae eag eal(t)					
	eao						
	4-Thiaheptane						
	(c) A:	eah					
	(liq) A:	eab eac ead eae eag eal(t)					
	eao						
	2-Thiahexane, 3-methyl-						
	(liq) A:	eac eag					
	2-Thiahexane, 4-methyl-						
	(liq) A:	eab eac ead eag eao					
	2-Thiahexane, 5-methyl-						
	(liq) A:	eac eag					
	3-Thiahexane, 2-methyl-						
	(liq) A:	eab eac ead eae eag eal(t)					
	eao						
	3-Thiahexane, 4-methyl-						
	(liq) A:	eab eac ead eae eag eal(t)					
	eao						
	3-Thiahexane, 5-methyl-						
	(liq) A:	eab eac ead eae eag eal(t)					
	eao						
	2-Thiapentane, 3,3-dimethyl-						
	(liq) A:	eac eag					
	2-Thiapentane, 3,4-dimethyl-						
	(liq) A:	eac eag					
	2-Thiapentane, 4,4-dimethyl-						
	(liq) A:	eac eag					
	3-Thiapentane, 2,2-dimethyl-						
	(c) A:	eah					
	(liq) A:	eab eac ead eae eag eal(t)					
	eao						
	3-Thiapentane, 2,4-dimethyl-						
	(c) A:	eah					
	(liq) A:	eab eac ead eae eag eal(t)					
	eao						
C <sub>7</sub> SH <sub>8</sub>	Benzene, (1-thiaethyl)- (Methyl phenyl sulfide)						
	(liq) A:	eab eac ead eae eag eao					
	Benzenethiol, 2-methyl- (o-Methylthiophenol)						
	(c) A:	eah					
	(liq) A:	eab eac ead eag eal(t) eao					
	Benzenethiol, 3-methyl- (m-Methylthiophenol)						
	(liq) A:	eab eac ead eag eal(t) eao					
	Benzenethiol, 4-methyl- (p-Methylthiophenol)						
	(c) A:	eah					
	(liq) A:	eac eag eal(t)					

C <sub>7</sub> SH <sub>10</sub>	Thiophene, 2-methyl-3-ethyl-						
	(liq) A:	eac eag					
	Thiophene, 2-methyl-4-ethyl-						
	(c) A:	eah					
	(liq) A:	eab eac ead eag eao					
	Thiophene, 2-methyl-5-ethyl-						
	(c) A:	eah					
	(liq) A:	eab eac ead eag eao					
	Thiophene, 3-methyl-2-ethyl-						
	(liq) A:	eab eac ead eag eao					
	Thiophene, 2,3,4-trimethyl-						
	(liq) A:	eab eac ead eag eao					
	Thiophene, 2,3,5-trimethyl-						
	(liq) A:	eab eac ead eag eao					
	Thiophene, 2-isopropyl-						
	(liq) A:	eab eac ead eae eag eao					
	Thiophene, 3-isopropyl-						
	(liq) A:	eab eac ead eae eag eao					
	Thiophene, 2-propyl-						
	(liq) A:	eab eac ead eae eag eao					
	Thiophene, 3-propyl-						
	(liq) A:	eab eac ead eae eag eao					
C <sub>7</sub> SH <sub>16</sub>	1-Heptanethiol						
	(c) A:	eah					
	(liq) A:	eab eac ead eae eag eao					
	2-Heptanethiol						
	(c) A:	eah					
	(liq) A:	eab eac ead eae eag eao					
	2-Thiaoctane						
	(c) A:	eah					
	(liq) A:	eab eac ead eae eag eao					
C <sub>8</sub> SH <sub>10</sub>	Benzene, 3-methyl-(1-thiaethyl)-						
	(liq) A:	eab ead eao					
	Benzene, 4-methyl-(1-thiaethyl)-						
	(liq) A:	eab eac ead eae eag eao					
	Benzene, (1-thiapropryl)- (Ethyl phenyl sulfide)						
	(liq) A:	eab eac ead eae eag eao					
	Benzenethiol, 2-ethyl- (o-Ethylthiophenol)						
	(liq) A:	eab eac ead eag eao					
	Benzenethiol, 3-ethyl- (m-Ethylthiophenol)						
	(liq) A:	eab eac ead eag eao					
	Benzenethiol, 4-ethyl- (p-Ethylthiophenol)						
	(liq) A:	eab eac ead eag eao					
	Benzenethiol, 2,4-dimethyl-						
	(liq) A:	eac eag					
	Benzenethiol, 2,5-dimethyl-						
	(liq) A:	eac eag					
C <sub>8</sub> SH <sub>18</sub>	1-Octanethiol						
	(c) A:	eah					
	(liq) A:	eab eac ead eae eag eao					
	2-Octanethiol						
	(c) A:	eah					
	(liq) A:	eab eac ead eae eag eao					
	2-Thianonane						
	(c) A:	eah					
	(liq) A:	eab eac ead eae eag eao					
C <sub>9</sub> SH <sub>12</sub>	Benzene, 2-ethyl-(1-thiaethyl)-						
	(liq) A:	eab eac ead eag eao					
	Benzene, (2-methyl-1-thiapropryl)- (Isopropyl phenyl sulfide)						
	(liq) A:	eab eac ead eae eag eao					

Benzene, 3-methyl-(1-thiopropyl)-  
(liq) A: eab eac ead eag eao  
Benzene, 4-methyl-(1-thiopropyl)-  
(liq) A: eab eac ead eag eao  
Benzene, 2,4-dimethyl-(1-thiaethyl)-  
(liq) A: eab ead eae eao  
Benzene, (1-thiobutyl)- (n-Propyl phenyl sulfide)  
(liq) A: eab eac ead eae eag eao

**C<sub>9</sub>SH<sub>20</sub>**  
1-Nonanethiol  
(c) A: eah  
(liq) A: eab eac ead eae eag eao  
2-Nonanethiol  
(c) A: eah  
(liq) A: eab eac ead eae eag eao  
2-Thiadicane  
(c) A: eah  
(liq) A: eab eac ead eae eag eao

**C<sub>10</sub>SH<sub>22</sub>**  
1-Decanethiol  
(c) A: eah  
(liq) A: eab eac ead eae eag eao  
2-Decanethiol  
(c) A: eah  
(liq) A: eab eac ead eae eag eao  
1-Undecanethiol  
(c) A: eah  
(liq) A: eab eac ead eae eag eao  
2-Undecanethiol  
(c) A: eah  
(liq) A: eab eac ead eae eag eao

**C<sub>12</sub>SH<sub>26</sub>**  
1-Dodecanethiol  
(c) A: eah  
(liq) A: eab eac ead eae eag eao  
2-Dodecanethiol  
(c) A: eah  
(liq) A: eab eac ead eae eag eao  
2-Thiatriacontane  
(c) A: eah  
(liq) A: eab eac ead eae eag eao

**C<sub>13</sub>SH<sub>28</sub>**  
2-Thiatriacontane  
(c) A: eah  
(liq) A: eab eac ead eae eag eao  
1-Tridecanethiol  
(c) A: eah  
(liq) A: eab eac ead eae eag eao  
2-Tridecanethiol  
(c) A: eah  
(liq) A: eab eac ead eae eag eao

**C<sub>14</sub>SH<sub>30</sub>**  
1-Tetradecanethiol  
(c) A: eah  
(liq) A: eab eac ead eae eag eao  
2-Tetradecanethiol  
(c) A: eah  
(liq) A: eab eac ead eae eag eao  
2-Thiapentadecane  
(c) A: eah  
(liq) A: eab eac ead eae eag eao

**C<sub>15</sub>SH<sub>32</sub>**  
1-Pentadecanethiol  
(c) A: eah  
(liq) A: eab eac ead eae eag eao

2-Pentadecanethiol  
(c) A: eah  
(liq) A: eab eac ead eae eag eao  
2-Thiahexadecane  
(c) A: eah  
(liq) A: eab eac ead eae eag eao

**C<sub>16</sub>SH<sub>34</sub>**  
1-Hexadecanethiol  
(c) A: eah  
(liq) A: eab eac ead eae eag eao  
2-Hexadecanethiol  
(c) A: eah  
(liq) A: eab eac ead eae eag eao  
2-Thiaheptadecane  
(c) A: eah  
(liq) A: eab eac ead eae eag eao

**C<sub>17</sub>SH<sub>36</sub>**  
1-Heptadecanethiol  
(c) A: eah  
(liq) A: eab eac ead eae eag eao  
2-Thiaundecane  
(c) A: eah  
(liq) A: eab eac ead eae eag eao

**C<sub>11</sub>SH<sub>24</sub>**  
2-Thiadodecane  
(liq) A: eab eac ead eae eag eao  
2-Heptadecanethiol  
(c) A: eah  
(liq) A: eab eac ead eae eag eao  
2-Thiaoctadecane  
(c) A: eah  
(liq) A: eab eac ead eae eag eao

**C<sub>18</sub>SH<sub>38</sub>**  
1-Octadecanethiol  
(c) A: eah  
(liq) A: eab eac ead eae eag eao  
2-Octadecanethiol  
(c) A: eah  
(liq) A: eab eac ead eae eag eao  
2-Thiamonadecane  
(c) A: eah  
(liq) A: eab eac ead eae eag eao

**C<sub>19</sub>SH<sub>40</sub>**  
1-Nonadecanethiol  
(c) A: eah  
(liq) A: eab eac ead eae eag eao  
2-Nonadecanethiol  
(c) A: eah  
(liq) A: eab eac ead eae eag eao  
2-Thiaicosane  
(c) A: eah  
(liq) A: eab eac ead eae eag eao

**C<sub>20</sub>SH<sub>42</sub>**  
1-Eicosanethiol  
(c) A: eah  
(liq) A: eab eac ead eae eag eao  
2-Eicosanethiol  
(c) A: eah  
(liq) A: eab eac ead eae eag eao  
2-Thiaheicosane  
(c) A: eah  
(liq) A: eab eac ead eae eag eao

**23-14-2-1**  
**C<sub>2</sub>SH<sub>6</sub>O**  
Dimethyl sulfoxide  
(c) C: eah  
(liq) C: eag fab fbj fbk

**CARBON**

**Z3-14-2-1** C<sub>2</sub>SH<sub>6</sub>O<sub>2</sub>

C<sub>2</sub>SH<sub>6</sub>O<sub>2</sub> Dimethyl sulfone  
(c) C: eah fab  
(liq) C: eaq

C<sub>2</sub>SH<sub>6</sub>O<sub>3</sub> Dimethyl sulfite  
(liq) C: eaq

C<sub>2</sub>SH<sub>6</sub>O<sub>4</sub> Ethylsulfuric acid  
(c) C: eah  
(aq) C: fab

C<sub>2</sub>SH<sub>6</sub>O<sub>4</sub>·H<sub>2</sub>O Ethylsulfuric acid monohydrate  
(c) C: eah

C<sub>2</sub>SH<sub>6</sub>O<sub>4</sub> Dimethyl sulfate  
(c) C: eah  
(liq) C: eaq

**23-14-9-2-1**

C<sub>2</sub>SF<sub>6</sub>O<sub>3</sub> Ethyl fluorosulfate (Ethyl fluorosulfonate)  
(liq) C: eaq fbj fbk

**23-14-10**

CSCl<sub>2</sub> Thiocarbonyl chloride (Carbon sulfochloride)  
(g) C: fac fae  
E-XI: fac  
E-XIII: fae(t) fai(t) fal(t)

**23-14-10-2-1**

C<sub>2</sub>SCI<sub>2</sub>O<sub>3</sub> Ethyl chlorosulfate (Ethyl chlorosulfonate)  
(liq) C: eaq

**23-14-11-2**

C<sub>2</sub>SB<sub>2</sub>H<sub>4</sub> Bis(bromomethyl) sulfide  
(liq) C: eaq fbj fbk

**23-15**

CSe Carbon monoselenide  
(g) E-XIII: fae(t) fai(t) fal(t)

CSe<sub>2</sub> Carbon diselenide  
(c) C: eah  
(liq) C: eaq fab fbj fbk  
(g) E-XIII: fae(t) fai(t) fal(t)

**23-15-1**

CSeO Carbonyl selenide (Carbon oxyselenide)  
(c) C: eah  
(liq) C: eaq fbj fbk

**23-15-2**

C<sub>2</sub>SeH<sub>6</sub> Dimethyl selenide  
(liq) C: eaq

**23-15-2-1**

C<sub>2</sub>SeH<sub>6</sub>O<sub>4</sub> Dimethyl selenate  
(liq) C: eaq

**23-15-14**

CSeS Thiocarbonyl selenide (Carbon selenosulfide)  
(c) C: eah  
(liq) C: eaq fbj fbk  
E-III: eaq eal(-t) fbi(t) fbj(t)  
fbk  
(g) E-XIII: fae(t) fai(t) fal(t)

**23-16-2**

C<sub>2</sub>TeH<sub>6</sub> Dimethyl telluride  
(liq) C: eaq

**23-16-9-2**

C<sub>2</sub>TeF<sub>2</sub>H<sub>6</sub> Dimethyltellurium difluoride  
(c) C: eah

**23-16-10-2**

C<sub>2</sub>TeCl<sub>2</sub>H<sub>6</sub> Dimethyltellurium dichloride  
(c) C: eah

**23-16-11-2**

C<sub>2</sub>TeBr<sub>2</sub>H<sub>6</sub> Dimethyltellurium dibromide  
(c) C: eah

**23-16-12-2**

C<sub>2</sub>TeI<sub>2</sub>H<sub>6</sub> Dimethyltellurium di-iodide  
(c) C: eah

**23-16-14**

CTeS Thiocarbonyl telluride (Carbon tellurosulfide)  
(c) C: eah  
(g) E-XIII: fae(t) fai(t) fal(t)

**23-18**

CN Carbon mononitride  
(g) C: fac fae  
E-XI: fac  
E-XIII: fae(t) fai(t) fal(t)

CN<sup>-</sup> Cyanide ion  
(aq) C: faa fab fac fad  
E-XI: fac

CN<sub>4</sub> Cyanogen azide  
(c) C: fab

h(CN<sub>4</sub>)<sub>n</sub> poly-Cyanogen azide  
(c) C: fab

C<sub>2</sub>N<sub>2</sub> Cyanogen  
(c) C: eah fbj fbj fbh  
E-III: eal(-t) fbm(-t) fbn  
E-V: eah fbj fbj  
E-XI: eah fae(-t) fbj  
(liq) C: eaq fbj fbk  
E-III: eaq eal(-t) fbi(-t) fbj fbk  
E-XI: eaq fbj  
(g) C: faa fab fac fad fae  
E-XI: fac fae  
E-XIII: fae(t) fai(t) fal(t)

**23-18-1**

CNO<sup>-</sup> Cyanate ion  
(aq) C: faa fab fac fad  
E-XI: fac

**23-18-2**

CN<sub>4</sub>O<sub>8</sub> Methane, tetranitro-  
(c) C: eah  
(liq) C: eaq fab fbj fbk

		23-18-2							
CNH	Hydrogen cyanide								
(c, II)	C:	eah	fbf	fbf					
	E-XI:	eah	fae(-t)	fbf					
(c, I)	B:	eah							
	C:	eah	fbf	fbg	fbh				
	E-III:	eal(-t)	fbm(-t)	fbn					
	E-V:	eah	fbf	fbg					
	E-XI:	eah	fae(-t)	fbf					
(liq)	B:	eab	eac	ead	eaq				
	C:	eaq	faa	fab	fac	fad	fae		
		fbj	fbk						
	E-III:	eaq	eal(-t,t)		fbj(-t,t)				
		fbj	fbk						
	E-XI:	eaq	fac	fae	fbj				
(g)	C:	faa	fab	fac	fad	fae			
	E-XI:	fac							
	E-XIII:	fae(t,+t)	fae(t,+t)	fae(t,+t)	fae(t,+t)				
(aq)	C:	faa	fab	fac	fad				
	E-XI:	fac							
CN <sup>2</sup> H	Deuterium cyanide								
(g)	E-XI:	fac							
	E-XIII:	fae(t,+t)	fae(t,+t)	fae(t,+t)	fae(t,+t)				
CN <sup>3</sup> H	Tritium cyanide								
(g)	E-XIII:	fae(t,+t)	fae(t,+t)	fae(t,+t)	fae(t,+t)				
CNH <sub>2</sub>	Methane, amino-								
(c)	B:	eah							
	C:	eah	fbf	fbg					
(liq)	B:	eab	eac	ead	eaq	eal(-t,t)			
	C:	eaq	fbj	fbk					
(g)	C:	faa	fab	fac	fad	fae			
(aq)	C:	fab							
CNH <sub>3</sub> <sup>+</sup>	Methylammonium ion								
(aq)	C:	fab							
CN <sub>2</sub> H <sub>2</sub>	Cyanamide								
(c)	C:	eah	fab	fbf	fbg				
(aq)	C:	fab							
CN <sub>2</sub> H <sub>4</sub>	Ammonium cyanide								
(c)	C:	fab	fae						
(aq)	C:	fab							
CN <sub>3</sub> H <sub>2</sub>	Guanidine								
(c)	C:	fab							
(aq)	C:	fab							
CN <sub>3</sub> H <sub>3</sub> <sup>+</sup>	Guanidinium ion								
(aq)	C:	fab							
C <sub>2</sub> NH <sub>2</sub>	Ethanenitrile (Acetonitrile)								
(c)	B:	eah							
	C:	eah	fbf	fbg					
(liq)	B:	eab	eac	ead	eaq				
	C:	eaq	faa	fab	fac	fad	fbj		
		fbk							
(g)	C:	faa	fab	fac	fad	fae			
	Methyl isocyanide								
(c)	B:	eah							
(liq)	B:	eab	eac	ead	eaq				
	C:	fab							
(g)	C:	faa	fab	fac	fad	fae			
C <sub>2</sub> NH <sub>7</sub>	Ethane, amino-								
(c)	B:	eah							
	C:	eah							
(liq)	B:	eab	eac	ead	eaq	eal(-t,t)			
	C:	eaq	fbj	fbk	fbj				
	(g)	C:	fab	fae					
	(aq)	C:	fab						
	Dimethylamine								
(c)	B:	eah							
	C:	eah	fbf	fbg	fbh				
(liq)	B:	eab	eac	ead	eaq				
	C:	eaq	fbj	fbk	fbj				
(g)	C:	faa	fab	fac	fad				
(aq)	C:	fab							
C <sub>2</sub> NH <sub>5</sub> <sup>+</sup>	Ethylammonium ion								
(aq)	C:	fab							
	Dimethylammonium ion								
(aq)	C:	fab							
C <sub>2</sub> N <sub>2</sub> H <sub>6</sub>	1,2-Ethanediamine								
(c)	C:	eah	fbf	fbg					
(liq)	C:	eaq	fab	fbj	fbk				
(aq)	C:	fab							
C <sub>2</sub> N <sub>2</sub> H <sub>6</sub> ·H <sub>2</sub> O	1,2-Ethanediamine monohydrate								
(c)	C:	fab							
C <sub>2</sub> N <sub>2</sub> H <sub>8</sub>	Hydrazine, 1,1-dimethyl-								
(liq)	C:	eaq							
	Hydrazine, 1,2-dimethyl-								
(liq)	C:	eaq							
C <sub>2</sub> N <sub>4</sub> H <sub>4</sub>	Dicyandiamide								
(c)	C:	fab	fae						
(aq)	C:	fab							
C <sub>3</sub> NH <sub>2</sub>	Ethyl isocyanide								
(liq)	B:	eab	eac	ead	eaq				
	Propanenitrile								
(c)	B:	eah							
(liq)	B:	eab	eac	ead	eaq				
C <sub>3</sub> NH <sub>3</sub>	Ethylamine, N-methyl-								
(liq)	B:	eab	eac	ead	eaq				
	Trimethylamine								
(c)	B:	eah							
(liq)	B:	eab	eac	ead	eaq				
	Propane, 1-amino-								
(c)	B:	eah							
(liq)	B:	eab	eac	ead	eaq	eal(-t,t)			
	Propane, 2-amino-								
(c)	B:	eah							
(liq)	B:	eab	eac	ead	eaq				
C <sub>4</sub> NH <sub>7</sub>	Butanenitrile								
(c)	B:	eah							
(liq)	B:	eab	eac	ead	eaq				
	Propanenitrile, 2-methyl-								
(c)	B:	eah							
(liq)	B:	eab	eac	ead	eaq				
	Isopropyl isocyanide								
(liq)	B:	eab	eac	ead	eaq				
	n-Propyl isocyanide								
(liq)	B:	eab	eac	ead	eaq				
C <sub>4</sub> NH <sub>11</sub>	Butane, 1-amino-								
(c)	B:	eah							
(liq)	B:	eab	eac	ead	eaq	eal(-t,t)			
	Butane, 2-amino-								
(c)	B:	eah							
(liq)	B:	eab	eac	ead	eaq				
	Diethylamine								
(c)	B:	eah							
(liq)	B:	eab	eac	ead	eaq				

Ethylamine, N,N-dimethyl-  
(liq) B: eab eac ead eaq  
Propane, 1-amino-2-methyl-  
(c) B: eah  
(liq) B: eab eac ead eaq  
Propane, 2-amino-2-methyl-  
(c) B: eah  
(liq) B: eab eac ead eaq  
Isopropylamine, N-methyl-  
(liq) B: eab ead  
n-Propylamine, N-methyl-  
(liq) B: eab eac ead eaq  
C<sub>5</sub>NH<sub>6</sub> Butanenitrile, 2-methyl-  
(liq) B: eab eac ead eaq  
Butanenitrile, 3-methyl-  
(c) B: eah  
(liq) B: eab eac ead eaq  
Isobutyl isocyanide  
(liq) B: eab eac ead eaq  
n-Butyl isocyanide  
(liq) B: eab eac ead eaq  
sec-Butyl isocyanide  
(liq) B: eab ead  
tert-Butyl isocyanide  
(liq) B: eab eac ead eaq  
Pentanenitrile  
(c) B: eah  
(liq) B: eab eac ead eaq  
Propanenitrile, 2,2-dimethyl-  
(c) B: eah  
(liq) B: eab eac ead eaq  
C<sub>5</sub>NH<sub>13</sub> Butane, 1-amino-2-methyl-  
(liq) B: eab eac ead eaq  
Butane, 1-amino-3-methyl-  
(liq) B: eab eac ead eaq  
Butane, 2-amino-2-methyl-  
(liq) B: eab eac ead eaq  
Butane, 2-amino-3-methyl-  
(liq) B: eab eac ead eaq  
Isobutylamine, N-methyl-  
(liq) B: eab eac ead eaq  
n-Butylamine, N-methyl-  
(c) B: eah  
(liq) B: eab eac ead eaq  
sec-Butylamine, N-methyl-  
(liq) B: eab eac ead eaq  
tert-Butylamine, N-methyl-  
(liq) B: eab ead  
Diethylamine, N-methyl-  
(liq) B: eab eac ead eaq  
Pentane, 1-amino-  
(c) B: eah  
(liq) B: eab eac ead eaq eal(t)  
Pentane, 2-amino-  
(liq) B: eab eac ead eaq  
Pentane, 3-amino-  
(liq) B: eab eac ead eaq  
Propane, 1-amino-2,2-dimethyl-  
(c) B: eah  
(liq) B: eab eac ead eaq  
Isopropylamine, N-ethyl-  
(liq) B: eab eac ead eaq

Isopropylamine, N,N-dimethyl-  
(liq) B: eab ead  
n-Propylamine, N-ethyl-  
(liq) B: eab eac ead eaq  
n-Propylamine, N,N-dimethyl-  
(liq) B: eab eac ead eaq  
C<sub>6</sub>NH<sub>11</sub> Butanenitrile, 2-ethyl-  
(liq) B: eab eac ead eaq  
Butanenitrile, 2,2-dimethyl-  
(liq) B: eab eac ead eaq  
Butanenitrile, 2,3-dimethyl-  
(liq) B: eab eac ead eaq  
Butanenitrile, 3,3-dimethyl-  
(c) B: eah  
(liq) B: eab eac ead eaq  
Hexanenitrile  
(c) B: eah  
(liq) B: eab eac ead eaq  
Pentanenitrile, 2-methyl-  
(liq) B: eab eac ead eaq  
Pentanenitrile, 3-methyl-  
(liq) B: eab eac ead eaq  
Pentanenitrile, 4-methyl-  
(c) B: eah  
(liq) B: eab eac ead eaq  
C<sub>6</sub>NH<sub>15</sub> Butane, 1-amino-2-ethyl-  
(liq) B: eab ead  
Butane, 1-amino-2,2-dimethyl-  
(liq) B: eab eac ead eaq  
Butane, 1-amino-2,3-dimethyl-  
(liq) B: eab eac ead eaq  
Butane, 1-amino-3,3-dimethyl-  
(liq) B: eab ead  
Butane, 2-amino-2,3-dimethyl-  
(liq) B: eab ead  
Butane, 2-amino-3,3-dimethyl-  
(liq) B: eab eac ead eaq  
Butylamine, N-methyl-1-methyl-  
(liq) B: eab ead  
Butylamine, N-methyl-2-methyl-  
(liq) B: eab ead  
Butylamine, N-methyl-3-methyl-  
(liq) B: eab eac ead eaq  
Isobutylamine, N-ethyl-  
(liq) B: eab eac ead eaq  
Isobutylamine, N,N-dimethyl-  
(liq) B: eab ead  
n-Butylamine, N-ethyl-  
(liq) B: eab eac ead eaq  
n-Butylamine, N,N-dimethyl-  
(liq) B: eab eac ead eaq  
sec-Butylamine, N-ethyl-  
(liq) B: eab eac ead eaq  
sec-Butylamine, N,N-dimethyl-  
(liq) B: eab ead  
tert-Butylamine, N-ethyl-  
(liq) B: eab ead  
tert-Butylamine, N,N-dimethyl-  
(liq) B: eab ead  
Triethylamine  
(c) B: eah  
(liq) B: eab eac ead eaq

Hexane, 1-amino-  
(c) B: eah  
(liq) B: eab eac ead eaq eal(t)

Hexane, 2-amino-  
(c) B: eah  
(liq) B: eab eac ead eaq

Hexane, 3-amino-  
(liq) B: eab ead

Pentane, 1-amino-2-methyl-  
(liq) B: eab ead

Pentane, 1-amino-3-methyl-  
(liq) B: eab ead

Pentane, 1-amino-4-methyl-  
(c) B: eah  
(liq) B: eab eac ead eaq

Pentane, 2-amino-2-methyl-  
(liq) B: eab eac ead eaq

Pentane, 2-amino-3-methyl-  
(liq) B: eab ead

Pentane, 2-amino-4-methyl-  
(liq) B: eab eac ead eaq

Pentane, 3-amino-2-methyl-  
(liq) B: eab ead

Pentane, 3-amino-3-methyl-  
(liq) B: eab eac ead eaq

n-Pentylamine, N-methyl-  
(liq) B: eab eac ead eaq

Di-isopropylamine  
(liq) B: eab eac ead eaq

Isopropylamine, N-methyl-N-ethyl-  
(liq) B: eab ead

Isopropylamine, N-n-propyl-  
(liq) B: eab eac ead eaq

Di-n-propylamine  
(c) B: eah  
(liq) B: eab eac ead eaq

n-Propylamine, N-methyl-N-ethyl-  
(liq) B: eab eac ead eaq

Propylamine, N-methyl-1-ethyl-  
(liq) B: eab ead

Propylamine, N-methyl-1,1-dimethyl-  
(liq) B: eab ead

Propylamine, N-methyl-1,2-dimethyl-  
(liq) B: eab ead

Propylamine, N-methyl-2,2-dimethyl-  
(liq) B: eab ead

**C<sub>7</sub>NH<sub>13</sub>** Heptanenitrile  
(c) B: eah  
(liq) B: eab eac ead eaq

**C<sub>7</sub>NH<sub>17</sub>** Butylamine, N,N-dimethyl-1-methyl- (Dimethyl-2-pentylamine)  
(liq) B: eab eac ead eaq

Butylamine, N,N-dimethyl-2-methyl-  
(liq) B: eab ead

Butylamine, N,N-dimethyl-3-methyl-  
(liq) B: eab eac ead eaq

Isobutylamine, N-methyl-N-ethyl-  
(liq) B: eab eac ead eaq

n-Butylamine, N-methyl-N-ethyl-  
(liq) B: eab eac ead eaq

sec-Butylamine, N-methyl-N-ethyl-  
(liq) B: eab eac ead eaq

tert-Butylamine, N-methyl-N-ethyl-  
(liq) B: eab eac ead eaq

Heptane, 1-amino-  
(c) B: eah  
(liq) B: eab eac ead eaq eal(t)

n-Hexylamine, N-methyl-  
(c) B: eah  
(liq) B: eab eac ead eaq

n-Pentylamine, N-ethyl-  
(liq) B: eab eac ead eaq

n-Pentylamine, N,N-dimethyl-  
(liq) B: eab eac ead eaq

Di-isopropylamine, N-methyl-  
(liq) B: eab eac ead eaq

Isopropylamine, N,N-diethyl-  
(liq) B: eab eac ead eaq

Isopropylamine, N-methyl-N-propyl-  
(liq) B: eab ead

Di-n-propylamine, N-methyl-  
(liq) B: eab eac ead eaq

n-Propylamine, N,N-diethyl-  
(liq) B: eab eac ead eaq

Propylamine, N,N-dimethyl-1-ethyl- (Dimethyl-3-pentylamine)  
(liq) B: eab eac ead eaq

Propylamine, N,N-dimethyl-1,1-dimethyl-  
(liq) B: eab eac ead eaq

Propylamine, N,N-dimethyl-1,2-dimethyl-  
(liq) B: eab ead

Propylamine, N,N-dimethyl-2,2-dimethyl-  
(liq) B: eab ead

**C<sub>8</sub>NH<sub>15</sub>** Octanenitrile  
(c) B: eah  
(liq) B: eab eac ead eaq

**C<sub>8</sub>NH<sub>19</sub>** Di-n-butylamine  
(c) B: eah  
(liq) B: eab eac ead eaq

n-Butylamine, N,N-diethyl-  
(liq) B: eab eac ead eaq

n-Heptylamine, N-methyl-  
(liq) B: eab eac ead eaq

n-Hexylamine, N-ethyl-  
(liq) B: eab eac ead eaq

n-Hexylamine, N,N-dimethyl-  
(liq) B: eab eac ead eaq

Octane, 1-amino-  
(c) B: eah  
(liq) B: eab eac ead eaq eal(t)

**C<sub>9</sub>NH<sub>17</sub>** Nonanenitrile  
(c) B: eah  
(liq) B: eab eac ead eaq

**C<sub>9</sub>NH<sub>21</sub>** n-Heptylamine, N-ethyl-  
(liq) B: eab eac ead eaq

n-Heptylamine, N,N-dimethyl-  
(liq) B: eab eac ead eaq

Nonane, 1-amino-  
(c) B: eah  
(liq) B: eab eac ead eaq eal(t)

n-Octylamine, N-methyl-  
(c) B: eah  
(liq) B: eab eac ead eaq



	n-Pentylamine, N,N-diethyl				
	(liq) B: eab eac ead eaq				
	Tri-n-propylamine				
	(c) B: eah				
	(liq) B: eab eac ead eaq				
C <sub>10</sub> NH <sub>19</sub>	Decanenitrile				
	(c) B: eah				
	(liq) B: eab eac ead eaq				
C <sub>10</sub> NH <sub>23</sub>	Decane, 1-amino-				
	(c) B: eah				
	(liq) B: eab eac ead eaq	eal(t)			
	n-Hexylamine, N,N-diethyl-				
	(liq) B: eab eac ead eaq				
	n-Nonylamine, N-methyl-				
	(liq) B: eab eac ead eaq				
	n-Octylamine, N-ethyl-				
	(liq) B: eab eac ead eaq				
	n-Octylamine, N,N-dimethyl-				
	(c) B: eah				
	(liq) B: eab eac ead eaq				
	Di-n-pentylamine				
	(c) B: eah				
	(liq) B: eab eac ead eaq				
C <sub>11</sub> NH <sub>21</sub>	Undecanenitrile				
	(c) B: eah				
	(liq) B: eab eac ead eaq				
C <sub>11</sub> NH <sub>25</sub>	n-Decylamine, N-methyl-				
	(c) B: eah				
	(liq) B: eab eac ead eaq				
	n-Heptylamine, N,N-diethyl-				
	(liq) B: eab eac ead eaq				
	n-Nonylamine, N-ethyl-				
	(liq) B: eab eac ead eaq				
	n-Nonylamine, N,N-dimethyl-				
	(liq) B: eab eac ead eaq				
	Undecane, 1-amino-				
	(c) B: eah				
	(liq) B: eab eac ead eaq	eal(t)			
C <sub>12</sub> NH <sub>23</sub>	Dodecanenitrile				
	(c) B: eah				
	(liq) B: eab eac ead eaq				
C <sub>12</sub> NH <sub>27</sub>	Tri-n-butylamine				
	(liq) B: eab eac ead eaq				
	n-Decylamine, N-ethyl-				
	(liq) B: eab eac ead eaq				
	n-Decylamine, N,N-dimethyl-				
	(c) B: eah				
	(liq) B: eab eac ead eaq				
	Dodecane, 1-amino-				
	(c) B: eah				
	(liq) B: eab eac ead eaq	eal(t)			
	Di-n-hexylamine				
	(c) B: eah				
	(liq) B: eab eac ead eaq				
	n-Octylamine, N,N-diethyl-				
	(liq) B: eab eac ead eaq				
	n-Undecylamine, N-methyl-				
	(liq) B: eab eac ead eaq				
C <sub>13</sub> NH <sub>25</sub>	Tridecanenitrile				
	(c) B: eah				
	(liq) B: eab eac ead eaq				
C <sub>13</sub> NH <sub>29</sub>	n-Dodecylamine, N-methyl-				
	(c) B: eah				
	(liq) B: eab eac ead eaq				
	n-Nonylamine, N,N-diethyl-				
	(liq) B: eab eac ead eaq				
	Tridecane, 1-amino-				
	(c) B: eah				
	(liq) B: eab eac ead eaq	eal(t)			
	n-Undecylamine, N-ethyl-				
	(liq) B: eab eac ead eaq				
	n-Undecylamine, N,N-dimethyl-				
	(liq) B: eab eac ead eaq				
C <sub>14</sub> NH <sub>27</sub>	Tetradecanenitrile				
	(c) B: eah				
	(liq) B: eab eac ead eaq				
C <sub>14</sub> NH <sub>31</sub>	n-Decylamine, N,N-diethyl-				
	(liq) B: eab eac ead eaq				
	n-Dodecylamine, N-ethyl-				
	(liq) B: eab eac ead eaq				
	n-Dodecylamine, N,N-dimethyl-				
	(c) B: eah				
	(liq) B: eab eac ead eaq				
	Di-n-heptylamine				
	(c) B: eah				
	(liq) B: eab eac ead eaq				
	Tetradecane, 1-amino-				
	(c) B: eah				
	(liq) B: eab eac ead eaq	eal(t)			
	n-Tridecylamine, N-methyl-				
	(liq) B: eab eac ead eaq				
C <sub>15</sub> NH <sub>29</sub>	Pentadecanenitrile				
	(c) B: eah				
	(liq) B: eab eac ead eaq				
C <sub>15</sub> NH <sub>33</sub>	Pentadecane, 1-amino-				
	(c) B: eah				
	(liq) B: eab eac ead eaq	eal(t)			
	Tri-n-pentylamine				
	(liq) B: eab eac ead eaq				
	n-Tetradecylamine, N-methyl-				
	(c) B: eah				
	(liq) B: eab eac ead eaq				
	n-Tridecylamine, N-ethyl-				
	(liq) B: eab eac ead eaq				
	n-Tridecylamine, N,N-dimethyl-				
	(liq) B: eab eac ead eaq				
	n-Undecylamine, N,N-diethyl-				
	(liq) B: eab eac ead eaq				
C <sub>16</sub> NH <sub>31</sub>	Hexadecanenitrile				
	(c) B: eah				
	(liq) B: eab eac ead eaq				
C <sub>16</sub> NH <sub>35</sub>	n-Dodecylamine, N,N-diethyl-				
	(liq) B: eab eac ead eaq				
	Hexadecane, 1-amino-				
	(c) B: eah				
	(liq) B: eab eac ead eaq	eal(t)			
	Di-n-octylamine				
	(c) B: eah				
	(liq) B: eab eac ead eaq				
	n-Pentadecylamine, N-methyl-				
	(liq) B: eab eac ead eaq				
	n-Tetradecylamine, N-ethyl-				
	(liq) B: eab eac ead eaq				

n-Tetradecylamine, N,N-dimethyl-  
(c) B: eah  
(liq) B: eab eac ead eaq  
C<sub>17</sub>NH<sub>33</sub> Heptadecanenitrile  
(c) B: eah  
(liq) B: eab eac ead eaq  
C<sub>17</sub>NH<sub>37</sub> Heptadecane, 1-amino-  
(c) B: eah  
(liq) B: eab eac ead eaq eal(t)  
n-Hexadecylamine, N-methyl-  
(c) B: eah  
(liq) B: eab eac ead eaq  
n-Pentadecylamine, N-ethyl-  
(liq) B: eab eac ead eaq  
n-Pentadecylamine, N,N-dimethyl-  
(liq) B: eab eac ead eaq  
n-Tridecylamine, N,N-diethyl-  
(liq) B: eab eac ead eaq  
C<sub>18</sub>NH<sub>35</sub> Octadecanenitrile  
(c) B: eah  
(liq) B: eab eac ead eaq  
C<sub>18</sub>NH<sub>39</sub> n-Heptadecylamine, N-methyl-  
(liq) B: eab eac ead eaq  
n-Hexadecylamine, N-ethyl-  
(liq) B: eab eac ead eaq  
n-Hexadecylamine, N,N-dimethyl-  
(c) B: eah  
(liq) B: eab eac ead eaq  
Tri-n-hexylamine  
(liq) B: eab eac ead eaq  
Di-n-nonylamine  
(c) B: eah  
(liq) B: eab eac ead eaq  
Octadecane, 1-amino-  
(c) B: eah  
(liq) B: eab eac ead eaq eal(t)  
n-Tetradecylamine, N,N-diethyl-  
(liq) B: eab eac ead eaq  
C<sub>19</sub>NH<sub>37</sub> Nonadecanenitrile  
(c) B: eah  
(liq) B: eab eac ead eaq  
C<sub>19</sub>NH<sub>41</sub> n-Heptadecylamine, N-ethyl-  
(liq) B: eab eac ead eaq  
n-Heptadecylamine, N,N-dimethyl-  
(liq) B: eab eac ead eaq  
(c) B: eah  
(liq) B: eab eac ead eaq eal(t)  
n-Octadecylamine, N-methyl-  
(c) B: eah  
(liq) B: eab eac ead eaq  
n-Pentadecylamine, N,N-diethyl-  
(liq) B: eab eac ead eaq  
C<sub>20</sub>NH<sub>39</sub> Eicosanenitrile  
(c) B: eah  
(liq) B: eab eac ead eaq  
C<sub>20</sub>NH<sub>43</sub> Di-n-decylamine  
(c) B: eah  
(liq) B: eab eac ead eaq  
Eicosane, 1-amino-  
(c) B: eah  
(liq) B: eab eac ead eaq eal(t)

n-Hexadecylamine, N,N-diethyl-  
(c) B: eah  
(liq) B: eab eac ead eaq  
n-Nonadecylamine, N-methyl-  
(liq) B: eab eac ead eaq  
n-Octadecylamine, N-ethyl-  
(liq) B: eab eac ead eaq  
n-Octadecylamine, N,N-dimethyl-  
(c) B: eah  
(liq) B: eab eac ead eaq  
C<sub>21</sub>NH<sub>41</sub> Heneicosanenitrile  
(c) B: eah  
(liq) B: eab eac ead eaq  
C<sub>21</sub>NH<sub>45</sub> n-Eicosylamine, N-methyl-  
(c) B: eah  
(liq) B: eab eac ead eaq  
Heneicosane, 1-amino-  
(c) B: eah  
(liq) B: eab eac ead eaq  
n-Heptadecylamine, N,N-diethyl-  
(liq) B: eab eac ead eaq  
Tri-n-heptylamine  
(liq) B: eab eac ead eaq  
n-Nonadecylamine, N-ethyl-  
(liq) B: eab eac ead eaq  
n-Nonadecylamine, N,N-dimethyl-  
(liq) B: eab eac ead eaq  
C<sub>22</sub>NH<sub>47</sub> Docosane, 1-amino-  
(c) B: eah  
(liq) B: eab eac ead eaq  
n-Eicosylamine, N-ethyl-  
(liq) B: eab eac ead eaq  
n-Eicosylamine, N,N-dimethyl-  
(c) B: eah  
(liq) B: eab eac ead eaq  
n-Heneicosylamine, N-methyl-  
(liq) B: eab eac ead eaq  
n-Octadecylamine, N,N-diethyl-  
(liq) B: eab eac ead eaq  
Di-n-undecylamine  
(c) B: eah  
(liq) B: eab eac ead eaq  
C<sub>23</sub>NH<sub>49</sub> n-Docosylamine, N-methyl-  
(c) B: eah  
(liq) B: eab eac ead eaq  
n-Heneicosylamine, N-ethyl-  
(liq) B: eab eac ead eaq  
n-Heneicosylamine, N,N-dimethyl-  
(liq) B: eab eac ead eaq  
n-Nonadecylamine, N,N-diethyl-  
(liq) B: eab eac ead eaq  
Tricosane, 1-amino-  
(c) B: eah  
(liq) B: eab eac ead eaq  
C<sub>24</sub>NH<sub>51</sub> n-Docosylamine, N-ethyl-  
(liq) B: eab eac ead eaq  
n-Docosylamine, N,N-dimethyl-  
(c) B: eah  
(liq) B: eab eac ead eaq  
Di-n-dodecylamine  
(c) B: eah  
(liq) B: eab eac ead eaq

	n-Eicosylamine, N,N-diethyl-		n-Tetracosylamine, N,N-diethyl-
	(liq) B: eab eac ead eaq		(liq) B: eab eac ead eaq
	Tri-n-octylamine		Di-n-tetradecylamine
	(c) B: eah		(c) B: eah
	(liq) B: eab eac ead eaq		(liq) B: eab eac ead eaq
	Tetracosane, 1-amino-		n-Heptacosylamine, N-ethyl-
	(c) B: eah		(liq) B: eab eac ead eaq
	(liq) B: eab eac ead eaq		n-Heptacosylamine, N,N-dimethyl-
	n-Tricosylamine, N-methyl-		(liq) B: eab eac ead eaq
	(liq) B: eab eac ead eaq		Nonacosane, 1-amino-
C <sub>25</sub> NH <sub>53</sub>	n-Heneicosylamine, N,N-diethyl-		(c) B: eah
	(liq) B: eab eac ead eaq		(liq) B: eab eac ead eaq
	Pentacosane, 1-amino-		n-Octacosylamine, N-methyl-
	(c) B: eah		(c) B: eah
	(liq) B: eab eac ead eaq		(liq) B: eab eac ead eaq
	n-Tetracosylamine, N-methyl-		n-Pentacosylamine, N,N-diethyl-
	(c) B: eah		(liq) B: eab eac ead eaq
	(liq) B: eab eac ead eaq		Tri-n-decylamine
	n-Tricosylamine, N-ethyl-		(c) B: eah
	(liq) B: eab eac ead eaq		(liq) B: eab eac ead eaq
	n-Tricosylamine, N,N-dimethyl-		n-Hexacosylamine, N,N-diethyl-
	(liq) B: eab eac ead eaq		(liq) B: eab eac ead eaq
C <sub>26</sub> NH <sub>55</sub>	n-Docosylamine, N,N-diethyl-		n-Nonacosylamine, N-methyl-
	(liq) B: eab eac ead eaq		(liq) B: eab eac ead eaq
	Hexacosane, 1-amino-		n-Octacosylamine, N-ethyl-
	(c) B: eah		(liq) B: eab eac ead eaq
	(liq) B: eab eac ead eaq		n-Octacosylamine, N,N-dimethyl-
	n-Pentacosylamine, N-methyl-		(c) B: eah
	(liq) B: eab eac ead eaq		(liq) B: eab eac ead eaq
	n-Tetracosylamine, N-ethyl-		Di-n-pentadecylamine
	(liq) B: eab eac ead eaq		(c) B: eah
	n-Tetracosylamine, N,N-dimethyl-		(liq) B: eab eac ead eaq
	(c) B: eah		Triacontane, 1-amino-
	(liq) B: eab eac ead eaq		(c) B: eah
	Di-n-tridecylamine		(liq) B: eab eac ead eaq
	(c) B: eah		C <sub>31</sub> NH <sub>65</sub>
	(liq) B: eab eac ead eaq		Hentriacontane, 1-amino-
C <sub>27</sub> NH <sub>57</sub>	Heptacosane, 1-amino-		(c) B: eah
	(c) B: eah		(liq) B: eab eac ead eaq
	(liq) B: eab eac ead eaq		n-Heptacosylamine, N,N-diethyl-
	n-Hexacosylamine, N-methyl-		(liq) B: eab eac ead eaq
	(c) B: eah		n-Nonacosylamine, N-ethyl-
	(liq) B: eab eac ead eaq		(liq) B: eab eac ead eaq
	Tri-n-nonylamine		n-Nonacosylamine, N,N-dimethyl-
	(liq) B: eab eac ead eaq		(liq) B: eab eac ead eaq
	n-Pentacosylamine, N-ethyl-		n-Triacontylamine, N-methyl-
	(liq) B: eab eac ead eaq		(c) B: eah
	n-Pentacosylamine, N,N-dimethyl-		(liq) B: eab eac ead eaq
	(liq) B: eab eac ead eaq		C <sub>32</sub> NH <sub>67</sub>
	n-Tricosylamine, N,N-diethyl-		Dotriacontane, 1-amino-
	(liq) B: eab eac ead eaq		(c) B: eah
C <sub>28</sub> NH <sub>60</sub>	n-Heptacosylamine, N-methyl-		(liq) B: eab eac ead eaq
	(liq) B: eab eac ead eaq		n-Hentriacontylamine, N-methyl-
	n-Hexacosylamine, N-ethyl-		(liq) B: eab eac ead eaq
	(liq) B: eab eac ead eaq		Di-n-hexadecylamine
	n-Hexacosylamine, N,N-dimethyl-		(c) B: eah
	(c) B: eah		(liq) B: eab eac ead eaq
	(liq) B: eab eac ead eaq		n-Octacosylamine, N,N-diethyl-
	Octacosane, 1-amino-		(liq) B: eab eac ead eaq
	(c) B: eah		n-Triacontylamine, N-ethyl-
	(liq) B: eab eac ead eaq		(liq) B: eab eac ead eaq
			n-Triacontylamine, N,N-dimethyl-
			(c) B: eah
			(liq) B: eab eac ead eaq

<b>C<sub>33</sub>NH<sub>69</sub></b>	n-Dotriacontylamine, N-methyl- (c) B: eah (liq) B: eab eac ead eaq n-Hentriacontylamine, N-ethyl- (liq) B: eab eac ead eaq n-Hentriacontylamine, N,N-dimethyl- (liq) B: eab eac ead eaq n-Nonacosylamine, N,N-diethyl- (liq) B: eab eac ead eaq Tritriacontane, 1-amino- (c) B: eah (liq) B: eab eac ead eaq Tri-n-undecylamine (liq) B: eab eac ead eaq	n-Hexatriacontylamine, N-methyl- (c) B: eah (liq) B: eab eac ead eaq n-Pentatriacontylamine, N-ethyl- (liq) B: eab eac ead eaq n-Pentatriacontylamine, N,N-dimethyl- (liq) B: eab eac ead eaq n-Tritriacontylamine, N,N-diethyl- (liq) B: eab eac ead eaq
<b>C<sub>34</sub>NH<sub>71</sub></b>	n-Dotriacontylamine, N-ethyl- (liq) B: eab eac ead eaq n-Dotriacontylamine, N,N-dimethyl- (c) B: eah (liq) B: eab eac ead eaq Di-n-heptadecylamine (c) B: eah (liq) B: eab eac ead eaq Tetraatriacontane, 1-amino- (c) B: eah (liq) B: eab eac ead eaq n-Triacontylamine, N,N-diethyl- (liq) B: eab eac ead eaq n-Tritriacontylamine, N-methyl- (liq) B: eab eac ead eaq	<b>C<sub>39</sub>NH<sub>79</sub></b> n-Heptatriacontylamine, N-methyl- (liq) B: eab eac ead eaq n-Hexatriacontylamine, N-ethyl- (liq) B: eab eac ead eaq n-Hexatriacontylamine, N,N-dimethyl- (c) B: eah (liq) B: eab eac ead eaq Di-n-nonadecylamine (c) B: eah (liq) B: eab eac ead eaq Octatriacontane, 1-amino- (c) B: eah (liq) B: eab eac ead eaq n-Tetraatriacontylamine, N,N-diethyl- (liq) B: eab eac ead eaq
<b>C<sub>35</sub>NH<sub>73</sub></b>	n-Hentriacontylamine, N,N-diethyl- (liq) B: eab eac ead eaq Pentatriacontane, 1-amino- (c) B: eah (liq) B: eab eac ead eaq n-Tetraatriacontylamine, N-methyl- (c) B: eah (liq) B: eab eac ead eaq n-Tritriacontylamine, N-ethyl- (liq) B: eab eac ead eaq n-Tritriacontylamine, N,N-dimethyl- (liq) B: eab eac ead eaq	<b>C<sub>39</sub>NH<sub>81</sub></b> n-Heptatriacontylamine, N-ethyl- (liq) B: eab eac ead eaq n-Heptatriacontylamine, N,N-dimethyl- (liq) B: eab eac ead eaq Nonatriacontane, 1-amino- (c) B: eah (liq) B: eab eac ead eaq n-Octatriacontylamine, N-methyl- (c) B: eah (liq) B: eab eac ead eaq n-Pentatriacontylamine, N,N-diethyl- (liq) B: eab eac ead eaq Tri-n-tridecylamine (liq) B: eab eac ead eaq
<b>C<sub>36</sub>NH<sub>75</sub></b>	Tri-n-dodecylamine (c) B: eah (liq) B: eab eac ead eaq n-Dotriacontylamine, N,N-diethyl- (liq) B: eab eac ead eaq Hexatriacontane, 1-amino- (c) B: eah (liq) B: eab eac ead eaq Di-n-octadecylamine (c) B: eah (liq) B: eab eac ead eaq n-Pentatriacontylamine, N-methyl- (liq) B: eab eac ead eaq n-Tetraatriacontylamine, N-ethyl- (liq) B: eab eac ead eaq n-Tetraatriacontylamine, N,N-dimethyl- (c) B: eah (liq) B: eab eac ead eaq	<b>C<sub>40</sub>NH<sub>83</sub></b> Di-n-eicosylamine (c) B: eah (liq) B: eab eac ead eaq n-Hexatriacontylamine, N,N-diethyl- (liq) B: eab eac ead eaq n-Nonatriacontylamine, N-methyl- (liq) B: eab eac ead eaq n-Octatriacontylamine, N-ethyl- (liq) B: eab eac ead eaq n-Octatriacontylamine, N,N-dimethyl- (c) B: eah (liq) B: eab eac ead eaq Tetracontane, 1-amino- (c) B: eah (liq) B: eab eac ead eaq
<b>C<sub>37</sub>NH<sub>77</sub></b>	Heptatriacontane, 1-amino- (c) B: eah (liq) B: eab eac ead eaq	<b>C<sub>42</sub>NH<sub>87</sub></b> Tri-n-tetradecylamine (c) B: eah (liq) B: eab eac ead eaq
		<b>C<sub>45</sub>NH<sub>93</sub></b> Tri-n-pentadecylamine (liq) B: eab eac ead eaq
		<b>C<sub>46</sub>NH<sub>95</sub></b> Tri-n-hexadecylamine (c) B: eah (liq) B: eab eac ead eaq

C<sub>51</sub>NH<sub>105</sub> Tri-n-heptadecylamine  
(liq) B: eab eac ead eaq

C<sub>54</sub>NH<sub>111</sub> Tri-n-octadecylamine  
(c) B: eah  
(liq) B: eab eac ead eaq

C<sub>57</sub>NH<sub>117</sub> Tri-n-nonadecylamine  
(liq) B: eab eac ead eaq

C<sub>60</sub>NH<sub>123</sub> Tri-n-eicosylamine  
(c) B: eah  
(liq) B: eab eac ead eaq

**23-18-2-1**

CNHO Cyanic acid  
(aq) C: faa fab fac fad  
E-XI: fac  
Isocyanic acid (Hydrogen isocyanate)  
(c) C: eah  
(liq) C: eaq fbj fbk  
(g) E-XIII: fae(t) fai(t) fal(t)

CNH<sub>2</sub>O<sub>2</sub><sup>-</sup> Methane ion, nitro-  
(aq, nitro form) C: fab

CNH<sub>3</sub>O Formamide  
(c) C: eah fbj fbq  
(liq) C: fab  
(aq) C: fab

CNH<sub>3</sub>O<sub>2</sub> Methane, nitro-  
(c) B: eah  
C: eah fbj fbq  
(liq) B: eab eac ead eaq  
C: eaq faa fab fac fad fae  
fbj fbk  
(aq) C: fab  
Methyl nitrite  
(liq) C: eaq fbj fbk

CNH<sub>3</sub>O<sub>3</sub> Methyl nitrate  
(liq) C: eaq fbj fbk

CNH<sub>5</sub>O<sub>2</sub> Ammonium formate  
(c) C: fab  
(aq) C: fab

CNH<sub>5</sub>O<sub>3</sub> Ammonium hydrogen carbonate  
(c) C: fab  
E-IV: faa fab fac fam(t) fan(t)  
E-XI: fac  
(aq) C: faa fab fac fad  
E-IV: eam  
E-XI: fac

CN<sub>2</sub>H<sub>4</sub>O Ammonium cyanate  
(c) C: fab  
(aq) C: fab  
Urea  
(c) C: eah faa fab fac fad fae  
fbj fbq  
(aq) C: faa fab(x) fac fad

CN<sub>2</sub>H<sub>6</sub>O<sub>2</sub> Ammonium carbamate  
(c) C: faa fab fac fad  
(aq) C: fab

CN<sub>2</sub>H<sub>6</sub>O<sub>3</sub> Ammonium carbonate  
(aq) C: faa fab fac fad  
E-XI: fac

CN<sub>3</sub>HO<sub>3</sub> Methane, trinitro-  
(liq) C: fab

CN<sub>3</sub>H<sub>5</sub>O<sub>4</sub> Urea nitrate  
(c) C: fab

CN<sub>4</sub>H<sub>4</sub>O<sub>2</sub> Guanidine, nitro-  
(c) C: fab

CN<sub>4</sub>H<sub>6</sub>O<sub>2</sub> Guanidine nitrate  
(c) C: fab  
(aq) C: fab

C<sub>2</sub>NH<sub>2</sub>O<sub>3</sub><sup>-</sup> Oxamate ion  
(aq) C: fab

C<sub>2</sub>NH<sub>3</sub>O Glycollonitrile  
(liq) C: fab  
Methyl isocyanate  
(liq) C: fab

C<sub>2</sub>NH<sub>3</sub>O<sub>3</sub> Oxamic acid  
(c) C: fab  
(aq) C: fab

C<sub>2</sub>NH<sub>4</sub>O<sub>2</sub><sup>-</sup> Acetate ion, amino-  
(aq) C: fab  
Ethane ion, nitro-  
(aq) C: fab

C<sub>2</sub>NH<sub>5</sub>O Acetaldehyde oxime  
(c) C: fab  
Acetamide  
(c, III) C: eah fbj fbq  
(c, II) C: eah fbj fbq  
(c, I) C: eah eaj fbb fbc fbd fbj  
fbg fbh  
(c) C: fab fae  
(aq) C: fab(x)  
(in ethanol) C: fab

C<sub>2</sub>NH<sub>5</sub>O<sub>2</sub> Acetic acid, amino- (Glycine)  
(c) C: faa fab fac fad fae  
(aq) C: fab(x)  
Ethane, nitro-  
(c) B: eah  
C: eah  
(liq) B: eab eac ead eaq  
C: eaq fab fae fbj fbk  
(aq, aci form) C: fab  
(aq, nitro form) C: fab  
Ethyl nitrite  
(liq) C: eaq fbj fbk  
(g) C: fab

C<sub>2</sub>NH<sub>5</sub>O<sub>3</sub> Ethyl nitrate  
(c) C: eah  
(liq) C: eaq fab fbj fbk

C<sub>2</sub>NH<sub>5</sub>O<sub>4</sub> Ammonium hydrogen oxalate  
(c) C: fab fae  
(aq) C: fab

C<sub>2</sub>NH<sub>6</sub>O<sub>2</sub><sup>+</sup> Glycinium ion  
(aq) C: fab

C<sub>2</sub>NH<sub>7</sub>O Ethanol, 2-amino-  
(c) C: eah  
(liq) C: eaq

C<sub>2</sub>NH<sub>7</sub>O<sub>2</sub> Ammonium acetate  
(c) C: fab  
(aq) C: fab

C<sub>2</sub>NH<sub>7</sub>O<sub>3</sub> Ammonium glycollate  
(c) C: fab  
(aq) C: fab  
Methylammonium hydrogen carbonate  
(aq) C: fab

C<sub>2</sub>NH<sub>7</sub>O<sub>4</sub> Ammonium glyoxylate  
(aq) C: fab

C<sub>2</sub>N<sub>2</sub>H<sub>4</sub>O<sub>2</sub> Glyoxime  
(c) C: fab  
Oxamide  
(c) C: fab  
Urea, formyl-  
(c) C: fab  
(aq) C: fab

C<sub>2</sub>N<sub>2</sub>H<sub>4</sub>O<sub>3</sub> Acetamide, 2-nitro-  
(c) C: eah

C<sub>2</sub>N<sub>2</sub>H<sub>4</sub>O<sub>6</sub> Glycol dinitrate  
(c) C: eah fbf fbq  
(liq) C: eaq fab

C<sub>2</sub>N<sub>2</sub>H<sub>6</sub>O Dimethylnitrosamine  
(liq) C: fab

C<sub>2</sub>N<sub>2</sub>H<sub>6</sub>O<sub>2</sub> Ethylnitramine  
(c) C: eah  
(liq) C: fab

C<sub>2</sub>N<sub>2</sub>H<sub>6</sub>O<sub>4</sub> Ammonium oxalate  
(c) C: fab fae  
(aq) C: fab

C<sub>2</sub>N<sub>2</sub>H<sub>6</sub>O<sub>4</sub>·H<sub>2</sub>O Ammonium oxalate monohydrate  
(c) C: fab

C<sub>2</sub>N<sub>5</sub>H<sub>7</sub>O<sub>4</sub> Guanylurea nitrate  
(c) C: fab

C<sub>3</sub>NH<sub>7</sub>O<sub>2</sub> Propane, 1-nitro-  
(c) B: eah  
(liq) B: eab eac ead eaq  
Propane, 2-nitro-  
(c) B: eah  
(liq) B: eab eac ead eaq

C<sub>4</sub>NH<sub>9</sub>O<sub>2</sub> Butane, 1-nitro-  
(c) B: eah  
(liq) B: eab eac ead eaq  
Butane, 2-nitro-  
(liq) B: eab eac ead eaq  
Propane, 1-nitro-2-methyl-  
(c) B: eah  
(liq) B: eab eac ead eaq  
Propane, 2-nitro-2-methyl-  
(c) B: eah  
(liq) B: eab eac ead eaq

C<sub>3</sub>NH<sub>11</sub>O<sub>2</sub> Butane, 1-nitro-2-methyl-  
(liq) B: eab eac ead eaq  
Butane, 1-nitro-3-methyl-  
(liq) B: eab eac ead eaq  
Butane, 2-nitro-2-methyl-  
(c) B: eah  
(liq) B: eab eac ead eaq  
Butane, 2-nitro-3-methyl-  
(liq) B: eab eac ead eaq  
Pentane, 1-nitro-  
(liq) B: eab eac ead eaq  
Pentane, 2-nitro-  
(liq) B: eab eac ead eaq  
Pentane, 3-nitro-  
(liq) B: eab eac ead eaq  
Propane, 1-nitro-2,2-dimethyl-  
(c) B: eah  
(liq) B: eab eac ead eaq

C<sub>8</sub>NH<sub>13</sub>O<sub>2</sub> Butane, 1-nitro-2,2-dimethyl-  
(liq) B: eac eaq  
Butane, 1-nitro-2,3-dimethyl-  
(liq) B: eab eac ead eaq  
Butane, 2-nitro-2,3-dimethyl-  
(c) B: eah  
(liq) B: eac eaq  
Butane, 2-nitro-3,3-dimethyl-  
(c) B: eah  
(liq) B: eab eac ead eaq  
Hexane, 1-nitro-  
(liq) B: eab eac ead eaq  
Hexane, 2-nitro-  
(liq) B: eab eac ead eaq  
Hexane, 3-nitro-  
(liq) B: eab eac ead eaq  
Pentane, 2-nitro-3-methyl-  
(liq) B: eac ead eaq

C<sub>7</sub>NH<sub>15</sub>O<sub>2</sub> Heptane, 1-nitro-  
(liq) B: eab eac ead eaq

C<sub>8</sub>NH<sub>17</sub>O<sub>2</sub> Octane, 1-nitro-  
(liq) B: eab eac ead eaq

C<sub>9</sub>NH<sub>19</sub>O<sub>2</sub> Nonane, 1-nitro-  
(liq) B: eab eac ead eaq

C<sub>10</sub>NH<sub>21</sub>O<sub>2</sub> Decane, 1-nitro-  
(liq) B: eab eac ead eaq

C<sub>11</sub>NH<sub>23</sub>O<sub>2</sub> Undecane, 1-nitro-  
(liq) B: eab eac ead eaq

C<sub>12</sub>NH<sub>25</sub>O<sub>2</sub> Dodecane, 1-nitro-  
(liq) B: eab eac ead eaq

C<sub>13</sub>NH<sub>27</sub>O<sub>2</sub> Tridecane, 1-nitro-  
(liq) B: eab eac ead eaq

C<sub>14</sub>NH<sub>29</sub>O<sub>2</sub> Tetradecane, 1-nitro-  
(liq) B: eab eac ead eaq

C<sub>15</sub>NH<sub>31</sub>O<sub>2</sub> Pentadecane, 1-nitro-  
(liq) B: eab eac ead eaq

C<sub>16</sub>NH<sub>33</sub>O<sub>2</sub> Hexadecane, 1-nitro-  
(liq) B: eab eac ead eaq

C<sub>17</sub>NH<sub>35</sub>O<sub>2</sub> Heptadecane, 1-nitro-  
(liq) B: eab eac ead eaq

C<sub>18</sub>NH<sub>37</sub>O<sub>2</sub> Octadecane, 1-nitro-  
(liq) B: eab eac ead eaq

C<sub>19</sub>NH<sub>39</sub>O<sub>2</sub> Nonadecane, 1-nitro-  
(liq) B: eab eac ead eaq

C<sub>20</sub>NH<sub>41</sub>O<sub>2</sub> Eicosane, 1-nitro-  
(liq) B: eab eac ead eaq

23-18-9

CNF Cyanogen fluoride  
(c) C: eai fbn fbo  
E-III: eal(-t) fbm(-t) fbn fbo  
(g) E-XI: fac  
E-XIII: fae(t) fai(t) fal(t)

C<sub>2</sub>NF<sub>3</sub> Acetonitrile, trifluoro-  
(liq) C: eaq

C<sub>2</sub>N<sub>2</sub>F<sub>6</sub> Azomethane, hexafluoro-  
(c) C: eah  
(liq) C: eaq fbj fbk

**23-18-9-1**  
CNF<sub>3</sub>O Fluoroformamide, N,N-difluoro-  
(c) C: eah  
(liq) C: eaq fbj fbk  
Methane, trifluoronitroso-  
(c) C: eah  
(liq) C: eaq fbj fbk

**23-18-9-2**  
C<sub>2</sub>NFH<sub>2</sub> Acetonitrile, fluoro-  
(liq) C: eaq fbj fbk  
C<sub>2</sub>NF<sub>2</sub>H<sub>5</sub> Ethylamine, 2,2-difluoro-  
(liq) C: eaq fab  
C<sub>2</sub>NF<sub>6</sub>H Bis(trifluoromethyl)amine  
(liq) C: eaq fbj fbk

**23-18-9-2-1**  
C<sub>2</sub>NFH<sub>4</sub>O Acetamide, fluoro-  
(c) C: eah fab  
C<sub>2</sub>NHH<sub>4</sub>O<sub>2</sub> Ethyl nitrite, 2-fluoro-  
(liq) C: eaq fbj fbk  
C<sub>2</sub>NH<sub>2</sub>H<sub>3</sub>O Acetamide, difluoro-  
(c) C: eah fab  
(liq) C: eaq  
C<sub>2</sub>NF<sub>3</sub>H<sub>2</sub>O Acetamide, trifluoro-  
(c) C: eah  
(liq) C: eaq  
C<sub>2</sub>N<sub>2</sub>F<sub>2</sub>H<sub>4</sub>O<sub>2</sub> Ethylnitramine, 2,2-difluoro-  
(c) C: eah  
(liq) C: fab

**23-18-10**  
CNC1 Cyanogen chloride  
(c) C: eah fbf fbq  
E-III: eal(-t) fbm(-t), fbn  
E-V: eah fbf fbq  
(liq) C: eaq fbj fbk  
E-III: eaq eal(-t,t) fbi(-t,t)  
fbj fbk  
(g) C: faa fab fac fad fae  
E-XI: fac  
E-XIII: fae(t) fai(t) fal(t)

**23-18-10-1**  
CNC1<sub>3</sub>O<sub>2</sub> Methane, trichloronitro-  
(liq) C: eaq fbj fbk

**23-18-10-2**  
CNC1H<sub>6</sub> Methylamine hydrochloride  
(c, III) C: eaj fbb fbc  
(c, II) C: eaj fbb fbc  
(c) C: faa fab fac fad fae  
(aq) C: fab(x)

C<sub>2</sub>NC1H<sub>2</sub> Acetonitrile, chloro-  
(liq) C: eaq  
C<sub>2</sub>NC1H<sub>6</sub> Dimethylamine, N-chloro-  
(liq) C: eaq  
C<sub>2</sub>NC1H<sub>8</sub> Ethylamine hydrochloride  
(aq) C: fab  
Dimethylamine hydrochloride  
(aq) C: fab(x)

C<sub>2</sub>N<sub>2</sub>Cl<sub>2</sub>H<sub>10</sub> 1,2-Ethanediamine dihydrochloride  
(c) C: fab  
(aq) C: fab

**23-18-10-2-1**  
CN<sub>3</sub>ClH<sub>6</sub>O Semicarbazide hydrochloride  
(c) C: fae  
C<sub>2</sub>NC1H<sub>4</sub>O Acetamide, chloro-  
(c) C: eah fab  
(aq) C: fab  
Acetamide N-chloro-  
(c) C: eah  
C<sub>2</sub>NC1H<sub>6</sub>O<sub>2</sub> Ammonium chloroacetate  
(aq) C: fab  
Glycine hydrochloride  
(aq) C: fab  
C<sub>2</sub>NC1<sub>2</sub>H<sub>3</sub>O Acetamide, dichloro-  
(aq) C: fab  
C<sub>2</sub>NC1<sub>3</sub>H<sub>2</sub>O Acetamide, trichloro-  
(c) C: fab  
(aq) C: fab  
C<sub>2</sub>NC1<sub>6</sub>H<sub>4</sub>O<sub>2</sub> Ammonium trichloroacetate  
(aq) C: fab

**23-18-10-9-2-1**  
C<sub>2</sub>NC1F<sub>2</sub>H<sub>2</sub>O Acetamide, chlorodifluoro-  
(c) C: eah  
(liq) C: eaq

**23-18-11**  
CNBr Cyanogen bromide  
(c) C: eah eai fbn fbo  
E-III: eal(-t,t) fbm(-t,t) fbn  
(liq) C: eaq  
(g) C: fac fae  
E-XI: fac  
E-XIII: fae(t) fai(t) fal(t)

**23-18-11-2-1**  
C<sub>2</sub>NBrH<sub>4</sub>O Acetamide, bromo-  
(c) C: eah  
Acetamide, N-bromo-  
(c) C: eah  
C<sub>2</sub>NBr<sub>3</sub>H<sub>2</sub>O Acetamide, tribromo-  
(c) C: eah

**23-18-11-10-9-2-1**  
C<sub>2</sub>NBrClF<sub>2</sub>H<sub>2</sub>O Acetamide, bromochlorofluoro-  
(c) C: eah

**23-18-12**  
CNI Cyanogen iodide  
(c) C: eah eai faa fab fac fad  
fbn fbo  
E-III: eal(-t,t) fbm(t) fbn fbo  
(g) C: faa fab fac fad fae  
E-XI: fac  
E-XIII: fae(t) fai(t) fal(t)  
(aq) C: faa fab fac fad

**23-18-14**  
CNS<sup>-</sup> Thiocyanate ion  
(aq) C: fab

**23-18-14-2**  
CNSH Thiocyanic acid (Hydrogen thiocyanate)  
(c) C: eah  
(aq) C: fab

CN<sub>2</sub>SH<sub>4</sub> Ammonium thiocyanate  
(c, II) C: eaj fbb fbc  
(c) C: fab  
E-V: eah fbf fbq  
(aq) C: fab

Thiourea  
(c) C: fab  
(aq) C: fab

C<sub>2</sub>NSH<sub>3</sub> Methyl isothiocyanate  
(c) C: eah fab  
(liq) C: eaq fbj fbk

Methyl thiocyanate  
(c) C: eah  
(liq) C: eaq fab fbj fbk

**23-18-14-2-1**  
CN<sub>2</sub>SH<sub>5</sub>O<sub>3</sub> Thiourea nitrate  
(c) C: fab

C<sub>2</sub>NSH<sub>7</sub>O<sub>3</sub> 2-Aminoethylsulfonic acid (Taurine)  
(c) C: faa fab fac fad fae  
(aq) C: fab(x)

**23-18-16-2-1**  
C<sub>2</sub>N<sub>2</sub>T<sub>6</sub>H<sub>6</sub>O<sub>6</sub> Dimethyltellurium dinitrate  
(c) C: eah

**23-19**  
CP Carbon monophosphide  
(g) C: fac fae  
E-XI: fac  
E-XIII: fae(t) fai(t) fal(t)

**23-19-2**  
C<sub>2</sub>PH<sub>7</sub> Dimethylphosphine  
(liq) C: eaq fbj fbk

**23-19-9-2-1**  
C<sub>2</sub>PFH<sub>6</sub>O<sub>3</sub> Dimethyl fluorophosphate (Dimethyl fluorophosphonate)  
(liq) C: eaq fbj fbk

**23-19-18-9-1**  
CPNF<sub>2</sub>O Phosphorus difluoroisocyanate  
(c) C: eah  
(liq) C: eaq

C<sub>2</sub>PN<sub>2</sub>FO<sub>2</sub> Phosphorus fluorodi-isocyanate  
(c) C: eah  
(liq) C: eaq fbj fbk

**23-19-18-10-1**  
C<sub>2</sub>PN<sub>2</sub>ClO<sub>2</sub> Phosphorus chlorodi-isocyanate  
(c) C: eah  
(liq) C: eaq fbj fbk

**23-19-18-14-9**  
CPNSF<sub>2</sub> Phosphorus difluoroisothiocyanate  
(liq) C: eaq fbj fbk

**23-19-18-14-10**  
CPNSCl<sub>2</sub> Phosphorus dichlorothiocyanate  
(c) C: eah  
(liq) C: eaq fbj fbk

**23-20-2**  
CAsH<sub>5</sub> Methylarsine  
(c) C: eah  
(liq) C: eaq fbj fbk

C<sub>2</sub>AsH<sub>7</sub> Ethylarsine  
(liq) C: eaq  
Dimethylarsine  
(liq) C: eaq

**23-20-2-1**  
C<sub>2</sub>AsH<sub>5</sub>O Ethylarsenic oxide  
(liq) C: eaq fbj fbk

**23-20-9-2**  
CAsF<sub>2</sub>H<sub>3</sub> Methyldifluoroarsine  
(c) C: eah  
(liq) C: eaq fbj fbk

C<sub>2</sub>AsF<sub>2</sub>H<sub>5</sub> Ethyldifluoroarsine  
(c) C: eah  
(liq) C: eaq fbj fbk

**23-20-10-2**  
CAsCl<sub>2</sub>H<sub>3</sub> Methylchloroarsine  
(c) C: eah  
(liq) C: eaq fbj fbk

C<sub>2</sub>AsClH<sub>5</sub> Dimethylchloroarsine  
(liq) C: eaq

C<sub>2</sub>AsCl<sub>2</sub>H<sub>5</sub> Ethyldichloroarsine  
(c) C: eah  
(liq) C: eaq fbj fbk

C<sub>2</sub>AsCl<sub>3</sub>H<sub>2</sub> 2-Chlorovinylchloroarsine  
(liq) C: eaq fbj fbk

**23-20-10-2-1**  
C<sub>2</sub>AsClH<sub>2</sub>O 2-Chlorovinylarsenic oxide  
(c) C: eah

C<sub>2</sub>AsClH<sub>4</sub>O<sub>3</sub> 2-Chlorovinylarsonic acid  
(c) C: eah

**23-20-10-9-2**  
C<sub>2</sub>AsClF<sub>2</sub>H<sub>2</sub> 2-Chlorovinyl difluoroarsine  
(liq) C: eaq

**23-20-11-2**  
C<sub>2</sub>AsBrH<sub>5</sub> Dimethylbromoarsine  
(liq) C: eaq

C<sub>2</sub>AsBr<sub>2</sub>H<sub>5</sub> Ethyldibromoarsine  
(liq) C: eaq fbj fbk

**23-20-11-2-1**  
C<sub>2</sub>AsBrH<sub>4</sub>O<sub>3</sub> 2-Bromovinylarsonic acid  
(c) C: eah



23-20-11-10-2  
C<sub>2</sub>AsBr<sub>2</sub>ClH<sub>2</sub> 2-Chlorovinylidibromoarsine  
(liq) C: eaq

23-20-12-2  
C<sub>2</sub>AsI<sub>2</sub>H<sub>6</sub> Dimethyliodoarsine  
(liq) C: eaq

23-20-12-10-2  
C<sub>2</sub>AsI<sub>2</sub>ClH<sub>2</sub> 2-Chlorovinyl-di-iodoarsine  
(c) C: eah

## 24 — Silicon — Si

24  
Si Silicon  
(c) C: eah fac fae fbf fbq  
D: eah fac(t) fae(t) faf(t) fai(t) fbf  
E-V: eah fbf fbq  
E-XI: fac fae(-t)  
E-XIII: fae(t) fai(t) fal(t) fbf  
(amorph) C: fab  
(liq) D: eaq fac(+t) fae(+t) faf(+t)  
fai(+t)  
E-III: eal(+t)  
E-XII: fae fai(+t) fal(+t)  
(g) C: faa fab fac fad fae  
D: faa(+t) fab(+t) fac(+t)  
fad(+t) fae(+t) faf(+t)  
fai(+t)  
E-XI: fac  
E-XIII: fae(+t) fai(+t) fal(+t)

Si<sup>+</sup>  
(g) C: fab

Si<sup>2+</sup>  
(g) C: fab

Si<sup>3+</sup>  
(g) C: fab

Si<sup>4+</sup>  
(g) C: fab

Si<sup>5+</sup>  
(g) C: fab

Si<sup>6+</sup>  
(g) C: fab

Si<sup>7+</sup>  
(g) C: fab

Si<sup>8+</sup>  
(g) C: fab

Si<sup>9+</sup>  
(g) C: fab

24-1  
SiO Silicon monoxide  
(g) C: faa fab fac fad fae  
E-XI: fac  
E-XII: faa(t) fab(t)  
E-XIII: fae(t) fai(t) fal(t)

SiO<sub>2</sub> Silicon dioxide  
(quartz, c, III) C: eaj  
(quartz, c, II, a) C: eaj faa fab fac  
fad fae fbb fbc fbd  
E-XII: faa(t) fab(t)  
E-XIII: fae(t) fai(t) fal(t) fbb  
(quartz, c, I, β) C: eah eaj fbb fbc  
fbf fbq  
E-XII: faa(t) fab(t)  
E-XIII: fae(t) fai(t) fal(t)  
(quartz, c) E-V: eah fbf fbq  
E-XI: fac fae(-t)  
(tridymite, c, IV, a) C: eaj faa fab  
fac fad fae fbb fbc  
E-XII: faa(t) fab(t)  
E-XIII: fae(t) fai(t) fal(t) fbb  
(tridymite, c, III, β) C: eaj fbb fbc  
E-XII: faa(t) fab(t)  
E-XIII: fae(t) fai(t) fal(t)  
(tridymite, c, II) C: eaj fbb fbc  
(tridymite, c, I) C: eah eaj fbb fbc  
(tridymite, c) E-XI: fac fae(-t)  
(cristobalite, c, II, α) C: eaj faa fab  
fac fad fae fbb fbc  
E-XII: faa(t) fab(t)  
E-XIII: fae(t) fai(t) fal(t) fbb  
(cristobalite, c, I, β) C: eah fbf fbq  
E-XII: faa(t) fab(t)  
E-XIII: fae(t) fai(t) fal(t)  
(cristobalite, c) E-V: eah fbf fbq  
E-XI: fac fae(-t)  
(gls) C: faa fab fac fad fae  
E-XI: fac fae(-t)  
E-XIII: fae(t) fai(t) fal(t)  
(liq) E-III: eal(+t)  
(aq) C: fab

24-2  
SiH Silicon monohydride  
(g) E-XI: fac  
E-XIII: fae(t) fai(t) fal(t)  
SiH<sub>4</sub> Silane  
(c, II) C: eaj fbb fbc  
E-XI: eaj fbb  
(c, I) C: eah fbf fbq fbh  
(c) E-XI: eah fae(-t) fbf  
(liq) C: eaq fbj fbk  
E-III: eaq eal(-t) fbi(-t) fbj fbk  
E-XI: eaq fae(-t) fbj  
(g) C: faa fab fac fad fae  
E-XI: fac fae(-t)  
E-XIII: fae(t) fai(t) fal(t)

Si<sub>2</sub>H<sub>6</sub> Disilane  
(c) C: eah  
(liq) C: eaq fbj fbk  
E-III: eaq eal(-t) fbi(-t) fbj(-t) fbk

Si<sub>3</sub>H<sub>8</sub> Trisilane  
(c) C: eah  
(liq) C: eaq fbj fbk  
E-III: eaq eal(-t, t) fbi(-t, t)  
fbj(-t, t) fbk

Si<sub>4</sub>H<sub>10</sub> Tetrasilane  
(c) C: eah  
(liq) C: eaq fbj fbk  
E-III: eaq eal(-t,t) fbi(-t,t)  
fbj(-t,t) fbk

24-2-1

H<sub>2</sub>SiO<sub>3</sub> Metasillicic acid  
(c) C: fab  
H<sub>4</sub>SiO<sub>4</sub> Orthosillicic acid  
(c) C: fab  
Si<sub>2</sub>H<sub>6</sub>O Disiloxane  
(c) C: eah  
(liq) C: eaq fbj fbk  
E-III: eaq eal(-t) fbi(-t) fbj(-t) fbk

24-9

SiF Silicon monofluoride  
(g) E-XI: fac  
E-XIII: fae(t) fal(t) fal(t)  
SiF<sub>4</sub> Tetrafluorosilane (Silicon tetrafluoride)  
(c) C: eah eai fbf fbq fbn fbo  
E-III: eai eal(-t) fbm(-t) fbn fbo  
(liq) C: eaq fbj fbk  
(g) C: faa fab fac fad fae  
(g) E-XI: fac  
E-XIII: fae(t) fal(t) fal(t)

SiF<sub>6</sub><sup>2-</sup> Hexafluorosilicate ion  
(aq) C: fab  
Si<sub>2</sub>F<sub>6</sub> Hexafluorodisilane  
(c) C: eah eai fbf fbq fbn fbo  
E-III: eai eal(-t) fbm(-t) fbn fbo  
E-V: eah fbf fbq  
(liq) C: eaq fbj fbk  
E-III: fbi(-t) fbj

24-9-1

Si<sub>2</sub>F<sub>8</sub>O Hexafluorodisiloxane  
(c) C: eah  
(liq) C: eaq fbj fbk

24-9-2

SiFH<sub>3</sub> Fluorosilane  
(liq) C: eaq fbj fbk  
SiF<sub>2</sub>H<sub>2</sub> Difluorosilane  
(c) C: eah fbf fbq  
(liq) C: eaq fbj fbk  
SiF<sub>3</sub>H Trifluorosilane  
(c) C: eah  
(liq) C: eaq fbj fbk  
H<sub>2</sub>SiF<sub>6</sub> Hexafluorosilicic acid  
(aq) C: fab

24-10

SiCl Silicon monochloride  
(g) E-XIII: fae(t) fal(t) fal(t)  
SiCl<sub>4</sub> Tetrachlorosilane (Silicon tetrachloride)  
(c) C: eah fbf fbq  
E-V: eah fbf fbq  
E-XI: eah fae(-t) fbf

(liq) C: eaq faa fab fac fad fae  
fbj fbk  
E-III: eaq eal(-t,t) fbi(-t,t)  
fbj(-t,t) fbk  
E-XI: fac fae  
(g) C: faa fab fac fad fae  
E-XI: fac  
E-XIII: fae(t) fal(t) fal(t)

Si<sub>2</sub>Cl<sub>6</sub> Hexachlorodisilane  
(c) C: eah  
(liq) C: eaq fbj fbk  
E-III: eaq eal(t)  
Si<sub>3</sub>Cl<sub>8</sub> Octachlorotrisilane  
(liq) C: eaq fbj fbk  
E-III: eaq eal(t) fbi(t) fbj fbk

24-10-1

Si<sub>2</sub>Cl<sub>6</sub>O Hexachlorodisiloxane  
(c) C: eah  
(liq) C: eaq fbj fbk  
E-III: eaq eal(t) fbi(t) fbj(t) fbk

24-10-2

SiClH<sub>3</sub> Chlorosilane  
(c) C: eah  
(liq) C: eaq fbj fbk  
SiCl<sub>2</sub>H<sub>2</sub> Dichlorosilane  
(c) C: eah  
(liq) C: eaq fbj fbk  
SiCl<sub>3</sub>H Trichlorosilane  
(c) C: eah  
(liq) C: eaq fbj fbk  
E-III: eaq eal(-t) fbi(-t) fbj(-t) fbk

24-10-9

SiClF<sub>3</sub> Chlorotrifluorosilane  
(c) C: eah  
(liq) C: eaq fbj fbk  
E-III: eaq eal(-t) fbi(-t) fbj fbk  
SiCl<sub>2</sub>F<sub>2</sub> Dichlorodifluorosilane  
(c) C: eah  
(liq) C: eaq fbj fbk  
E-III: eaq eal(-t) fbi(-t) fbj fbk  
SiCl<sub>3</sub>F Trichlorofluorosilane  
(c) C: eah  
(liq) C: eaq fbj fbk

24-10-9-1

Si<sub>2</sub>Cl<sub>2</sub>F<sub>4</sub>O 1,1-Dichloro-1,3,3,3-tetrafluorosiloxane (1,1,1,3-Tetrafluoro-3,3-dichlorosiloxane)  
(c) C: eah  
(liq) C: eaq fbj fbk  
Si<sub>2</sub>Cl<sub>3</sub>F<sub>3</sub>O 1,1,1-Trichloro-3,3,3-trifluorosiloxane  
(c) C: eah  
(liq) C: eaq fbj fbk

24-10-9-2

SiCl<sub>2</sub>FH Dichlorofluorosilane  
(c) C: eah  
(liq) C: eaq fbj fbk

	<b>24-11</b>			
SiBr	Silicon monobromide			
	(g) E-XIII:	fae(t)	fai(t)	fal(t)
SiBr <sub>4</sub>	Tetrabromosilane			
	(c) C:	eah		
	(liq) C:	eaq	fab	fbj
	(g) E-XI:	fac		
	E-XIII:	fae(t)	fai(t)	fal(t)
Si <sub>2</sub> Br <sub>6</sub>	Hexabromodisilane			
	(c) C:	eah		
	(liq) C:	eaq		
Si <sub>3</sub> Br <sub>8</sub>	Octabromotrisilane			
	(c) C:	eah		
	<b>24-11-2</b>			
SiBrH <sub>3</sub>	Bromosilane			
	(c) C:	eah		
	(liq) C:	eaq	fbj	fbk
	E-III:	eaq	eal(-t)	fbi(-t)
			fbj(-t)	fbk
	Dimethylsilane			
	(c) C:	eah		
	(liq) C:	eaq	fbj	fbk
	E-III:	eaq	eal(-t,t)	fbi(-t,t)
			fbj(-t,t)	fbk
SiBr <sub>3</sub> H	Tribromosilane			
	(c) C:	eah		
	(liq) C:	eaq	fbj	fbk
Si <sub>2</sub> Br <sub>5</sub> H	Bromodisilane			
	(c) C:	eah		
	(liq) C:	eaq	fbj	fbk
	<b>24-11-9</b>			
SiBrF <sub>3</sub>	Bromotrifluorosilane			
	(c) C:	eah		
	(liq) C:	eaq	fbj	fbk
SiBr <sub>2</sub> F <sub>2</sub>	Dibromodifluorosilane			
	(c) C:	eah		
	(liq) C:	eaq	fbj	fbk
SiBr <sub>3</sub> F	Tribromofluorosilane			
	(c) C:	eah		
	(liq) C:	eaq	fbj	fbk
	<b>24-11-10</b>			
SiBrCl <sub>3</sub>	Bromotrichlorosilane			
	(liq) C:	eaq		
SiBr <sub>2</sub> Cl <sub>2</sub>	Dibromodichlorosilane			
	(liq) C:	eaq		
SiBr <sub>3</sub> Cl	Tribromochlorosilane			
	(c) C:	eah		
	(liq) C:	eaq		
	<b>24-11-10-9</b>			
SiBrCl <sub>2</sub> F	Bromodichlorofluorosilane			
	(c) C:	eah		
	(liq) C:	eaq	fbj	fbk
SiBr <sub>2</sub> ClF	Dibromochlorofluorosilane			
	(c) C:	eah		
	(liq) C:	eaq	fbj	fbk
	<b>24-12</b>			
SiI <sub>4</sub>	Tetraiodosilane			
	(c) C:	eah	fab	

	(liq) C:	eaq		
	(g) E-XIII:	fae(t)	fai(t)	fal(t)
Si <sub>2</sub> I <sub>6</sub>	Hexaiododisilane			
	(c) C:	eah		
	<b>24-12-2</b>			
SiIH <sub>3</sub>	Iodosilane			
	(c) C:	eah		
	(liq) C:	eaq	fbj	fbk
SiI <sub>2</sub> H <sub>2</sub>	Di-iodosilane			
	(c) C:	eah		
	(liq) C:	eaq	fbj	fbk
SiI <sub>3</sub> H	Tri-iodosilane			
	(c) C:	eah		
	(liq) C:	eaq	fbj	fbk
	<b>24-12-10</b>			
SiICl <sub>3</sub>	Iodotrichlorosilane			
	(liq) C:	eaq		
SiI <sub>2</sub> Cl <sub>2</sub>	Di-iododichlorosilane			
	(liq) C:	eaq		
SiI <sub>3</sub> Cl	Tri-iodochlorosilane			
	(c) C:	eah		
	(liq) C:	eaq		
	<b>24-12-11</b>			
SiI <sub>2</sub> Br <sub>3</sub>	Iodotribromosilane			
	(c) C:	eah		
	(liq) C:	eaq		
SiI <sub>2</sub> Br <sub>2</sub>	Di-iododibromosilane			
	(c) C:	eah		
	(liq) C:	eaq		
SiI <sub>3</sub> Br	Tri-iodobromosilane			
	(c) C:	eah		
	(liq) C:	eaq		
	<b>24-14</b>			
SiS	Silicon monosulfide			
	(g) E-XIII:	fae(t)	fai(t)	fal(t)
SiS <sub>2</sub>	Dithiosilane			
	(c) C:	eah	fab	
	<b>24-14-10</b>			
SiSCl <sub>2</sub>	Thiodichlorosilane			
	(c) C:	eah		
	<b>24-14-11</b>			
SiSBr <sub>2</sub>	Thiodibromosilane			
	(c) C:	eah		
	<b>24-15</b>			
SiSe	Silicon monoselenide			
	(g) E-XIII:	fae(t)	fai(t)	fal(t)
	<b>24-16</b>			
SiTe	Silicon monotelluride			
	(g) E-XIII:	fae(t)	fai(t)	fal(t)
	<b>24-18</b>			
SiN	Silicon mononitride			
	(g) E-XI:	fac		
	E-XIII:	fae(t)	fai(t)	fal(t)

Si<sub>3</sub>N<sub>4</sub> Trisilicon tetranitride  
(c) C: faa fab fac fad  
E-VIII: faa(t) fab(t)  
E-XI: fac  
E-XIII: fae(t) fa(t) fal(t)

24-18-2

Si<sub>3</sub>NH<sub>3</sub> Trisilylamine (Trisilosynitride)  
(c) C: eah  
(liq) C: eaq fbj fbk  
E-III: eaq eal(-t) fb1(t) fbj(t)  
fbk

24-18-9-2

(NH<sub>4</sub>)<sub>2</sub>SiF<sub>6</sub> Ammonium hexafluorosilicate  
(c) C: fab  
(aq) C: fab

24-22-1

SiO<sub>2</sub>·3Bi<sub>2</sub>O<sub>3</sub> Silicon dioxide-3-Dibismuth trioxide  
(c) C: eah  
2SiO<sub>2</sub>·3Bi<sub>2</sub>O<sub>3</sub> 2-Silicon dioxide-3-Dibismuth trioxide  
(c) C: eah  
8SiO<sub>2</sub>·Bi<sub>2</sub>O<sub>3</sub> 8-Silicon dioxide-Dibismuth trioxide  
(c) C: eah

24-23

SiC Silicon carbide  
(c, hexagonal) E-XIII: fae(t) fal(t) fal(t)  
(c, cubic) E-XIII: fae(t) fal(t) fal(t)  
(c) C: faa fab fac fad fae  
E-VIII: faa(t) fab(t)  
E-XI: fac fae(-t)

24-23-2

SiCH<sub>3</sub> Methylsilane  
(c) C: eah  
(liq) C: eaq fbj fbk  
SiC<sub>2</sub>H<sub>6</sub> Ethylsilane  
(liq) C: eaq fbj fbk  
Dimethylsilane  
(c) C: eah  
(liq) C: eaq fbj fbk  
SiC<sub>3</sub>H<sub>10</sub> Trimethylsilane  
(liq) C: eaq  
n-Propylsilane  
(liq) C: eaq fbj fbk  
SiC<sub>4</sub>H<sub>12</sub> Diethylsilane  
(liq) C: eaq fbj fbk  
Tetramethylsilane  
(c, II) C: eah fbf fbq fbh  
(c, I) C: eah fbf fbq  
(liq) C: eaq fbj fbk  
SiC<sub>5</sub>H<sub>14</sub> Trimethylethylsilane  
(liq) C: eaq fbj fbk  
SiC<sub>7</sub>H<sub>18</sub> Methyltriethylsilane  
(liq) C: eaq fbj fbk  
SiC<sub>8</sub>H<sub>20</sub> Tetraethylsilane  
(liq) C: eaq fbj fbk  
Si<sub>2</sub>C<sub>6</sub>H<sub>18</sub> Hexamethyldisilane  
(c) C: eah  
(liq) C: eaq fbj fbk

24-23-2-1

SiC<sub>3</sub>H<sub>10</sub>O Trimethylsilanol  
(liq) C: eaq  
SiC<sub>5</sub>H<sub>14</sub>O Ethoxytrimethylsilane  
(liq) C: eaq fbj fbk  
SiC<sub>6</sub>H<sub>18</sub>O<sub>2</sub> Diethoxydimethylsilane  
(liq) C: eaq fbj fbk  
SiC<sub>7</sub>H<sub>18</sub>O<sub>3</sub> Triethoxymethylsilane  
(liq) C: eaq fbj fbk  
SiC<sub>8</sub>H<sub>20</sub>O<sub>4</sub> Tetraethoxysilane  
(c) C: eah fbf fbq  
(liq) C: eaq fab fbj fbk  
Si<sub>2</sub>C<sub>6</sub>H<sub>18</sub>O Hexamethyldisiloxane  
(liq) C: eaq fbj fbk  
Si<sub>2</sub>C<sub>8</sub>H<sub>22</sub>O<sub>3</sub> 1,3-Diethoxytetramethyldisiloxane  
(liq) C: eaq fbj fbk  
Si<sub>2</sub>C<sub>12</sub>H<sub>30</sub>O<sub>6</sub> Hexaethoxydisilane  
(liq) C: eaq fbj fbk  
Si<sub>3</sub>C<sub>8</sub>H<sub>24</sub>O<sub>2</sub> Octamethyltrisiloxane  
(liq) C: eaq fbj fbk  
Si<sub>3</sub>C<sub>10</sub>H<sub>28</sub>O<sub>4</sub> 1,5-Diethoxyhexamethyltrisiloxane  
(liq) C: eaq fbj fbk  
Si<sub>4</sub>C<sub>8</sub>H<sub>24</sub>O<sub>4</sub> Octamethylcyclotetrasiloxane  
(liq) C: eaq fbj fbk  
Si<sub>4</sub>C<sub>10</sub>H<sub>30</sub>O<sub>3</sub> Decamethyltetrasiloxane  
(liq) C: eaq fbj fbk

24-23-9-2

SiCF<sub>3</sub>H<sub>3</sub> Methyltrifluorosilane  
(c) C: eah  
(liq) C: eaq fbj fbk  
SiC<sub>2</sub>F<sub>2</sub>H<sub>6</sub> Dimethyldifluorosilane  
(c) C: eah  
(liq) C: eaq fbj fbk  
SiC<sub>2</sub>F<sub>3</sub>H<sub>5</sub> Ethyltrifluorosilane  
(c) C: eah  
(liq) C: eaq fbj fbk  
SiC<sub>3</sub>FH<sub>9</sub> Trimethylfluorosilane  
(c) C: eah  
(liq) C: eaq fbj fbk  
SiC<sub>4</sub>F<sub>2</sub>H<sub>10</sub> Diethyldifluorosilane  
(c) C: eah  
(liq) C: eaq fbj fbk

24-23-10-2

SiCClH<sub>5</sub> Methylchlorosilane  
(c) C: eah  
(liq) C: eaq fbj fbk  
SiCCl<sub>2</sub>H<sub>4</sub> Methylchlorosilane  
(c) C: eah  
(liq) C: eaq fbj fbk  
SiCCl<sub>3</sub>H<sub>3</sub> Methyltrichlorosilane  
(c) C: eah  
(liq) C: eaq fbj fbk  
SiC<sub>2</sub>Cl<sub>2</sub>H<sub>6</sub> Dimethyldichlorosilane  
(c) C: eah  
(liq) C: eaq fbj fbk  
SiC<sub>2</sub>Cl<sub>3</sub>H<sub>5</sub> Ethyltrichlorosilane  
(c) C: eah  
(liq) C: eaq fbj fbk

**SILICON****24-23-10-2** SiC<sub>3</sub>ClH<sub>9</sub>

- SiC<sub>3</sub>ClH<sub>9</sub> Trimethylchlorosilane  
 (c) C: eah  
 (liq) C: eaq fbj fbk
- SiC<sub>4</sub>Cl<sub>2</sub>H<sub>10</sub> Diethylchlorosilane  
 (liq) C: eaq fbj fbk
- SiC<sub>6</sub>ClH<sub>15</sub> Triethylchlorosilane  
 (liq) C: eaq fbj fbk

**24-23-10-2-1**

- SiC<sub>2</sub>Cl<sub>3</sub>H<sub>5</sub>O Ethoxytrichlorosilane  
 (liq) C: eaq fbj fbk
- SiC<sub>3</sub>Cl<sub>2</sub>H<sub>6</sub>O Ethoxymethylchlorosilane  
 (liq) C: eaq fbj fbk
- Si<sub>2</sub>C<sub>4</sub>Cl<sub>2</sub>H<sub>12</sub>O Tetramethyl-1,3-dichlorodisiloxane  
 (c) C: eah  
 (liq) C: eaq fbj fbk

**24-23-10-9-2**

- SiCCl<sub>2</sub>FH<sub>3</sub> Methylchlorofluorosilane  
 (c) C: eah  
 (liq) C: eaq fbj fbk
- SiC<sub>2</sub>ClFH<sub>6</sub> Dimethylchlorofluorosilane  
 (c) C: eah  
 (liq) C: eaq fbj fbk
- SiC<sub>2</sub>ClF<sub>2</sub>H<sub>5</sub> Ethylchlorodifluorosilane  
 (liq) C: eaq fbj fbk
- SiC<sub>2</sub>Cl<sub>2</sub>FH<sub>5</sub> Ethyldichlorofluorosilane  
 (liq) C: eaq fbj fbk

**24-23-18-1**

- SiC<sub>4</sub>N<sub>4</sub>O<sub>4</sub> Silicon tetracyanate  
 (c) C: eah  
 (liq) C: eaq fbj fbk
- Silicon tetrakisocyanate  
 (c) C: eah  
 (liq) C: eaq fbj fbk

**24-23-18-2**

- Si<sub>2</sub>CNH<sub>9</sub> 2-Methyldisilazane  
 (liq) C: eaq fbj fbk
- Si<sub>2</sub>C<sub>2</sub>NH<sub>11</sub> 2-Ethyldisilazane  
 (c) C: eah  
 (liq) C: eaq fbj fbk

**24-23-18-2-1**

- SiC<sub>4</sub>NH<sub>9</sub>O Trimethylsilicon isocyanate  
 (c) C: eah  
 (liq) C: eaq fbj fbk
- SiC<sub>4</sub>N<sub>2</sub>H<sub>6</sub>O<sub>2</sub> Dimethylsilicon di-isocyanate  
 (c) C: eah  
 (liq) C: eaq fbj fbk
- SiC<sub>4</sub>N<sub>3</sub>H<sub>3</sub>O<sub>3</sub> Methylsilicon tri-isocyanate  
 (c) C: eah  
 (liq) C: eaq fbj fbk
- SiC<sub>5</sub>N<sub>3</sub>H<sub>5</sub>O<sub>4</sub> Ethoxysilicon tri-isocyanate  
 (liq) C: eaq fbj fbk
- SiC<sub>6</sub>N<sub>2</sub>H<sub>10</sub>O<sub>4</sub> Diethoxysilicon di-isocyanate  
 (liq) C: eaq fbj fbk
- SiC<sub>7</sub>NH<sub>15</sub>O<sub>4</sub> Triethoxysilicon isocyanate  
 (liq) C: eaq fbj fbk

**24-23-18-9-1**

- SiCNF<sub>3</sub>O Trifluorosilicon isocyanate  
 (liq) C: eaq
- SiC<sub>2</sub>N<sub>2</sub>F<sub>2</sub>O<sub>2</sub> Difluorosilicon di-isocyanate  
 (c) C: eah  
 (liq) C: eaq fbj fbk
- SiC<sub>3</sub>N<sub>3</sub>FO<sub>3</sub> Fluorosilicon tri-isocyanate  
 (c) C: eah  
 (liq) C: eaq fbj fbk

**24-23-18-14**

- SiC<sub>4</sub>N<sub>4</sub>S<sub>4</sub> Silicon tetrakisothiocyanate  
 (c) C: eah  
 (liq) C: eaq fbj fbk

**24-23-18-14-2**

- SiC<sub>4</sub>NSH<sub>9</sub> Trimethylsilicon isothiocyanate  
 (c) C: eah  
 (liq) C: eaq fbj fbk
- SiC<sub>4</sub>N<sub>2</sub>S<sub>2</sub>H<sub>6</sub> Dimethylsilicon di-isothiocyanate  
 (c) C: eah  
 (liq) C: eaq fbj fbk
- SiC<sub>4</sub>N<sub>3</sub>S<sub>3</sub>H<sub>3</sub> Methylsilicon tri-isothiocyanate  
 (c) C: eah  
 (liq) C: eaq fbj fbk

**24-23-18-14-2-1**

- SiC<sub>4</sub>NSH<sub>9</sub>O<sub>3</sub> Trimethoxysilicon isothiocyanate  
 (liq) C: eaq fbj fbk

**25 - Germanium - Ge**

- 25**  
 Germanium
- Ge  
 (c) C: eah fac fae fbf fbq  
 D: eah fac(t) fae(t) faf(t) fai(t) fbf  
 E-V: eah fbf fbq  
 E-XI: fac fae(-t)  
 E-XIII: fae(t) fai(t) fal(t) fbf  
 (liq) D: eaq fac(t,+t), fae(t,+t) faf(t,+t)  
 fai(t,+t) fbj  
 E-XIII: fae fai(t,+t) fal(t,+t)  
 (g) C: faa fab fac fad fae  
 D: faa(t,+t) fab(t,+t) fac(t,+t)  
 fad(t,+t) fae(t,+t) faf(t,+t)  
 fai(t,+t)  
 E-XI: fac  
 E-XIII: fae(t,+t) fai(t,+t) fal(t,+t)
- Ge<sup>+</sup>  
 (g) C: fab
- Ge<sup>2+</sup>  
 (g) C: fab
- Ge<sup>3+</sup>  
 (g) C: fab
- Ge<sup>4+</sup>  
 (g) C: fab
- Ge<sup>5+</sup>  
 (g) C: fab

<b>25-1</b>					
GeO	Germanium monoxide				
(c)	C: eai				
	E-XII: faa(t) fab(t)				
(g)	C: faa fab fac fad fae				
	E-XI: fac				
	E-XII: faa(t) fab(t)				
	E-XIII: fae(t) fai(t) fal(t)				
GeO <sub>2</sub>	Germanium dioxide				
(c, II, insoluble)	C: eah eaj				
(c, I, soluble)	C: eah				
	E-XIII: fae(t)				
(amorph, gls)	C: fab				
	E-XII: faa(t) fab(t)				
(aq)	C: fab				
<b>25-2</b>					
GeH	Germanium monohydride				
(g)	E-XIII: fae(t) fai(t) fal(t)				
GeH <sub>4</sub>	Germanium tetrahydride (Germane)				
(c, III)	C: eaj fbb fbc				
	E-XI: eaj fbb				
(c, II)	C: eaj fbb fbc				
	E-XI: eaj fbb				
(c, I)	C: eah fbf fbq fbh				
	E-XI: eah fbf				
(c)	E-XI: fae(-t)				
(liq)	C: eaq fbj fbk				
	E-III: eaq eal(-t) fbi(-t) fbj fbk				
	E-XI: eaq fae fbj				
(g)	C: fac fae				
	E-XI: fac fae				
	E-XIII: fae(t) fai(t) fal(t)				
Ge <sub>2</sub> H <sub>6</sub>	Digermanium hexahydride (Digermane)				
(c)	C: eah				
(liq)	C: eaq fbj fbk				
	E-III: eaq eal(-t,t) fbi(-t) fbj(-t)				
	fbk				
Ge <sub>3</sub> H <sub>8</sub>	Trigermanium octahydride (Trigermane)				
(c)	C: eah				
(liq)	C: eaq fbj fbk				
	E-III: eaq eal(-t,t) fbi(t) fbj(t)				
	fbk				
<b>25-2-1</b>					
H <sub>2</sub> GeO <sub>3</sub>	Metagermanic acid				
(aq)	C: fab				
<b>25-9</b>					
GeF	Germanium monofluoride				
(g)	E-XIII: fae(t) fai(t) fal(t)				
GeF <sub>4</sub>	Germanium tetrafluoride				
(c)	C: eah eai fbn fbo				
(g)	E-XIII: fae(t) fai(t) fal(t)				
<b>25-10</b>					
GeCl	Germanium monochloride				
(g)	C: fab fae				
	E-XIII: fae(t) fai(t) fal(t)				
GeCl <sub>4</sub>	Germanium tetrachloride				
(c)	C: eah				
(liq)	C: eaq fbj fbk				
	E-III: eaq eal(-t,t) fbi(-t,t) fbj(-t,t)				
	(g) E-XIII: fae(t) fai(t) fal(t)				
<b>25-10-2</b>					
GeCl <sub>3</sub> H	Germanium trichloride hydride				
(c)	C: eah				
(liq)	C: eaq fbj fbk				
	E-III: eal(-t,t) fbi(-t,t) fbj(-t,t)				
<b>25-10-9</b>					
GeClF <sub>3</sub>	Germanium chloride trifluoride				
(c)	C: eah				
(liq)	C: eaq				
GeCl <sub>2</sub> F <sub>2</sub>	Germanium dichloride difluoride				
(c)	C: eah				
(liq)	C: eaq fbj fbk				
GeCl <sub>3</sub> F	Germanium trichloride fluoride				
(c)	C: eah				
(liq)	C: eaq fbj fbk				
<b>25-11</b>					
GeBr	Germanium monobromide				
(g)	C: fab fae				
	E-XIII: fae(t) fai(t) fal(t)				
GeBr <sub>4</sub>	Germanium tetrabromide				
(c)	C: eah				
(liq)	C: eaq fbj fbk				
	E-III: eaq eal(t) fbi(t) fbj(t) fbk				
(g)	E-XIII: fae(t) fai(t) fal(t)				
<b>25-12</b>					
GeI <sub>4</sub>	Germanium tetraiodide				
(c)	C: eah				
(g)	E-XIII: fae(t) fai(t) fal(t)				
<b>25-14</b>					
GeS	Germanium monosulfide				
(c)	C: eah				
(g)	C: fab fae				
	E-XIII: fae(t) fai(t) fal(t)				
<b>25-15</b>					
GeSe	Germanium monoselenide				
(c)	C: eah				
(g)	C: fae				
	E-XIII: fae(t) fai(t) fal(t)				
GeSe <sub>2</sub>	Germanium diselenide				
(c)	C: eah				
<b>25-16</b>					
GeTe	Germanium monotelluride				
(g)	C: fae				
	E-XIII: fae(t) fai(t) fal(t)				
<b>25-18</b>					
Ge <sub>3</sub> N <sub>4</sub>	Trigermanium tetranitride				
(c)	C: fab				

**25-23-2**  
GeC<sub>4</sub>H<sub>12</sub> Tetramethylgermanium (Tetramethylgermane)  
(c) C: eah  
(liq) C: eaq fbj fbk  
E-III: eal(-t,t) fbi(-t,t) fbj(-t,t)  
fbk

GeC<sub>6</sub>H<sub>20</sub> Tetraethylgermanium (Tetraethylgermane)  
(c) C: eah  
(liq) C: eaq

**25-23-2-1**  
GeC<sub>2</sub>H<sub>6</sub>O Dimethylgermanium oxide  
(c) C: eah  
(liq) C: eaq

**25-23-9-2**  
GeC<sub>2</sub>F<sub>3</sub>H<sub>5</sub> Ethylgermanium trifluoride  
(c) C: eah  
(liq) C: eaq

**25-23-10-2**  
GeCCl<sub>3</sub>H<sub>3</sub> Methylgermanium trichloride  
(liq) C: eaq

GeC<sub>2</sub>Cl<sub>2</sub>H<sub>6</sub> Dimethylgermanium dichloride  
(c) C: eah  
(liq) C: eaq

GeC<sub>2</sub>Cl<sub>3</sub>H<sub>5</sub> Ethylgermanium trichloride  
(liq) C: eaq

**25-23-11-2**  
GeC<sub>2</sub>Br<sub>3</sub>H<sub>5</sub> Ethylgermanium tribromide  
(liq) C: eaq

**25-23-12-2**  
GeC<sub>2</sub>I<sub>3</sub>H<sub>5</sub> Ethylgermanium tri-iodide  
(c) C: eah  
(liq) C: eaq

**25-23-14-2**  
GeC<sub>2</sub>SH<sub>6</sub> Dimethylgermanium sulfide  
(c) C: eah  
(liq) C: eaq

**25-23-18-1**  
GeC<sub>4</sub>N<sub>4</sub>O<sub>4</sub> Germanium tetrakisocyanate  
(c) C: eah  
(liq) C: eaq fbj fbk

**26 – Tin – Sn**

**26**  
Sn Tin  
(c, III, gray) C: eaj faa fab fac  
fad fae fbb fbc  
D: eaj fbb  
E-XI: fac fae(-t)  
F: eaj fac fae(-t,t) fai fbb  
fbc

(c, II, white) C: eaj fac fae fab  
fbc  
E-XI: fac fae(-t)  
F: fac fae(-t,t) fai

(c, I) C: eah fbf fbq  
D: eah fac(t) fae(t) faf(t) fai(t) fbf  
E-V: eah fbf fbq  
(c) E-XIII: fae(t) fai(t) fal(t) fbf  
F: eah eal(t) fae(t) faf(t) fai(t) fal(t)  
fbf fbq fbn(t) fbn(t)

(liq) C: eaq  
D: eaq fac(t) fae(t) faf(t) fai(t) fbf  
E-III: eal(+t) fbi(+t) fbj  
E-XIII: fae fai(t,+t) fal(t,+t)  
F: eal(t,+t) fae(t,+t) faf(t,+t)  
fai(t,+t) fal(t,+t) fbi(t,+t)  
fbj(t,+t) fbk

(g) C: faa fab fac fad fae  
D: faa(t,+t) fab(t,+t) fac(t,+t)  
fad(t,+t) fae(t,+t) faf(t,+t)  
fai(t,+t)

E-XI: fac  
E-XIII: fae(t,+t) fai(t,+t) fal(t,+t)  
F: fac fae(t,+t) faf(t,+t) fai(t,+t)  
fal(t,+t)

Sn<sup>+</sup> (g) C: fab

Sn<sup>++</sup> (g) C: fab  
(aq) E-XI: fac

Sn<sup>++</sup> (g) C: fab

Sn<sup>++</sup> (g) C: fab

Sn<sup>++</sup> (g) C: fab

**26-1**  
SnO Tin(II) oxide  
(c) C: faa fab fac fad fae  
E-XI: fac fae(-t)  
E-XII: faa(t) fab(t)  
E-XIII: fae(t)  
(g) C: fac fae  
E-XI: fac  
E-XII: faa(t) fab(t)  
E-XIII: fae(t) fai(t) fal(t)

SnO<sub>2</sub> Tin(IV) oxide  
(c, II) C: eaj fbb fbc  
(c) C: faa fab fac fad fae  
E-XI: fac fae(-t)  
E-XII: faa(t) fab(t)  
E-XIII: fae(t) fai(t) fal(t)

**26-2**  
SnH Tin monohydride  
(g) E-XIII: fae(t) fai(t) fal(t)

SnH<sub>4</sub> Tin(IV) hydride (Stannane)  
(c) C: eah  
(liq) C: eaq fbj fbk  
E-III: eaq eal(-t) fbi(-t) fbj fbk

**26-2-1**  
**Sn(OH)<sup>+</sup>** Monohydroxotin(II) ion  
 (aq) C: faa fad  
**HSnO<sub>2</sub><sup>-</sup>** Hydrogen dioxostannate(II) ion  
 (aq) C: faa fad  
**Sn(OH)<sub>2</sub>** Tin(II) hydroxide  
 (c) C: faa fab fac fad  
**Sn(OH)<sub>4</sub>** Tin(IV) hydroxide  
 (c) C: fab

**26-9**  
**SnF** Tin monofluoride  
 (g) E-XIII: fae(t) fai(t) fal(t)  
**SnF<sub>4</sub>** Tin(IV) fluoride  
 (liq) C: eaq  
**SnF<sub>6</sub><sup>2-</sup>** Hexafluorostannate(IV) ion  
 (aq) C: fab

**26-9-2**  
**H<sub>2</sub>SnF<sub>6</sub>** Hexafluorostannic(IV) acid  
 (aq) C: fab

**26-10**  
**SnCl** Tin monochloride  
 (g) E-XIII: fae(t) fai(t) fal(t)  
**SnCl<sub>2</sub>** Tin(II) chloride  
 (c) C: eah fab fbf fbg  
 E-V: eah fbf fbg  
 E-XIII: fae(t)  
 (liq) C: eaq fbj fbk  
 E-III: eaq eal(t) fbi(t) fbj(t) fbk  
 (in aq hydrogen chloride) C: fab  
**SnCl<sub>2</sub>·2H<sub>2</sub>O** Tin(II) chloride—2-Water  
 (c) C: fab  
**SnCl<sub>4</sub>** Tin(IV) chloride  
 (c) C: eah fbf fbg  
 E-V: eah fbf fbg  
 E-XI: eah fae(-) fbf  
 (liq) C: eaq faa fab fac fad fae  
 fbj fbk  
 E-III: eaq eal(-,t) fbi(-,t)  
 fbj(-,t) fbk  
 E-XI: fac fae  
 (g) E-XI: fac  
 E-XIII: fae(t) fai(t) fal(t)  
 (in aq hydrogen chloride) C: fab

**26-10-1**  
**SnCl<sub>2</sub>O** Tin(IV) dichloride oxide  
 (aq) C: fab

**26-11**  
**SnBr** Tin monobromide  
 (g) E-XIII: fae(t) fai(t) fal(t)  
**SnBr<sub>2</sub>** Tin(II) bromide  
 (c) C: eah fab fbf fbg  
 E-V: eah fbf fbg  
 (liq) C: eaq fbf fbk  
 (aq) C: fab  
**SnBr<sub>4</sub>** Tin(IV) bromide  
 (c, II) C: eaj

(c, I) C: eah fab fbf fbg  
 E-V: eah fbf fbg  
 (liq) C: eaq fbj fbk  
 (g) E-XI: fac  
 E-XIII: fae(t) fai(t) fal(t)  
 (aq) C: fab  
**SnBr<sub>4</sub>·8H<sub>2</sub>O** Tin(IV) bromide—8-Water  
 (liq) C: fab

**26-11-10**  
**SnBrCl<sub>3</sub>** Tin bromide trichloride  
 (c) C: eah  
**SnBr<sub>2</sub>Cl<sub>2</sub>** Tin dibromide dichloride  
 (c) C: eah  
**SnBr<sub>3</sub>Cl** Tin tribromide chloride  
 (c) C: eah

**26-12**  
**SnI<sub>2</sub>** Tin(II) iodide  
 (c) C: eah fab  
 (liq) C: eaq fbj fbk  
 (aq) C: fab  
**SnI<sub>4</sub>** Tin(IV) iodide  
 (c) C: eah fbf fbg fbh  
 E-V: eah fbf fbg  
 E-XIII: fae(t) fai(t) fal(t) fbf  
 (liq) C: eaq fbj fbk  
 E-XIII: fae fai(t) fal(t)  
 (g) E-XIII: fae(t) fai(t) fal(t)

**26-14**  
**SnS** Tin(II) sulfide  
 (c, α) E-XIII: fae(t) fai(t) fal(t) fbb  
 (c, β) C: eah faa fab fac fad  
 E-XIII: fae(t) fai(t) fal(t) fbf  
 (liq) E-XIII: fae fai(t) fal(t)  
 (g) E-XI: fac  
 E-XIII: fae(t) fai(t) fal(t)  
**SnS<sub>2</sub>** Tin(IV) sulfide  
 (c) E-XIII: fae(t) fai(t) fal(t)

**26-14-1**  
**Sn(SO<sub>4</sub>)<sub>2</sub>** Tin(IV) sulfate  
 (c) C: fab

**26-15**  
**SnSe** Tin(II) selenide  
 (c) C: eah  
 (g) E-XIII: fae(t) fai(t) fal(t)

**26-16**  
**Sn-Te** Tin-Tellurium  
 (c) F: fca(x) fcb(x) fcf(x) fcl(x) fcm(x)  
**SnTe** Tin(II) telluride  
 (c) C: eah  
 E-XI: fac  
 (g) E-XIII: fae(t) fai(t) fal(t)  
**SnTe<sub>2</sub>** Tin(IV) telluride  
 (c) E-XIII: fae(t) fai(t) fal(t)



## TIN

26-18-10-2 SnCl<sub>2</sub>·2½NH<sub>3</sub>

## 26-18-10-2

- SnCl<sub>2</sub>·2½NH<sub>3</sub> Tin(II) chloride—2½-Ammonia  
(c) C: fab
- SnCl<sub>2</sub>·4NH<sub>3</sub> Tin(II) chloride—4-Ammonia  
(c) C: fab
- SnCl<sub>2</sub>·9NH<sub>3</sub> Tin(II) chloride—9-Ammonia  
(c) C: fab

## 26-18-11-2

- SnBr<sub>2</sub>·NH<sub>3</sub> Tin(II) bromide—Ammonia  
(c) C: fab
- SnBr<sub>2</sub>·2NH<sub>3</sub> Tin(II) bromide—2-Ammonia  
(c) C: fab
- SnBr<sub>2</sub>·3NH<sub>3</sub> Tin(II) bromide—3-Ammonia  
(c) C: fab
- SnBr<sub>2</sub>·5NH<sub>3</sub> Tin(II) bromide—5-Ammonia  
(c) C: fab
- SnBr<sub>2</sub>·9NH<sub>3</sub> Tin(II) bromide—9-Ammonia  
(c) C: fab

## 26-18-12-2

- SnI<sub>2</sub>·NH<sub>3</sub> Tin(II) iodide—Ammonia  
(c) C: fab
- SnI<sub>2</sub>·2NH<sub>3</sub> Tin(II) iodide—2-Ammonia  
(c) C: fab
- SnI<sub>2</sub>·3NH<sub>3</sub> Tin(II) iodide—3-Ammonia  
(c) C: fab
- SnI<sub>2</sub>·5NH<sub>3</sub> Tin(II) iodide—5-Ammonia  
(c) C: fab
- SnI<sub>2</sub>·9NH<sub>3</sub> Tin(II) iodide—9-Ammonia  
(c) C: fab

## 26-21

- Sn-Sb Tin-Antimony  
(liq) F: fca(x) fcb(x) fcc(x) fcd(x) fcf(x) fcg(x)  
fcl(x) fcm(x) fcn(x) fco(x) fcv(x) fcw(x)

## 26-22

- Sn-Bi Tin-Bismuth  
(c) F: fca fcb fcc(x) fcd(x) fcf fcg(x)  
fcl fcm fcn(x) fco(x) fcv(x) fcw(x)  
(liq) F: fca(x) fcb(x) fcc(x) fcd(x) fcf(x) fcg(x)  
fcl(x) fcm(x) fcn(x) fco(x) fcv(x) fcw(x)

## 26-23-2

- SnCH<sub>6</sub> Methyltin trihydride (Methylstannane)  
(liq) C: eag fbj fbk
- SnC<sub>2</sub>H<sub>6</sub> Dimethyltin dihydride (Dimethylstannane)  
(liq) C: eag fbj fbk
- SnC<sub>3</sub>H<sub>10</sub> Trimethyltin hydride (Trimethylstannane)  
(liq) C: eag fbj fbk
- SnC<sub>4</sub>H<sub>12</sub> Tetramethyltin (Tetramethylstannane)  
(liq) C: eag fbj fbk  
E-III: eag eal(-t,t) fbi(-t,t)  
fbj(-t,t) fbk
- SnC<sub>5</sub>H<sub>14</sub> Trimethylethyltin (Ethyltrimethylstannane)  
(liq) C: eag fbj fbk  
E-III: eag eal(t) fbi(-t,t) fbj(-t,t)  
fbk

- SnC<sub>6</sub>H<sub>16</sub> Trimethyl-n-propyltin (n-Propyltrimethylstannane)  
(liq) C: eag fbj fbk  
E-III: eag eal(-t,t) fbi(-t,t)  
fbj(-t,t) fbk
- SnC<sub>8</sub>H<sub>20</sub> Tetraethyltin (Tetraethylstannane)  
(c) C: eah  
(liq) C: eag fab
- SnC<sub>12</sub>H<sub>28</sub> Tetra-n-propyltin  
(liq) C: fab
- SnC<sub>16</sub>H<sub>36</sub> Tetra-n-butyltin  
(liq) C: fab
- SnC<sub>20</sub>H<sub>44</sub> Tetra-n-pentyltin  
(liq) C: fab

## 26-23-10-2

- SnCCl<sub>3</sub>H<sub>3</sub> Methyltin trichloride  
(c) C: eah
- SnC<sub>2</sub>Cl<sub>2</sub>H<sub>6</sub> Dimethyltin dichloride  
(c) C: eah
- SnC<sub>3</sub>ClH<sub>9</sub> Trimethyltin chloride  
(c) C: eah
- SnC<sub>6</sub>ClH<sub>15</sub> Triethyltin chloride  
(c) C: eah  
(liq) C: eag

## 26-23-11-2

- SnCBr<sub>3</sub>H<sub>3</sub> Methyltin tribromide  
(c) C: eah
- SnC<sub>2</sub>Br<sub>2</sub>H<sub>6</sub> Dimethyltin dibromide  
(c) C: eah
- SnC<sub>3</sub>BrH<sub>9</sub> Trimethyltin bromide  
(c) C: eah
- SnC<sub>6</sub>BrH<sub>15</sub> Triethyltin bromide  
(c) C: eah  
(liq) C: eag

## 26-23-12-2

- SnCl<sub>3</sub>H<sub>3</sub> Methyltin tri-iodide  
(c) C: eah
- SnC<sub>2</sub>I<sub>2</sub>H<sub>6</sub> Dimethyltin di-iodide  
(c) C: eah
- SnC<sub>3</sub>IH<sub>9</sub> Trimethyltin iodide  
(c) C: eah  
(liq) C: eag
- SnC<sub>6</sub>IH<sub>15</sub> Triethyltin iodide  
(c) C: eah  
(liq) C: eag

## 27 — Lead — Pb

## 27

- Pb Lead  
(c) C: eah fac fae fbf fbg  
D: eah fac(t) fae(t) faf(t) fai(t) fbf  
E-III: fbn(t) fbn(t)  
E-V: eah fbf fbg  
E-XI: fac fae(-t)  
E-XIII: fae(t) fai fal(t) fbf  
F: eah eal(t) fae(-t,t) faf(t) fai(t)  
fal(t) fbf fbg fbn(t) fbn(t)

(liq) C: eaq fbj fbk  
 D: eaq fac(t) fae(t) fai(t) fbj  
 E-III: eaq eal(t) fbi(t) fbj(t) fbk  
 E-XIII: fae(t) fai(t) fal(t)  
 F: eal(t,+t) fae(t,+t) fai(t,+t) fbj(t,+t)  
 fbj(t,+t) fbk  
 (g) C: faa fab fac fad fae  
 D: faa(t) fab(t) fac(t,+t) fad(t) fae(t,+t)  
 faf(t,+t) fai(t,+t)  
 E-III: fac  
 E-XI: fac  
 E-XIII: fae(t,+t) fai(t,+t) fal(t,+t)  
 F: fac fae(t,+t) faf(t,+t) fai(t,+t)  
 fal(t,+t)

Pb<sup>+</sup>

(g) C: fab

Pb<sup>2+</sup>

(g) C: fab  
 (aq) C: faa fab fac fad

Pb<sup>3+</sup>

(g) C: fab

Pb<sup>4+</sup>

(g) C: fab

Pb<sup>5+</sup>

(g) C: fab

Pb<sub>2</sub>

Dilead  
 (g) C: fab  
 E-XI: fac  
 E-XIII: fae(t) fai(t) fal(t)

27-1

PbO

Lead(II) oxide  
 (c, ll, red) C: eaj faa fab fac fad  
 E-XII: faa(t) fab(t)  
 E-XIII: fae(t) fai(t) fal(t)  
 (c, l, yellow) C: eah faa fab fac  
 fad fae fbf fbq  
 E-V: eah fbf fbq  
 E-XI: fac fae(-t)  
 E-XII: faa(t) fab(t)  
 E-XIII: fae(t) fai(t) fal(t) fbf  
 (c) E-III: eal(t) fbm(t) fbn(t)  
 (liq) C: eaq fbj fbk  
 E-III: eaq eal(t) fbi(t) fbj(t) fbk  
 E-XII: faa(t) fab(t)  
 E-XIII: fae fai(t) fal(t)  
 (g) C: fac  
 E-XI: fac  
 E-XII: faa(t) fab(t)  
 E-XIII: fae(t) fai(t) fal(t)  
 (aq) E-IV: eam

PbO<sub>2</sub>

Lead(IV) oxide  
 (c) C: faa fab fac fad fae  
 E-XI: fac fae(-t)  
 E-XII: faa(t) fab(t)  
 E-XIII: fae(t)

Pb<sub>2</sub>O

Dilead oxide  
 (c) C: fab

Pb<sub>2</sub>O<sub>3</sub>

Lead(II) lead(IV) oxide  
 (c) E-XIII: fae

Pb<sub>3</sub>O<sub>4</sub>

Dilead(II) lead(IV) oxide  
 (c) C: faa fab fac fad fae  
 E-XI: fac fae(-t)  
 E-XII: faa(t) fab(t)  
 E-XIII: fae

27-2

PbH

Lead monohydride  
 (g) E-XI: fac  
 E-XIII: fae(t) fai(t) fal(t)

27-2-1

HPbO<sub>2</sub><sup>-</sup>

Hydrogen dioxoplumbate(II) ion  
 (aq) C: fab

Pb(OH)<sub>2</sub>

Lead(II) hydroxide  
 (c) C: faa fab fac fad

27-9

PbF

Lead monofluoride  
 (g) E-XI: fac  
 E-XIII: fae(t) fai(t) fal(t)

PbF<sub>2</sub>

Lead(II) fluoride  
 (c, l) C: eah fbf fbq  
 (c) C: faa fab fac fad  
 E-V: eah fbf fbq  
 E-XIII: fae(t)  
 (liq) C: eaq fbj fbk  
 E-III: eaq eal(t) fbi(t) fbj(t) fbk

PbF<sub>4</sub>

Lead(IV) fluoride  
 (c) C: eah fab

27-10

PbCl

Lead monochloride  
 (g) E-XI: fac  
 E-XIII: fae(t) fai(t) fal(t)

PbCl<sub>2</sub>

Lead(II) chloride  
 (c) C: eah faa fab fac fad fae  
 fbf fbq  
 E-III: eal(t) fbm(t) fbn(t)  
 E-V: eah fbf fbq  
 E-XI: fac fae(-t)  
 E-XIII: fae(t) fai(t) fal(t) fbf  
 (liq) C: eaq fbj fbk  
 E-III: eaq eal(t) fbi(t) fbj(t) fbk  
 E-XIII: fae fai(t) fal(t)  
 (aq) C: faa fab fac fad

27-10-1

PbCl<sub>2</sub>·PbO

Lead(II) chloride—Lead(II) oxide  
 (c) C: fab

PbCl<sub>2</sub>·2PbO

Lead(II) chloride—2—Lead(II) oxide  
 (c) C: eah fab

PbCl<sub>2</sub>·3PbO

Lead(II) chloride—3—Lead(II) oxide  
 (c) C: fab

PbCl<sub>2</sub>·4PbO

Lead(II) chloride—4—Lead(II) oxide  
 (c) C: eah

27-10-9

PbCIF

Lead(II) chloride fluoride  
 (c) C: eah

**LEAD**  
**27-11 PbBr**

**27-11**  
**PbBr** Lead monobromide  
(g) E-XI: fac  
E-XIII: fae(t) fai(t) fal(t)

**PbBr<sub>2</sub>** Lead(II) bromide  
(c) C: eah faa fab fac fad fae  
fbf fbq  
E-III: eal(t) fbn(t) fbn(t)  
E-V: eah fbf fbq  
E-XI: fac fae(-t)  
E-XIII: fae(t) fai(t) fal(t) fbf  
(liq) C: eaq fbj fbk  
(aq) C: faa fab fac fad  
E-III: eaq eal(t) fbi(t) fbj(t) fbk  
E-XIII: fae fai(t) fal(t)

**27-11-1**  
**PbBr<sub>2</sub>·PbO** Lead(II) bromide—Lead(II) oxide  
(c) C: fab

**PbBr<sub>2</sub>·2PbO** Lead(II) bromide—2-Lead(II) oxide  
(c) C: eah fab

**PbBr<sub>2</sub>·3PbO** Lead(II) bromide—3-Lead(II) oxide  
(c) C: fab

**27-11-9**  
**PbBrF** Lead(II) bromide fluoride  
(c) C: eah

**27-12**  
**PbI** Lead monoiodide  
(g) E-XI: fac  
E-XIII: fae(t) fai(t) fal(t)

**PbI<sub>2</sub>** Lead(II) iodide  
(c) C: eah faa fab fac fad fbf  
fbq  
E-III: fbn(t) fbn(t)  
E-V: eah fbf fbq  
E-XI: fac  
E-XIII: fae(t) fai(t) fal(t) fbf  
(liq) C: eaq fbj fbk  
E-III: eaq eal(t) fbi(t) fbj(t) fbk  
E-XIII: fae fai(t) fal(t)  
(aq) C: faa fab fac fad

**PbI<sub>3</sub><sup>-</sup>** Tri-iodoplumbate(II) ion  
(aq) C: faa

**PbI<sub>4</sub><sup>2-</sup>** Tetraiodoplumbate(II) ion  
(aq) C: faa

**27-12-2**  
**PbI<sub>2</sub>·HI·5H<sub>2</sub>O** Lead(II) iodide—Hydrogen iodide—5-Water  
(c) C: fab

**27-14**  
**PbS** Lead(II) sulfide  
(c) C: eah eal faa fab fac fad  
fae fbf fbq fbn fbo  
E-III: eal(t) fbn(t) fbn(t)  
E-V: eah fbf fbq  
E-VII: faa(t) fab(t) fam(t) fam(t)  
E-XI: fac fae(-t)  
E-XIII: fae(t) fai(t) fal(t)

(liq) E-III: eal(t)  
(g) E-XI: fac  
E-XIII: fae(t) fai(t) fal(t)

**27-14-1**  
**PbSO<sub>4</sub>** Lead(II) sulfate  
(c, li) C: eaj faa fab fac fad fae  
fbb fbc  
(c, l) C: eah fbf fbq  
E-V: eah fbf fbq  
E-VII: faa(t) fab(t) fam(t) fam(t)  
E-XI: fac fae(-t)  
E-XIII: fae(t) fai(t) fal(t)

**PbS<sub>2</sub>O<sub>3</sub>** Lead(II) thiosulfate  
(c) C: fab  
E-XIII: fae

**PbS<sub>3</sub>O<sub>6</sub>** Lead(II) trithionate  
(c) C: fab  
(aq) C: fab

**PbSO<sub>4</sub>·PbO** Lead(II) sulfate—Lead(II) oxide  
(c) C: eah fab  
E-VII: faa(t) fab(t) fam(t) fam(t)  
E-XI: fac

**PbSO<sub>4</sub>·2PbO** Lead(II) sulfate—2-Lead(II) oxide  
(c) C: eah fab  
E-VII: faa(t) fab(t) fam(t) fam(t)  
E-XI: fac

**PbSO<sub>4</sub>·3PbO** Lead(II) sulfate—3-Lead(II) oxide  
(c) C: fab  
E-VII: faa(t) fab(t) fam(t) fam(t)  
E-XI: fac

**27-15**  
**PbSe** Lead(II) selenide  
(c) C: eah fab  
(g) E-XI: fac  
E-XIII: fae(t) fai(t) fal(t)

**27-15-1**  
**PbSeO<sub>4</sub>** Lead(II) selenate  
(c) C: fab

**27-16**  
**Pb-Te** Lead-Tellurium  
(c) F: fca(x) fcb(x) fcf(x) fcl(x) fcm(x)

**PbTe** Lead(II) telluride  
(c) C: eah fab  
E-XI: fac  
(g) E-XI: fac  
E-XIII: fae(t) fai(t)

**27-18**  
**Pb(N<sub>3</sub>)<sub>2</sub>** Lead(II) azide  
(c) C: fab

**27-18-1**  
**Pb(NO<sub>3</sub>)<sub>2</sub>** Lead(II) nitrate  
(c) C: fab  
E-XIII: fae  
(aq) C: faa fab(x) fac fad

**27-18-2-1**  
Pb(OH)NO<sub>3</sub> Lead(II) hydroxonitrate  
(c) C: fab

**27-18-10-2**  
PbCl<sub>2</sub>·NH<sub>3</sub> Lead(II) chloride—Ammonia  
(c) C: fab  
PbCl<sub>2</sub>·1½NH<sub>3</sub> Lead(II) chloride—1½-Ammonia  
(c) C: fab  
PbCl<sub>2</sub>·2NH<sub>3</sub> Lead(II) chloride—2-Ammonia  
(c) C: fab  
PbCl<sub>2</sub>·8NH<sub>3</sub> Lead(II) chloride—8-Ammonia  
(c) C: fab  
2PbCl<sub>2</sub>·NH<sub>4</sub>Cl 2-Lead(II) chloride—Ammonium chloride  
(c) C: fab  
E-XIII: fae

**27-18-11-2**  
PbBr<sub>2</sub>·NH<sub>3</sub> Lead(II) bromide—Ammonia  
(c) C: fab  
PbBr<sub>2</sub>·2NH<sub>3</sub> Lead(II) bromide—2-Ammonia  
(c) C: fab  
PbBr<sub>2</sub>·3NH<sub>3</sub> Lead(II) bromide—3-Ammonia  
(c) C: fab  
PbBr<sub>2</sub>·5½NH<sub>3</sub> Lead(II) bromide—5½-Ammonia  
(c) C: fab  
PbBr<sub>2</sub>·8NH<sub>3</sub> Lead(II) bromide—8-Ammonia  
(c) C: fab

**27-18-12-2**  
PbI<sub>2</sub>·½NH<sub>3</sub> Lead(II) iodide—½-Ammonia  
(c) C: fab  
PbI<sub>2</sub>·NH<sub>3</sub> Lead(II) iodide—Ammonia  
(c) C: fab  
PbI<sub>2</sub>·2NH<sub>3</sub> Lead(II) iodide—2-Ammonia  
(c) C: fab  
PbI<sub>2</sub>·5NH<sub>3</sub> Lead(II) iodide—5-Ammonia  
(c) C: fab  
PbI<sub>2</sub>·8NH<sub>3</sub> Lead(II) iodide—8-Ammonia  
(c) C: fab  
3PbI<sub>2</sub>·4NH<sub>4</sub>I 3-Lead(II) iodide—4-Ammonium iodide  
(c) C: fab  
3PbI<sub>2</sub>·4NH<sub>4</sub>I·6H<sub>2</sub>O 3-Lead(II) iodide—4-Ammonium iodide—6-Water  
(c) C: fab

**27-18-14-2-1**  
PbSO<sub>4</sub>·(NH<sub>4</sub>)<sub>2</sub>SO<sub>4</sub> Lead(II) sulfate—Ammonium sulfate  
(c) C: fab

**27-19-1**  
Pb(PO<sub>3</sub>)<sub>2</sub> Lead(II) metaphosphate  
(c) C: eah  
Pb<sub>2</sub>P<sub>2</sub>O<sub>7</sub> Lead(II) diphosphate  
(c) E-XIII: fae  
Pb<sub>3</sub>(PO<sub>4</sub>)<sub>2</sub> Lead(II) phosphate  
(c) C: eah faa fab fac fad fae  
E-XI: fac fae(-t)  
E-XIII: fae  
PbO·Pb<sub>3</sub>(PO<sub>4</sub>)<sub>2</sub> Lead(II) oxide—Lead(II) phosphate  
(c) C: eah  
5PbO·Pb<sub>3</sub>(PO<sub>4</sub>)<sub>2</sub> 5-Lead(II) oxide—Lead(II) phosphate  
(c) C: eah

**27-19-2-1**  
Pb(PhO<sub>3</sub>) Lead(II) phosphite  
(c) C: fab

**27-19-9-1**  
PbF<sub>2</sub>·3Pb<sub>3</sub>(PO<sub>4</sub>)<sub>2</sub> Lead(II) fluoride—3-Lead(II) phosphate  
(c) C: eah

**27-19-10-1**  
PbCl<sub>2</sub>·3Pb<sub>3</sub>(PO<sub>4</sub>)<sub>2</sub> Lead(II) chloride—3-Lead(II) phosphate  
(c) C: eah

**27-19-12**  
3PbI<sub>2</sub>·PI<sub>3</sub> 3-Lead(II) iodide—Phosphorus tri-iodide  
(c) C: fab  
3PbI<sub>2</sub>·PI<sub>3</sub>·12H<sub>2</sub>O 3-Lead(II) iodide—Phosphorus tri-iodide—12-Water  
(c) C: fab

**27-20-1**  
Pb<sub>3</sub>(AsO<sub>4</sub>)<sub>2</sub> Lead(II) arsenate  
(c) C: eah  
E-XIII: fae  
5PbO·Pb<sub>3</sub>(AsO<sub>4</sub>)<sub>2</sub> 5-Lead(II) oxide—Lead(II) arsenate  
(c) C: eah

**27-20-9-1**  
PbF<sub>2</sub>·3Pb<sub>3</sub>(AsO<sub>4</sub>)<sub>2</sub> Lead(II) fluoride—3-Lead(II) arsenate  
(c) C: eah

**27-20-10-1**  
PbCl<sub>2</sub>·3Pb<sub>3</sub>(AsO<sub>4</sub>)<sub>2</sub> Lead(II) chloride—3-Lead(II) arsenate  
(c) C: eah

**27-20-12**  
3PbI<sub>2</sub>·AsI<sub>3</sub> 3-Lead(II) iodide—Arsenic(III) iodide  
(c) C: fab  
3PbI<sub>2</sub>·AsI<sub>3</sub>·12H<sub>2</sub>O 3-Lead(II) iodide—Arsenic(III) iodide—12-Water  
(c) C: fab

**27-21**  
Pb-Sb Lead-Antimony  
(liq) F: fca(x) fcb(x) fcc(x) fcd(x) fci(x) fcg(x)  
fcl(x) fcm(x) fcn(x) fco(x) fcv(x) fcw(x)

**27-21-1**  
PbO·Sb<sub>2</sub>O<sub>3</sub> Lead(II) oxide—Antimony(III) oxide  
(c) C: eah

**27-21-12**  
3PbI<sub>2</sub>·SbI<sub>3</sub> 3-Lead(II) iodide—Antimony(III) iodide  
(c) C: fab  
3PbI<sub>2</sub>·SbI<sub>3</sub>·12H<sub>2</sub>O 3-Lead(II) iodide—Antimony(III) iodide—12-Water  
(c) C: fab

**LEAD**  
**27-22 Pb-Bi**

**27-22**  
**Pb-Bi** Lead-Bismuth  
(c) F: fca(x) fcb(x) fcc(x) fcd(x) fcr(-t) fct(-t)  
fcv(x) fcw(x)  
(liq) F: fca(x) fcb(x) fcc(x) fcd(x) fcf(x) fcg(x)  
fcl(x) fcm(x) fcn(x) fco(x) fcr(t) fcv(x)  
fcw(x)

**27-22-1**  
**2PbO·Bi<sub>2</sub>O<sub>3</sub>** 2-Lead(II) oxide-Bismuth(III) oxide  
(c) C: eah  
**2PbO·3Bi<sub>2</sub>O<sub>3</sub>** 2-Lead(II) oxide-3-Bismuth(III) oxide  
(c) C: eah

**27-23-1**  
**PbCO<sub>3</sub>** Lead(II) carbonate  
(c) C: faa fab fac fad fae  
E-IV: faa(t) fab(t) fam(t) fan(t)  
E-XI: fac fae(-t)  
E-XIII: fae(t)  
(aq) E-IV: eam fap  
**PbO·PbCO<sub>3</sub>** Lead(II) oxide-Lead(II) carbonate  
(c) C: faa fab fac fad fae  
E-IV: faa(t) fab(t) fac fam(t) fan(t)  
E-XI: fac  
**2PbO·PbCO<sub>3</sub>** 2-Lead(II) oxide-Lead(II) carbonate  
(c) C: faa fab fac fad  
**PbC<sub>2</sub>O<sub>4</sub>** Lead(II) oxalate  
(c) C: fab

**27-23-2**  
**PbC<sub>4</sub>H<sub>12</sub>** Tetramethyllead  
(c) C: eah  
(liq) C: eaq fbj fbk  
**PbC<sub>5</sub>H<sub>14</sub>** Ethyltrimethyllead  
(liq) C: eaq fbj fbk  
**PbC<sub>6</sub>H<sub>16</sub>** Diethyldimethyllead  
(liq) C: eaq fbj fbk  
**PbC<sub>7</sub>H<sub>18</sub>** Triethylmethyllead  
(liq) C: eaq fbj fbk  
**PbC<sub>8</sub>H<sub>20</sub>** Tetraethyllead  
(c) C: eah  
(liq) C: eaq fab fbj fbk

**27-23-2-1**  
**PbC<sub>2</sub>H<sub>2</sub>O<sub>4</sub>** Lead(II) formate  
(c) C: fab  
(aq) C: fab  
**PbC<sub>4</sub>H<sub>6</sub>O<sub>4</sub>** Lead(II) acetate  
(c) C: fab  
(aq) C: fab  
**PbC<sub>4</sub>H<sub>6</sub>O<sub>4</sub>·3H<sub>2</sub>O** Lead(II) acetate-3-Water  
(c) C: fab  
**PbC<sub>4</sub>H<sub>6</sub>O<sub>6</sub>** Lead(II) glycolate  
(c) C: fab  
(aq) C: fab

**27-23-18-1**  
**2PbO·PbC<sub>2</sub>N<sub>2</sub>·H<sub>2</sub>O** 2-Lead(II) oxide-Lead(II) cyanide-Water  
(c) C: fab

**27-23-18-14**  
**PbC<sub>2</sub>N<sub>2</sub>S<sub>2</sub>** Lead(II) isothiocyanate  
(c) C: fab

**27-24-1**  
**PbSiO<sub>3</sub>** Lead(II) metasilicate  
(c) C: faa fab fac fad  
E-XI: fac fae(-t)  
E-XIII: fae  
(amorph) C: fab  
E-XIII: fae

**PbO·SiO<sub>2</sub>** Lead(II) oxide-Silicon dioxide  
(c) C: eah  
**2PbO·SiO<sub>2</sub>** 2-Lead(II) oxide-Silicon dioxide  
(c) C: eah  
**4PbO·SiO<sub>2</sub>** 4-Lead(II) oxide-Silicon dioxide  
(c, III) C: eaj  
(c, II) C: eaj  
**Pb<sub>2</sub>SiO<sub>4</sub>** Lead(II) orthosilicate  
(c) C: faa fab fac fad  
E-XIII: fae  
(amorph) C: fab

**27-24-14**  
**3PbS·2SiS<sub>2</sub>** 3-Lead(II) sulfide-2-Silicon disulfide  
(c) C: eah

**27-26**  
**Pb-Sn** Lead-Tin  
(liq) F: fca(x) fcb(x) fcf(x) fcg(x) fcl(x) fcm(x)

**27-26-12**  
**PbI<sub>2</sub>·SnI<sub>2</sub>** Lead(II) iodide-Tin(II) iodide  
(c) C: fab  
**PbI<sub>2</sub>·SnI<sub>2</sub>·8H<sub>2</sub>O** Lead(II) iodide-Tin(II) iodide-8-Water  
(c) C: fab

**28 - Boron - B**

**28**  
**B** Boron  
(c) C: eah fac fae  
D: eah fac(t, +t) fae(t, +t) faf(t, +t)  
fai(t, +t) fbf  
E-XI: fac  
E-XIII: fae(t, +t) fai(t, +t) fal(t, +t)  
fbf  
(amorph) C: fab fac fae  
E-XIII: fae(t) fai(t) fal(t)  
(liq) D: eaq fac(+t) fae(+t) faf(+t) fai(+t) fbj  
E-XIII: fae fai(+t) fal(+t)  
(g) C: faa fab fac fad fae  
D: faa(t, +t) fab(t, +t) fac(t, +t)  
fad(t, +t) fae(t, +t) faf(t, +t)  
fai(t, +t)  
E-XI: fac  
E-XIII: fae fai(t, +t) fal(t, +t)  
**B<sup>+</sup>**  
(g) C: fab

$B^{2+}$   
(g) C: fab

$B^{3+}$   
(g) C: fab

$B^{4+}$   
(g) C: fab

$B^{5+}$   
(g) C: fab

$B_2$   
Diboron  
(g) C: fab  
E-XIII: fae(t, +t) fai(t, +t) fal(t, +t)

28-1

$BO$   
Boron monoxide  
(g) C: faa fab fac fad fae  
E-XI: fac  
E-XIII: fae(t, +t) fai(t, +t) fal(t, +t)

$BO_2^-$   
Metaborate ion  
(aq) C: fab

$B_2O_3$   
Diboron trioxide  
(c) C: eah faa fab fac fad fae  
fbf fbq  
E-XI: fac fae(-t)  
E-XII: faa(t) fab(t)  
E-XIII: fae(t) fai(t) fal(t) fbf  
(gls) C: faa fab fac fad fae  
E-XII: faa(t) fab(t)  
E-XIII: fae(t) fai(t) fal(t)  
(liq) C: eaq fbj fbk  
E-XII: faa(+t) fab(+t)  
E-XIII: fae fai(t) fal(t)

28-2

$BH$   
Boron monohydride  
(g) C: faa fab fac fad fae  
E-XI: fac  
E-XIII: fae(t) fai(t) fal(t)

$B^2H$   
Boron monodeuteride  
(g) E-XI: fac  
E-XIII: fae(t) fai(t) fal(t)

$B_2H_6$   
Diborane(6)  
(c) C: eah fbf fbq  
(liq) C: eaq fbj fbk  
E-III: eaq eal(-t) fbi(-t) fbj fbk  
(g) C: faa fab fac fad fae  
E-XIII: fae(t, +t) fai(t, +t) fal(t, +t)

$B_4H_{10}$   
Tetraborane(10)  
(c) C: eah  
(liq) C: eaq fbj fbk  
E-III: eaq eal(-t) fbi(-t) fbj fbk

$B_5H_9$   
Pentaborane(9)  
(c) C: eah  
(liq) C: eaq faa fab fac fad fae  
fbj fbk  
E-III: eaq eal(-t, t) fbi(-t, t)  
fbj fbk  
(g) C: faa fab fac fad fae  
E-XIII: fae(t) fai(t) fal(t)

$B_5H_{11}$   
Pentaborane(11)  
(c) C: eah  
(liq) C: eaq fbj fbk  
E-III: eaq eal(-t, t) fbi(-t, t)  
fbj fbk

$B_6H_{10}$   
Hexaborane(10)  
(c) C: eah

$B_{10}H_{14}$   
Decaborane(14)  
(c) C: eah eai fab fbf fbq fbn  
fbo  
E-III: eal(t) fbm(t) fbn  
(liq) C: eaq fbj fbk  
E-III: eal(t) fbi(t) fbj  
E-XIII: fae(t) fai(t) fal(t)

28-2-1

$HBO_2$   
Metaboric acid  
(c, l) C: eah  
(c) C: faa fab fac fad  
(aq) C: fab

$H_2BO_3^-$   
Dihydrogen orthoborate ion  
(aq) C: faa fab fac fad

$H_3BO_3$   
Orthoboric acid  
(c) C: faa fab fac fad fae  
E-XIII: fae  
(aq) C: faa fab(x) fac fad

$H_2B_4O_7$   
Dihydrogen tetraborate  
(c) C: fab

28-9

$BF$   
Boron monofluoride  
(g) C: fab  
E-XIII: fae(t, +t) fai(t, +t) fal(t, +t)

$BF_3$   
Boron trifluoride  
(c, II) E-XI: eaj fbb  
(c, I) C: eah eai fbf fbq fbn fbo  
E-V: eah fbf fbq  
E-XI: eah fbf  
(c) E-III: eal(-t) fbm(-t) fbn  
E-XI: fae(-t)  
(liq) C: eaq fbj fbk  
E-III: eaq eal(-t) fbi(-t) fbj fbk  
E-XI: eaq fae(-t) fbj  
(g) C: faa fab fac fad fae  
E-XI: fac fae(-t)  
E-XIII: fae(t) fai(t) fal(t)  
(aq) C: fab

$BF_3 \cdot H_2O$   
Boron trifluoride-Water  
(c) C: eah

$BF_3 \cdot 2H_2O$   
Boron trifluoride-2-Water  
(c) C: eah  
(liq) C: eaq

$BF_4^-$   
Tetrafluoroborate ion  
(aq) C: faa fab fac fad

28-9-2

$HBF_4$   
Tetrafluoroboric acid  
(aq) C: fab

28-10

$BCl$   
Boron monochloride  
(g) C: fab fae  
E-XIII: fae(t, +t) fai(t, +t) fal(t, +t)

**BCl<sub>3</sub>** Boron trichloride  
(c) C: eah  
(liq) C: eaq faa fab fac fad fbj  
fbk  
E-III: eaq eal(-t) fbi(-t) fbj(-t) fbk  
(g) C: faa fab fac fad fae  
E-XI: fac  
E-XIII: fae(t,+t) fai(t,+t) fal(t,+t)

**28-10-2**  
**B<sub>2</sub>ClH<sub>6</sub>** Chlorodiborane(6)  
(c) C: eah

**28-11**  
**BBr** Boron monobromide  
(g) C: fab  
E-XIII: fae(t,+t) fai(t,+t) fal(t,+t)

**BBr<sub>3</sub>** Boron tribromide  
(c) C: eah  
(liq) C: eaq faa fab fac fad fbj  
fbk  
E-III: eaq eal(-t,t) fbi(-t,t)  
fbj(-t,t) fbk  
(g) C: faa fab fac fad fae  
E-XI: fac  
E-XIII: fae(t,+t) fai(t,+t) fal(t,+t)

**28-11-2**  
**B<sub>2</sub>BrH<sub>6</sub>** Bromodiborane(6)  
(c) C: eah  
(liq) C: eaq fbj fbk  
E-III: eaq eal(-t) fbi(-t) fbj fbk

**28-12**  
**BI<sub>3</sub>** Boron tri-iodide  
(c) C: eah  
(liq) C: eaq  
(g) E-XIII: fae(t) fai(t) fal(t)

**28-14**  
**BS** Boron monosulfide  
(g) E-XIII: fae(t,+t) fai(t,+t) fal(t,+t)

**B<sub>2</sub>S<sub>3</sub>** Diboron trisulfide  
(c) C: eah fab

**B<sub>2</sub>S<sub>5</sub>** Diboron pentasulfide  
(c) C: eah

**28-14-2-1**  
**B(HSO<sub>4</sub>)<sub>3</sub>** Boron tri(hydrogen sulfate)  
(c) C: eah

**28-14-10**  
**BCl<sub>3</sub>·SCl<sub>4</sub>** Boron trichloride-Sulfur tetrachloride  
(c) C: eah

**28-18**  
**BN** Boron mononitride  
(c) C: faa fab fac fad fae  
E-VIII: faa(t) fab(t)  
E-XIII: fae(t) fai(t) fal(t)

(g) C: fab  
E-XIII: fae(t,+t) fai(t,+t) fal(t,+t)

**28-18-2**  
**B<sub>3</sub>N<sub>3</sub>H<sub>6</sub>** Borazole  
(c) C: eah  
E-XIII: fae(t) fai(t) fal(t)  
(liq) C: eaq fbj fbk  
E-III: eaq eal(-t,t) fbi(-t,t)  
fbj fbk  
(g) C: fac fae

**28-18-2-1**  
**NH<sub>4</sub>BO<sub>2</sub>** Ammonium metaborate  
(aq) C: fab  
**NH<sub>4</sub>BO<sub>3</sub>** Ammonium peroxyborate  
(aq) C: fab  
**NH<sub>4</sub>BO<sub>3</sub>·H<sub>2</sub>O** Ammonium peroxyborate-Water  
(c) C: fab  
**(NH<sub>4</sub>)<sub>2</sub>HBO<sub>3</sub>** Diammonium hydrogen orthoborate  
(aq) C: fab

**28-23**  
**B<sub>4</sub>C** Tetraboron carbide  
(c) C: fac fae  
E-XI: fac fae(-t)  
E-XIII: fae(t) fai(t) fal(t)

**28-23-2**  
**BC<sub>3</sub>H<sub>9</sub>** Trimethylborane  
(c) C: eah  
(liq) C: eaq fab fbj fbk  
**B<sub>2</sub>C<sub>2</sub>H<sub>10</sub>** 1,1-Dimethyldiborane  
(c) C: eah  
(liq) C: eaq fbj fbk  
**B<sub>2</sub>C<sub>3</sub>H<sub>12</sub>** 1,1,2-Trimethyldiborane  
(c) C: eah  
(liq) C: eaq fbj fbk  
**B<sub>2</sub>C<sub>4</sub>H<sub>14</sub>** 1,1-Diethyldiborane  
(liq) C: eaq fbj fbk  
1,1,2,2-Tetramethyldiborane  
(c) C: eah  
(liq) C: eaq fbj fbk  
**B<sub>2</sub>C<sub>6</sub>H<sub>22</sub>** 1,1,2,2-Tetraethyldiborane  
(c) C: eah

**28-23-2-1**  
**BC<sub>2</sub>H<sub>7</sub>O** Dimethoxyborane  
(c) C: eah  
(liq) C: eaq fbj fbk  
**B<sub>3</sub>C<sub>3</sub>H<sub>9</sub>O<sub>3</sub>** Trimethylboroxole  
(c) C: eah  
(liq) C: eaq fbj fbk

**28-23-9-2**  
**BCF<sub>2</sub>H<sub>3</sub>** Methyl difluoroborane  
(c) C: eah  
(liq) C: eaq fbj fbk  
**BC<sub>2</sub>FH<sub>5</sub>** Dimethyl fluoroborane  
(c) C: eah  
(liq) C: eaq fbj fbk

**28-23-10-2**  
**BCCl<sub>2</sub>H<sub>3</sub>** Methylchloroborane  
 (c) C: eah  
 (liq) C: eaq  
**BC<sub>2</sub>ClH<sub>6</sub>** Dimethylchloroborane  
 (liq) C: eaq fbj fbk  
**BC<sub>4</sub>ClH<sub>10</sub>** Diethylchloroborane  
 (c) C: eah  
 (liq) C: eaq fbj fbk

**28-23-11-2**  
**BCBr<sub>2</sub>H<sub>3</sub>** Methyl dibromoborane  
 (c) C: eah  
 (liq) C: eaq fbj fbk  
**BC<sub>2</sub>BrH<sub>6</sub>** Dimethyl bromoborane  
 (c) C: eah  
 (liq) C: eaq fbj fbk  
**BC<sub>4</sub>BrH<sub>10</sub>** Diethyl bromoborane  
 (c) C: eah  
 (liq) C: eaq fbj fbk

**28-23-12-2**  
**BC<sub>2</sub>IH<sub>6</sub>** Dimethyl iodoborane  
 (c) C: eah  
 (liq) C: eaq fbj fbk

**28-23-18-2**  
**BC<sub>2</sub>NH<sub>6</sub>** Dimethylaminoborane  
 (c) C: eah  
 Aminodimethylborane  
 (c) C: eah  
**BH<sub>3</sub>-C<sub>2</sub>NH<sub>7</sub>** Dimethylamine-Borane  
 (c) C: eah  
**BC<sub>3</sub>NH<sub>10</sub>** Methylaminodimethylborane  
 (liq) C: eaq fbj fbk  
**BC<sub>3</sub>H<sub>6</sub>-CNH<sub>5</sub>** Methylamine-Trimethylborane  
 (c) C: eah  
**BC<sub>4</sub>N<sub>2</sub>H<sub>13</sub>** Bis(dimethylamino)borane  
 (c) C: eah  
**BC<sub>3</sub>H<sub>6</sub>-NC<sub>2</sub>H<sub>7</sub>** Dimethylamine-Trimethylborane  
 (c) C: eah  
**BC<sub>3</sub>NH<sub>16</sub>** Diethylaminodimethylborane  
 (liq) C: eaq fbj fbk  
 Dimethylaminodiethylborane  
 (liq) C: eaq fbj fbk  
**BC<sub>6</sub>N<sub>3</sub>H<sub>18</sub>** Tris(dimethylamino)borane  
 (c) C: eah  
 (liq) C: eaq fbj fbk  
**B<sub>2</sub>C<sub>6</sub>N<sub>2</sub>H<sub>20</sub>** Bis(methylaminodimethylborane)  
 (liq) C: eaq fbj fbk  
**B<sub>2</sub>C<sub>12</sub>N<sub>6</sub>H<sub>36</sub>** Bis[tris(dimethylamino)borane]  
 (liq) C: eaq  
**B<sub>2</sub>CN<sub>3</sub>H<sub>8</sub>** 1-Methylborazole (N-Methylborazole)  
 (liq) C: eaq fbj fbk  
 2-Methylborazole (B-Methylborazole)  
 (c) C: eah  
 (liq) C: eaq fbj fbk

**B<sub>3</sub>C<sub>2</sub>N<sub>3</sub>H<sub>10</sub>** 1,2-Dimethylborazole  
 (liq) C: eaq fbj fbk  
 1,3-Dimethylborazole  
 (liq) C: eaq fbj fbk  
 2,4-Dimethylborazole  
 (c) C: eah  
 (liq) C: eaq fbj fbk  
**B<sub>3</sub>C<sub>3</sub>N<sub>3</sub>H<sub>12</sub>** 1,2,4-Trimethylborazole  
 (liq) C: eaq fbj fbk  
 1,3,5-Trimethylborazole  
 (c) C: fbh  
 (liq) C: eaq fbj fbk  
 2,4,6-Trimethylborazole  
 (c) C: eah  
 (liq) C: eaq fbj fbk  
**B<sub>3</sub>C<sub>4</sub>N<sub>6</sub>H<sub>14</sub>** 1,2,4,6-Tetramethylborazole  
 (liq) C: eaq fbj fbk  
**B<sub>3</sub>C<sub>6</sub>N<sub>3</sub>H<sub>18</sub>** Hexamethylborazole  
 (c) C: eah  
 (liq) C: eaq fbj fbk

**28-23-18-2-1**  
**B<sub>3</sub>C<sub>3</sub>H<sub>6</sub>O<sub>3</sub>-CNH<sub>5</sub>** Trimethylboroxole-Methylamine  
 (c) C: eah

**28-23-18-10-2**  
**BC<sub>2</sub>NCl<sub>2</sub>H<sub>6</sub>** Dimethylaminodichloroborane  
 (c) C: eah  
 (liq) C: eaq fbj fbk  
**BC<sub>4</sub>N<sub>2</sub>ClH<sub>6</sub>** Bis(dimethylamino)chloroborane  
 (c) C: eah  
 (liq) C: eaq fbj fbk  
**B<sub>2</sub>C<sub>4</sub>N<sub>2</sub>Cl<sub>4</sub>H<sub>12</sub>** Bis(dimethylaminodichloroborane)  
 (c) C: eah

**28-23-18-11-2**  
**BC<sub>2</sub>NBr<sub>2</sub>H<sub>6</sub>** Dimethylaminodibromoborane  
 (c) C: eah  
**B<sub>2</sub>C<sub>4</sub>N<sub>2</sub>Br<sub>4</sub>H<sub>12</sub>** Bis(dimethylaminodibromoborane)  
 (c) C: eah

**28-27-1**  
**PbO·B<sub>2</sub>O<sub>3</sub>** Lead(II) oxide-Diboron trioxide  
 (c) C: eah  
**PbO·2B<sub>2</sub>O<sub>3</sub>** Lead(II) oxide-2-Diboron trioxide  
 (c) C: eah  
**PbO·3B<sub>2</sub>O<sub>3</sub>** Lead(II) oxide-3-Diboron trioxide  
 (c) C: eah  
**2PbO·5B<sub>2</sub>O<sub>3</sub>** 2-Lead(II) oxide-5-Diboron trioxide  
 (c) C: eah  
**PbB<sub>2</sub>O<sub>4</sub>** Lead(II) dimetaborate  
 (c) E-XIII: fae  
**PbB<sub>4</sub>O<sub>7</sub>** Lead(II) tetraborate  
 (c) E-XIII: fae



29 - Aluminum - Al

Al  
29  
Aluminum  
(c) C: eah fac fae fbf fbq  
D: eah fac(t) fae(t) faf(t) fai(t) fbf  
E-III: fbm(t,+t) fbn(t,+t)  
E-V: eah fbf fbq  
E-XI: fac fae(-t)  
E-XIII: fae(t) fai(t) fal(t) fbf  
F: eah eal(t) fac fae(-t,t) faf(t)  
fai(t) fal(t) fbf fbq fbm(t) fbn(t)  
(liq) C: eaq fbj fbk  
D: eaq fac(t,+t) fae(t,+t) faf(t,+t)  
fai(t,+t) fbj  
E-III: eaq eal(t,+t) fbi(t,+t)  
fbj(t,+t) fbk  
E-XIII: fae fai(t,+t) fal(t,+t)  
F: eal(t,+t) fae(t,+t) faf(t,+t)  
fai(t,+t) fal(t,+t) fbi(t,+t)  
fbj(t,+t) fbk  
(g) C: faa fab fac fad fae  
D: faa(t,+t) fab(t,+t) fac(t,+t)  
fad(t,+t) fae(t,+t) faf(t,+t)  
fai(t,+t)  
E-III: fac  
E-XI: fac  
E-XIII: fae(t,+t) fai(t,+t) fal(t,+t)  
F: fac fae(t,+t) faf(t,+t) fai(t,+t)  
fal(t,+t)

Al<sup>+</sup>

(g) C: fab

Al<sup>2+</sup>

(g) C: fab

Al<sup>3+</sup>

(g) C: fab  
(aq) C: faa fab fac fad  
E-XI: fac

Al<sup>4+</sup>

(g) C: fab

Al<sup>5+</sup>

(g) C: fab

Al<sup>6+</sup>

(g) C: fab

Al<sup>7+</sup>

(g) C: fab

Al<sup>8+</sup>

(g) C: fab

Al<sup>9+</sup>

(g) C: fab

Al<sup>10+</sup>

(g) C: fab

Al<sup>11+</sup>

(g) C: fab

29-1

AlO Aluminum monoxide

(g) C: fab  
E-XI: fac  
E-XII: faa(t) fab(t)  
E-XIII: fae(t) fai(t) fal(t)

AlO<sub>2</sub><sup>-</sup> Dioxoaluminate ion

(aq) C: fab

Al<sub>2</sub>O Dialuminum oxide

(g) E-XII: faa(t) fab(t)

Al<sub>2</sub>O<sub>3</sub> Aluminum oxide

(c, a, corundum) C: faa fab fac fad  
fae

E-XII: faa(t) fab(t)

(c, γ) C: fab

(c) C: eah fbf fbq

E-V: eah fbf fbq

E-VII: fam(t) fan(t)

E-XI: fac fae(-t)

E-XIII: fae(t) fai(t) fal(t)

(liq) E-III: eal(+t)

Al<sub>2</sub>O<sub>3</sub>·H<sub>2</sub>O Aluminum oxide-Water

(c) C: faa fab fac fad fae

E-XI: fac fae(-t)

E-XIII: fae(t) fai(t) fal(t)

Al<sub>2</sub>O<sub>3</sub>·3H<sub>2</sub>O Aluminum oxide-3-Water

(c, gibbsite) E-XI: fac fae(-t)

(c, hydrargillite) C: faa fab fac fad  
fae

(c) E-XIII: fae(t) fai(t) fal(t)

29-2

AlH Aluminum monohydride

(g) C: fab

E-XI: fac

E-XIII: fae(t) fai(t) fal(t)

Al<sup>3</sup>H Aluminum monodeuteride

(g) E-XI: fac

E-XIII: fae(t) fai(t) fal(t)

29-2-1

Al(OH)<sub>3</sub> Aluminum hydroxide

(amorph) C: fab

29-9

AlF Aluminum monofluoride

(g) C: fab

E-XIII: fae(t) fai(t) fal(t)

AlF<sub>3</sub> Aluminum fluoride

(c, α) E-XIII: fae(t) fai(t) fal(t) fbb

(c, β) E-XIII: fae(t) fai(t) fal(t)

(c) C: eal faa fab fac fad fbn  
fbo

(aq) C: fab

AlF<sub>3</sub>·½H<sub>2</sub>O Aluminum fluoride-½-Water

(c) C: faa fab fac fad

AlF<sub>3</sub>·3H<sub>2</sub>O Aluminum fluoride-3-Water

(c) C: faa fab fac fad

AlF<sub>3</sub>·3½H<sub>2</sub>O Aluminum fluoride-3½-Water

(c) E-XIII: fae

29-9-2

H<sub>3</sub>AlF<sub>6</sub> Hydrogen hexafluoroaluminate

(aq) C: fab

**29-10**  
AlCl Aluminum monochloride  
(g) C: fab  
E-XI: fac  
E-XIII: fae(t) fai(t) fal(t)

AlCl<sub>3</sub> Aluminum chloride  
(c) C: faa fab fac fad fae  
E-XIII: fae(t) fai(t) fal(t) fbf  
(liq) E-XIII: fae fai fal  
(aq) C: fab

AlCl<sub>3</sub>·6H<sub>2</sub>O Aluminum chloride—6-Water  
(c) C: faa fab fac fad  
E-XIII: fae

Al<sub>2</sub>Cl<sub>6</sub> Aluminum hexachloride  
(c) C: eah eal fbf fbj fbn fbo  
E-III: eal eal(t) fbn(t) fbn(t) fbo  
E-V: eah fbf fbj  
(liq) E-III: fbi(t) fbj(t)  
(g) C: fab

**29-11**  
AlBr Aluminum monobromide  
(g) C: fab  
E-XIII: fae(t) fai(t) fal(t)

AlBr<sub>3</sub> Aluminum bromide  
(c) C: faa fab fac fad fae  
E-XIII: fae fai fal fbf  
(liq) E-XIII: fae fai fal  
(aq) C: fab

Al<sub>2</sub>Br<sub>6</sub> Aluminum hexabromide  
(c) C: eah fbf fbj  
E-III: eal fbn(t) fbn(t)  
E-V: eah fbf fbj  
(liq) C: eaq fbj fbk  
E-III: eaq eal(t) fbi(t) fbj(t) fbk

**29-12**  
AlI Aluminum monoiodide  
(g) C: fab  
E-XIII: fae(t) fai(t) fal(t)

AlI<sub>3</sub> Aluminum iodide  
(c) C: faa fab fac fad  
E-XIII: fae(t) fai(t) fal(t) fbf  
(liq) E-XIII: fae fai fal  
(aq) C: fab

Al<sub>2</sub>I<sub>6</sub> Aluminum hexaiodide  
(c) C: eah fbf fbj  
E-III: eal fbn(t) fbn(t)  
E-V: eah fbf fbj  
(liq) C: eaq fbj fbk  
E-III: eaq eal(t) fbi(t) fbj(t) fbk

**29-14**  
Al<sub>2</sub>S<sub>3</sub> Aluminum trisulfide  
(c) C: faa fab fac fad

**29-14-1**  
Al<sub>2</sub>(SO<sub>4</sub>)<sub>3</sub> Aluminum sulfate  
(c) C: faa fab fac fad fae  
E-VII: faa fab fam(t) fan(t)  
E-XI: fac fae(-t)  
E-XIII: fae(t) fai(t) fal(t)  
(aq) C: fab

Al<sub>2</sub>(SO<sub>4</sub>)<sub>3</sub>·6H<sub>2</sub>O Aluminum sulfate—6-Water  
(c) C: faa fab fac fad fae  
E-XI: fac fae(-t)  
E-XIII: fae

Al<sub>2</sub>(SO<sub>4</sub>)<sub>3</sub>·18H<sub>2</sub>O Aluminum sulfate—18-Water  
(c) C: fab  
E-XIII: fae

**29-14-10-1**  
AlCl<sub>3</sub>·½SO<sub>2</sub> Aluminum chloride—½-Sulfur dioxide  
(c) C: fab

AlCl<sub>3</sub>·SO<sub>2</sub> Aluminum chloride—Sulfur dioxide  
(c) C: fab

**29-14-10-2**  
AlCl<sub>3</sub>·½H<sub>2</sub>S Aluminum chloride—½-Hydrogen sulfide  
(c) C: fab

AlCl<sub>3</sub>·H<sub>2</sub>S Aluminum chloride—Hydrogen sulfide  
(c) C: fab

**29-14-11-2**  
AlBr<sub>3</sub>·H<sub>2</sub>S Aluminum bromide—Hydrogen sulfide  
(c) C: eah fab

**29-14-12-2**  
AlI<sub>3</sub>·2H<sub>2</sub>S Aluminum iodide—2-Hydrogen sulfide  
(c) C: fab

AlI<sub>3</sub>·4H<sub>2</sub>S Aluminum iodide—4-Hydrogen sulfide  
(c) C: fab

**29-15**  
Al<sub>3</sub>Se<sub>4</sub> Trialuminum tetraselenide  
(c) C: eah

**29-16**  
Al<sub>2</sub>Te<sub>3</sub> Dialuminum tritelluride  
(c) C: eah

**29-18**  
AlN Aluminum nitride  
(c) C: faa fab fac fad fae  
E-VIII: faa(t) fab(t)  
E-XIII: fae(t) fai(t) fal(t)

**29-18-1**  
Al(NO<sub>3</sub>)<sub>3</sub> Aluminum nitrate  
(aq) C: fab

Al(NO<sub>3</sub>)<sub>3</sub>·6H<sub>2</sub>O Aluminum nitrate—6-Water  
(c) C: faa fab fac fad fae  
E-XI: fac fae(-t)  
E-XIII: fae

Al(NO<sub>3</sub>)<sub>3</sub>·9H<sub>2</sub>O Aluminum nitrate—9-Water  
(c) C: faa fab fac fad

**29-18-9-2**  
AlF<sub>3</sub>·2NH<sub>4</sub>F·½H<sub>2</sub>O Aluminum fluoride—2-Ammonium fluoride—½-Water  
(c) C: fab

**29-18-10-2**  
AlCl<sub>3</sub>·NH<sub>3</sub> Aluminum chloride—Ammonia  
(c) C: eah fab  
(liq) C: eaq fbj fbk

**ALUMINUM**

**29-18-10-2 AlCl<sub>3</sub>·3NH<sub>3</sub>**

AlCl<sub>3</sub>·3NH<sub>3</sub> Aluminum chloride-3-Ammonia  
(c) C: fab  
AlCl<sub>3</sub>·5NH<sub>3</sub> Aluminum chloride-5-Ammonia  
(c) C: fab  
AlCl<sub>3</sub>·6NH<sub>3</sub> Aluminum chloride-6-Ammonia  
(c) C: fab fae  
AlCl<sub>3</sub>·7NH<sub>3</sub> Aluminum chloride-7-Ammonia  
(c) C: fab  
AlCl<sub>3</sub>·14NH<sub>3</sub> Aluminum chloride-14-Ammonia  
(c) C: fab  
AlCl<sub>3</sub>·NH<sub>4</sub>Cl Aluminum chloride-Ammonium chloride  
(c) C: fab  
AlCl<sub>3</sub>·NH<sub>4</sub>Cl·6NH<sub>3</sub> Aluminum chloride-Ammonium chloride-6-Ammonia  
(c) C: fab

**29-18-11-2**

AlBr<sub>3</sub>·NH<sub>3</sub> Aluminum bromide-Ammonia  
(c) C: eah fab  
AlBr<sub>3</sub>·3NH<sub>3</sub> Aluminum bromide-3-Ammonia  
(c) C: fab  
AlBr<sub>3</sub>·5NH<sub>3</sub> Aluminum bromide-5-Ammonia  
(c) C: fab  
AlBr<sub>3</sub>·6NH<sub>3</sub> Aluminum bromide-6-Ammonia  
(c) C: fab  
AlBr<sub>3</sub>·7NH<sub>3</sub> Aluminum bromide-7-Ammonia  
(c) C: fab  
AlBr<sub>3</sub>·9NH<sub>3</sub> Aluminum bromide-9-Ammonia  
(c) C: fab  
AlBr<sub>3</sub>·14NH<sub>3</sub> Aluminum bromide-14-Ammonia  
(c) C: fab

**29-18-12-2**

AlI<sub>3</sub>·NH<sub>3</sub> Aluminum iodide-Ammonia  
(c) C: eah fab  
AlI<sub>3</sub>·3NH<sub>3</sub> Aluminum iodide-3-Ammonia  
(c) C: fab  
AlI<sub>3</sub>·5NH<sub>3</sub> Aluminum iodide-5-Ammonia  
(c) C: fab  
AlI<sub>3</sub>·6NH<sub>3</sub> Aluminum iodide-6-Ammonia  
(c) C: fab  
AlI<sub>3</sub>·7NH<sub>3</sub> Aluminum iodide-7-Ammonia  
(c) C: fab  
AlI<sub>3</sub>·9NH<sub>3</sub> Aluminum iodide-9-Ammonia  
(c) C: fab  
AlI<sub>3</sub>·13NH<sub>3</sub> Aluminum iodide-13-Ammonia  
(c) C: fab  
AlI<sub>3</sub>·20NH<sub>3</sub> Aluminum iodide-20-Ammonia  
(c) C: fab

**29-18-14-2-1**

NH<sub>4</sub>Al(SO<sub>4</sub>)<sub>2</sub> Ammonium aluminum sulfate  
(c) C: faa fab fac fad fae  
E-XI: fac fae(-t)  
E-XIII: fae(t) fai(t) fal(t)  
(aq) C: fab(x)  
NH<sub>4</sub>Al(SO<sub>4</sub>)<sub>2</sub>·12H<sub>2</sub>O Ammonium aluminum sulfate-12-Water  
(c, II) C: eaj fbb fbc  
E-XI: eaj fbb  
(c, I) C: eah faa fab fac fad fae

(c) E-XI: fac fae(-t)  
E-XIII: fae  
(NH<sub>4</sub>)<sub>2</sub>O·3Al<sub>2</sub>O<sub>3</sub>·4SO<sub>3</sub>·6H<sub>2</sub>O Ammonium oxide-?-Aluminum oxide-4-Sulfur trioxide-6-Water (Ammonium alunite)  
(c) C: fab  
E-XI: fac fae(-t)  
E-XIII: fae(t) fai(t) fal(t)  
(NH<sub>4</sub>)<sub>2</sub>O·3Al<sub>2</sub>O<sub>3</sub>·5SO<sub>3</sub>·9H<sub>2</sub>O Ammonium oxide-3-Aluminum oxide-5-Sulfur trioxide-9-Water (Ammonium basic alum)  
(c) C: fab  
E-XIII: fae(t) fai(t) fal(t)

**29-19-10-1**

AlCl<sub>3</sub>·POCl<sub>3</sub> Aluminum chloride-Phosphoryl trichloride  
(c) C: eah

**29-19-10-2**

AlCl<sub>3</sub>·PH<sub>3</sub> Aluminum chloride-Phosphine  
(c) C: eah fab

**29-19-11-2**

AlBr<sub>3</sub>·PH<sub>3</sub> Aluminum bromide-Phosphine  
(c) C: eah fab

**29-19-12-2**

AlI<sub>3</sub>·PH<sub>3</sub> Aluminum iodide-Phosphine  
(c) C: eah fab

**29-21**

AlSb Aluminum antimonide  
(c) C: eah

**29-21-11**

AlBr<sub>3</sub>·SbBr<sub>3</sub> Aluminum bromide-Antimony(III) bromide  
(c) C: eah

**29-22**

Al-Bi Aluminum-Bismuth  
(c) F: fcf(x)

**29-22-11**

AlBr<sub>3</sub>·BiBr<sub>3</sub> Aluminum bromide-Bismuth(III) bromide  
(c) C: eah

**29-23**

Al<sub>4</sub>C<sub>3</sub> Aluminum carbide  
(c) C: faa fab fac fad fae  
E-VIII: faa(t) fab(t)  
E-XIII: fae(t) fai(t) fal(t)

**29-23-2**

AlC<sub>3</sub>H<sub>9</sub> Trimethylaluminum  
(c) C: eah  
(liq) C: eaq fab fbj fbk  
AlC<sub>6</sub>H<sub>15</sub> Triethylaluminum  
(liq) C: eaq fbj fbk

29-23-14-2

AlC<sub>3</sub>H<sub>9</sub>·C<sub>2</sub>SH<sub>6</sub> Trimethylaluminum—Dimethyl sulfide

(c) C: eah

(liq) C: eaq fbj fbk

Al<sub>2</sub>C<sub>6</sub>S<sub>2</sub>H<sub>18</sub> Bis(methylmercaptodimethylaluminum)

(c) C: eah

(liq) C: eaq fbj fbk

29-23-18-2

AlH<sub>3</sub>·C<sub>3</sub>NH<sub>6</sub> Aluminum hydride—Trimethylamine

(c) C: eah

AlC<sub>3</sub>H<sub>9</sub>·C<sub>2</sub>NH<sub>7</sub> Trimethylaluminum—Dimethylamine

(c) C: eah

(liq) C: eaq fbj fbk

AlC<sub>3</sub>H<sub>9</sub>·C<sub>3</sub>NH<sub>6</sub> Trimethylaluminum—Trimethylamine

(c) C: eai fbn fbo

(liq) C: eaq fbj fbk

AlH<sub>3</sub>·2C<sub>3</sub>NH<sub>6</sub> Aluminum hydride—2-Trimethylamine

(c) C: eah

Al<sub>2</sub>C<sub>6</sub>N<sub>2</sub>H<sub>24</sub> Bis(dimethylaminodimethylaluminum)

(c) C: eah eai fbn fbo

29-23-2-1

AlC<sub>3</sub>H<sub>9</sub>·C<sub>2</sub>H<sub>6</sub>O Trimethylaluminum—Methyl ether

(c) C: eah

(liq) C: eaq fbj fbk

Al<sub>3</sub>C<sub>9</sub>H<sub>27</sub>O<sub>3</sub> Tris(dimethylaluminum methoxide)

(c) C: eah

(liq) C: eaq fbj fbk

29-23-10-2

Al<sub>2</sub>C<sub>2</sub>Cl<sub>4</sub>H<sub>6</sub> Bis(methylaluminum dichloride)

(c) C: eah

Al<sub>2</sub>C<sub>4</sub>Cl<sub>2</sub>H<sub>12</sub> Bis(dimethylaluminum chloride)

(c, II) C: eah

(c, I) C: eah

(liq) C: eaq fbj fbk

29-23-10-2-1

AlC<sub>2</sub>ClH<sub>5</sub>·C<sub>2</sub>H<sub>6</sub>O Dimethylaluminum chloride—Methyl ether

(liq) C: eaq fbj fbk

AlC<sub>3</sub>·C<sub>4</sub>H<sub>10</sub>O Aluminum chloride—Ethyl ether

(c) C: eah

29-23-11-2

Al<sub>2</sub>C<sub>4</sub>Br<sub>2</sub>H<sub>12</sub> Bis(dimethylaluminum bromide)

(c) C: eah

(liq) C: eaq fbj fbk

29-23-11-2-1

AlBr<sub>3</sub>·C<sub>4</sub>H<sub>10</sub>O Aluminum bromide—Ethyl ether

(c) C: eah

29-23-18-10-2

AlC<sub>3</sub>·C<sub>2</sub>NH<sub>7</sub> Aluminum chloride—Ethylamine

(c) C: eah

AlC<sub>2</sub>ClH<sub>5</sub>·C<sub>3</sub>NH<sub>6</sub> Dimethylaluminum chloride—Trimethylamine

(c) C: eah eai fbn fbo

29-23-19-2

AlC<sub>3</sub>H<sub>9</sub>·C<sub>2</sub>PH<sub>6</sub> Trimethylaluminum—Dimethylphosphine

(liq) C: eaq fbj fbk

AlC<sub>3</sub>H<sub>9</sub>·C<sub>3</sub>PH<sub>6</sub> Trimethylaluminum—Trimethylphosphine

(c) C: eai fbn fbo

(liq) C: eaq fbj fbk

Al<sub>3</sub>C<sub>12</sub>P<sub>3</sub>H<sub>36</sub> Tris(dimethylphosphinodimethylaluminum)

(c) C: eai fbn fbo

29-24-1

Al<sub>2</sub>O<sub>3</sub>·SiO<sub>2</sub> Aluminum oxide—Silicon oxide

(c) C: eah

Al<sub>2</sub>SiO<sub>5</sub> Aluminum pentoxosilicate

(c, andalusite) C: faa fab fac fad  
fae

E-XI: fac fae(-)

E-XIII: fae(t) fai(t) fal(t)

(c, distbene) C: faa fab fac fad  
fae

(c, sillimanite) C: faa fab fac fad  
fae

E-XI: fac fae(-)

E-XIII: fae(t) fai(t) fal(t)

(c, kyanite) E-XI: fac fae(-)

E-XIII: fae(t) fai(t) fal(t)

Al<sub>6</sub>Si<sub>2</sub>O<sub>13</sub> Aluminum tridecaoxodisilicate

(c, mullite) E-XIII: fae(t) fai(t) fal(t)

29-26

Al-Sn Aluminum-Tin

(liq) F: fca(x) fcb(x) fcc(x) fcd(x) fcf(x)

fcg(x) fcl(x) fcm(x) fcn(x) fco(x) fcv(x)

fcw(x)

29-26-10

Al<sub>2</sub>Cl<sub>6</sub>·SnCl<sub>2</sub> Aluminum hexachloride—Tin(II) chloride

(c) C: eah

Al<sub>2</sub>Cl<sub>6</sub>·2SnCl<sub>1</sub> Aluminum hexachloride—2-Tin(II) chloride

(c) C: eah

29-26-11

Al<sub>2</sub>Br<sub>6</sub>·SnBr<sub>2</sub> Aluminum hexabromide—Tin(II) bromide

(c) C: eah

Al<sub>2</sub>Br<sub>6</sub>·2SnBr<sub>2</sub> Aluminum hexabromide—2-Tin(II) bromide

(c) C: eah

29-27-11

Al<sub>2</sub>Br<sub>6</sub>·PbBr<sub>2</sub> Aluminum hexabromide—Lead(II) bromide

(c) C: eah

29-27-12

2AlI<sub>3</sub>·3PbI<sub>2</sub> 2-Aluminum iodide—3-Lead(II) iodide

(c) C: fab

2AlI<sub>3</sub>·3PbI<sub>2</sub>·10H<sub>2</sub>O 2-Aluminum iodide—3-Lead(II) iodide—

10-Water

(c) C: fab

29-28-2

Al(BH<sub>4</sub>)<sub>3</sub> Aluminum borohydride

(c) C: eah

(liq) C: eaq fbj fbk

29-28-23-18-2

Al(BH<sub>4</sub>)<sub>3</sub>·C<sub>3</sub>NH<sub>6</sub> Aluminum borohydride—Trimethylamine

(c) C: eah

30 – Gallium – Ga

**30**  
Gallium

Ga  
(c, II) C: eah fbf fbq  
(c, I) C: eah eaj fac fae fbb fbc  
fbf fbq fbh  
D: eah fac fae faf fai fbf  
E-V: eah fbf fbq  
(c) E-XI: fac fae(-t)  
E-XIII: fae fai fal flf  
F: eah eal(t) fac fae(-t,t) faf(t)  
fai(t) fal(t) fbf fbq fbn(t) fbn(t)  
(liq) C: eaq fbj fbk  
D: eaq fac(t,+t) fae(t,+t) faf(t,+t)  
fai(t,+t) fbj  
E-III: eaq eal(t,+t)  
E-XIII: fae fai(+t) fal(+t)  
F: eal(t,+t) fae(t,+t) faf(t,+t)  
fai(t,+t) fal(t,+t) fbi(t,+t)  
fbj(t,+t)  
(g) C: faa fab fac fad fae  
D: faa(t,+t) fab(t,+t) fac(t,+t)  
fad(t,+t) fae(t,+t) faf(t,+t)  
fai(t,+t)  
E-XI: fac  
E-XIII: fae(+t) fai(+t) fal(+t)  
F: fac fae(t,+t) faf(t,+t) fai(t,+t)  
fal(t,+t)

Ga<sup>+</sup>

(g) C: fab

Ga<sup>2+</sup>

(g) C: fab

Ga<sup>3+</sup>

(g) C: fab

(aq) C: faa fab fac fad

Ga<sup>4+</sup>

(g) C: fab

**30-1**  
Gallium(II) oxide

(g) C: fab

E-XIII: fae(+t) fai(+t) fal(+t)

GaO<sub>3</sub><sup>3-</sup> Trioxogallate(III) ion

(aq) C: faa fad

Ga<sub>2</sub>O Digallium oxide

(c) C: fab

E-XII: faa(t) fab(t)

Ga<sub>2</sub>O<sub>3</sub> Gallium(III) oxide

(c) C: eah fab fae

E-XII: faa(t) fab(t)

E-XIII: fae

**30-2-1**  
Ga(OH)<sup>3+</sup> Monohydroxogallium(III) ion

(aq) C: faa fad

HGaO<sub>3</sub><sup>3-</sup> Hydrogen trioxogallate(III) ion

(aq) C: faa fad

Ga(OH)<sub>2</sub><sup>+</sup> Dihydroxogallium(III) ion

(aq) C: faa fad

H<sub>2</sub>GaO<sub>3</sub><sup>-</sup> Dihydrogen trioxogallate(III) ion

(aq) C: faa fad

Ga(OH)<sub>3</sub> Gallium(III) hydroxide

(c) C: faa fad

**30-9**

GaF<sub>3</sub> Gallium(III) fluoride

(liq) C: eaq

**30-10**

GaCl Gallium monochloride

(g) C: fab

E-XIII: fae(t) fai(t) fal(t)

GaCl<sub>2</sub> Gallium(II) chloride

(c) C: eah

GaCl<sub>3</sub> Gallium(III) chloride

(c) C: fab

(aq) C: faa fab fac fad

(in aq hydrogen chloride) C: fab

Ga<sub>2</sub>Cl<sub>6</sub> Gallium(III) hexachloride

(c) C: eah eai fbf fbq fbn fbo

(liq) C: eaq fbj fbk

**30-11**

GaBr Gallium monobromide

(g) C: fab

E-XIII: fae(t) fai(t) fal(t)

GaBr<sub>3</sub> Gallium(III) bromide

(c) C: fab

(in aq hydrogen chloride) C: fab

Ga<sub>2</sub>Br<sub>6</sub> Gallium(III) hexabromide

(c) C: eah

(liq) C: eaq fbj fbk

**30-12**

GaI Gallium monoiodide

(g) C: fab

E-XIII: fae(t) fai(t) fal(t)

GaI<sub>3</sub> Gallium(III) iodide

(c) C: fab

(in aq hydrogen chloride) C: fab

Ga<sub>2</sub>I<sub>6</sub> Gallium(III) hexaiodide

(c) C: eah

(liq) C: eaq fbj fbk

**30-14**

GaS Gallium(II) sulfide

(c) C: eah

Ga<sub>2</sub>S<sub>3</sub> Gallium(III) sulfide

(c) C: eah

**30-14-1**

Ga<sub>2</sub>(SO<sub>4</sub>)<sub>3</sub> Gallium(III) sulfate

(c) C: fae

E-XIII: fae

**30-15**

GaSe Gallium(II) selenide

(c) C: eah

**30-16**

GaTe Gallium(II) telluride  
(c) C: eah  
Ga<sub>2</sub>Te<sub>3</sub> Gallium(III) telluride  
(c) C: eah

**30-18**

GaN Gallium(III) nitride  
(c) C: fab

**30-18-10-2**

GaCl<sub>3</sub>·NH<sub>3</sub> Gallium(III) chloride—Ammonia  
(c) C: eah fab  
GaCl<sub>3</sub>·3NH<sub>3</sub> Gallium(III) chloride—3-Ammonia  
(c) C: fab  
GaCl<sub>3</sub>·5NH<sub>3</sub> Gallium(III) chloride—5-Ammonia  
(c) C: fab  
GaCl<sub>3</sub>·6NH<sub>3</sub> Gallium(III) chloride—6-Ammonia  
(c) C: fab  
GaCl<sub>3</sub>·7NH<sub>3</sub> Gallium(III) chloride—7-Ammonia  
(c) C: fab  
GaCl<sub>3</sub>·14NH<sub>3</sub> Gallium(III) chloride—14-Ammonia  
(c) C: fab

**30-18-11-2**

GaBr<sub>3</sub>·NH<sub>3</sub> Gallium(III) bromide—Ammonia  
(c) C: eah fab  
GaBr<sub>3</sub>·5NH<sub>3</sub> Gallium(III) bromide—5-Ammonia  
(c) C: fab  
GaBr<sub>3</sub>·6NH<sub>3</sub> Gallium(III) bromide—6-Ammonia  
(c) C: fab  
GaBr<sub>3</sub>·7NH<sub>3</sub> Gallium(III) bromide—7-Ammonia  
(c) C: fab  
GaBr<sub>3</sub>·9NH<sub>3</sub> Gallium(III) bromide—9-Ammonia  
(c) C: fab  
GaBr<sub>3</sub>·14NH<sub>3</sub> Gallium(III) bromide—14-Ammonia  
(c) C: fab

**30-18-12-2**

GaI<sub>3</sub>·NH<sub>3</sub> Gallium(III) iodide—Ammonia  
(c) C: eah fab  
GaI<sub>3</sub>·5NH<sub>3</sub> Gallium(III) iodide—5-Ammonia  
(c) C: fab  
GaI<sub>3</sub>·6NH<sub>3</sub> Gallium(III) iodide—6-Ammonia  
(c) C: fab  
GaI<sub>3</sub>·7NH<sub>3</sub> Gallium(III) iodide—7-Ammonia  
(c) C: fab  
GaI<sub>3</sub>·9NH<sub>3</sub> Gallium(III) iodide—9-Ammonia  
(c) C: fab  
GaI<sub>3</sub>·13NH<sub>3</sub> Gallium(III) iodide—13-Ammonia  
(c) C: fab  
GaI<sub>3</sub>·20NH<sub>3</sub> Gallium(III) iodide—20-Ammonia  
(c) C: fab

**30-21**

Ga-Sb Gallium-Antimony  
(c) F: fcf(x)

**30-23-1**

Ga<sub>2</sub>C<sub>6</sub>O<sub>12</sub> Gallium(III) oxalate  
(c) C: fab

Ga<sub>2</sub>C<sub>6</sub>O<sub>12</sub>·2H<sub>2</sub>O Gallium(III) oxalate—2-Water  
(c) C: fab

Ga<sub>2</sub>C<sub>6</sub>O<sub>12</sub>·4H<sub>2</sub>O Gallium(III) oxalate—4-Water  
(c) C: fab

**30-23-2**

GaC<sub>3</sub>H<sub>9</sub> Trimethylgallium  
(c) C: eah  
(liq) C: eaq fbj fbk  
GaC<sub>6</sub>H<sub>15</sub> Triethylgallium  
(c) C: eah  
(liq) C: eaq fbj fbk

**30-23-18-2**

GaC<sub>3</sub>H<sub>9</sub>·NH<sub>3</sub> Trimethylgallium—Ammonia  
(c) C: eah  
GaC<sub>3</sub>H<sub>9</sub>·C<sub>3</sub>NH<sub>3</sub> Trimethylgallium—Trimethylamine  
(c) C: eah fbf fbg  
(liq) C: eaq fbj fbk  
GaC<sub>3</sub>H<sub>9</sub>·C<sub>6</sub>NH<sub>15</sub> Trimethylgallium—Triethylamine  
(c) C: eah eai fbf fbg fbn fbo  
(liq) C: eaq fbj fbk

**30-23-18-10-2**

GaC<sub>2</sub>ClH<sub>5</sub>·NH<sub>3</sub> Dimethylgallium chloride—Ammonia  
(c) C: eah  
GaC<sub>2</sub>ClH<sub>5</sub>·2NH<sub>3</sub> Dimethylgallium chloride—2-Ammonia  
(c) C: eah

**30-29**

GaAl Gallium aluminide  
(c) C: eah  
GaAl<sub>2</sub> Gallium dialuminide  
(c) C: eah  
Ga<sub>2</sub>Al Digallium aluminide  
(c) C: eah

**31 – Indium – In**

**31**

In Indium  
(c) C: eah fac fae fbf fbg  
D: eah fac(t) fae(t) faf(t) fai(t) fbf  
E-V: eah fbf fbg  
E-XI: fac  
E-XIII: fae(t) fai(t) fal(t) fbf  
F: eah eal(t) fac fae(-t,t) faf(t)  
fai(t) fal(t) fbf fbg fbm(t) fbn(t)  
(liq) C: eaq fbj fbk  
D: eaq fac(t,+t) fae(t,+t) faf(t,+t)  
fai(t,+t) fbj  
E-XIII: fae fai(t,+t) fal(t,+t)  
F: eal(t,+t) fae(t,+t) faf(t,+t)  
fai(t,+t) fal(t,+t) fbi(t,+t)  
fbj(t,+t) fbk

(g) C: faa fab fac fad fae  
D: faa(t,+t) fab(t,+t) fac(t,+t)  
fad(t,+t) fae(t,+t) faf(t,+t)  
fai(t,+t)  
E-XI: fac  
E-XIII: fae(t,+t) fai(t,+t) fal(t,+t)  
F: fac fae(t,+t) faf(t,+t) fai(t,+t)  
fal(t,+t)

In<sup>+</sup>

(g) C: fab

In<sup>2+</sup>

(g) C: fab

In<sup>3+</sup>

(g) C: fab

(aq) C: faa fab fac fad

In<sup>4+</sup>

(g) C: fab

**31-1**

InO Indium monoxide

(g) C: fab

E-XIII: fae(t) fai(t) fal(t)

In<sub>2</sub>O<sub>3</sub>

Indium(III) oxide

(c) C: fab fae

E-XII: faa(t) fab(t)

E-XIII: fae

**31-2**

InH Indium(I) hydride

(g) C: faa fab fac fad fae

E-XI: fac

**31-2-1**

In(OH)<sup>3+</sup> Monohydroxoindium(III) ion

(aq) C: faa fad

In(OH)<sub>3</sub>

Indium(III) hydroxide

(c) C: faa fab fac fad

**31-9**

InF<sub>3</sub> Indium(III) fluoride

(c) C: eah

**31-10**

InCl Indium(I) chloride

(c, II, yellow) C: eaj fab

(c, I, red) C: eah

(liq) C: eaq fbj fbk

(g) C: faa fab fac fad fae

E-XI: fac

E-XIII: fae(t) fai(t) fal(t)

InCl<sub>2</sub>

Indium dichloride

(c) C: eah fab

(liq) C: eaq fbj fbk

InCl<sub>3</sub>

Indium(III) chloride

(c) C: eah eai fab fbn fbo

(aq) C: fab

(in aq hydrogen chloride)C: fab

**31-11**

InBr Indium(I) bromide

(c) C: eah

(liq) C: eaq fbj fbk

(g) C: faa fab fac fad fae

E-XI: fac

E-XIII: fae(t) fai(t) fal(t)

InBr<sub>2</sub>

Indium dibromide

(c) C: eah

(liq) C: eaq fbj fbk

InBr<sub>3</sub>

Indium(III) bromide

(c) C: eah eai fab fbn fbo

(in aq hydrogen chloride)C: fab

**31-12**

InI Indium(I) iodide

(c) C: eah

(liq) C: eaq fbj fbk

(g) C: faa fab fac fad fae

E-XI: fac

E-XIII: fae(t) fai(t) fal(t)

InI<sub>3</sub>

Indium(III) iodide

(c) C: eah fab

(in aq hydrogen chloride)C: fab

**31-14**

InS Indium monosulfide

(c) C: eah

In<sub>2</sub>S

Indium(I) sulfide

(c) C: eah

In<sub>2</sub>S<sub>3</sub>

Indium(III) sulfide

(c) C: eah

**31-14-1**

In<sub>2</sub>(SO<sub>4</sub>)<sub>3</sub> Indium(III) sulfate

(c) C: fab fae

E-XIII: fae

**31-15**

InSe Indium monoselenide

(c) C: eah

In<sub>2</sub>Se<sub>3</sub>

Indium(III) selenide

(c) C: eah

**31-16**

InTe Indium monotelluride

(c) C: eah

In<sub>2</sub>Te<sub>3</sub>

Indium(III) telluride

(c) C: eah

**31-18**

InN Indium(III) nitride

(c) C: fab

**31-18-10-2**

InCl<sub>3</sub>·NH<sub>3</sub> Indium(III) chloride—Ammonia

(c) C: fab

InCl<sub>3</sub>·2NH<sub>3</sub> Indium(III) chloride—2-Ammonia

(c) C: fab

InCl<sub>3</sub>·3NH<sub>3</sub> Indium(III) chloride—3-Ammonia

(c) C: fab

InCl<sub>3</sub>·5NH<sub>3</sub> Indium(III) chloride—5-Ammonia

(c) C: fab

InCl<sub>3</sub>·7NH<sub>3</sub> Indium(III) chloride—7-Ammonia

(c) C: fab

InCl<sub>3</sub>·15NH<sub>3</sub> Indium(III) chloride-15-Ammonia  
(c) C: fab

31-18-11-2

InBr<sub>3</sub>·3NH<sub>3</sub> Indium(III) bromide-3-Ammonia  
(c) C: fab

InBr<sub>3</sub>·5NH<sub>3</sub> Indium(III) bromide-5-Ammonia  
(c) C: fab

InBr<sub>3</sub>·7NH<sub>3</sub> Indium(III) bromide-7-Ammonia  
(c) C: fab

InBr<sub>3</sub>·15NH<sub>3</sub> Indium(III) bromide-15-Ammonia  
(c) C: fab

31-18-12-2

InI<sub>3</sub>·NH<sub>3</sub> Indium(III) iodide-Ammonia  
(c) C: fab

InI<sub>3</sub>·2NH<sub>3</sub> Indium(III) iodide-2-Ammonia  
(c) C: fab

InI<sub>3</sub>·5NH<sub>3</sub> Indium(III) iodide-5-Ammonia  
(c) C: fab

InI<sub>3</sub>·7NH<sub>3</sub> Indium(III) iodide-7-Ammonia  
(c) C: fab

InI<sub>3</sub>·9NH<sub>3</sub> Indium(III) iodide-9-Ammonia  
(c) C: fab

InI<sub>3</sub>·13NH<sub>3</sub> Indium(III) iodide-13-Ammonia  
(c) C: fab

InI<sub>3</sub>·21NH<sub>3</sub> Indium(III) iodide-21-Ammonia  
(c) C: fab

31-21

In-Sb Indium-Antimony  
(c) F: fbf fbg fca(x) fcb(x) fcf(x) fch(t)  
fcl(x) fcm(x) fcp(t) fcr(t) fct(t)

31-22

In-Bi Indium-Bismuth  
(liq) F: fcc(x) fcd(x) fcf(x) fcg(x) fcn(x) fco(x)  
fcv(x) fcw(x)

31-23-2

InC<sub>3</sub>H<sub>9</sub> Trimethylindium  
(c) C: eah eal fbf fbg fbn fbo  
(liq) C: eaq fbj fbk

31-27

In-Pb Indium-Lead  
(liq) F: fcf(x) fcg(x)

31-30

In-Ga Indium-Gallium  
(liq) F: fcf(x) fcg(x)

32 - Thallium - TI

32

Tl Thallium  
(c, II) C: eaj fac fae fbb fbc fbd  
(c, a) D: eaj fac(t) fae(t) faf(t) fai(t)  
fbb

E-III: fbm(t) fbn(t)  
E-XIII: fae(t) fai(t) fal(t) fbb  
F: eaj eal(t) fac fae(-t,t) faf(t)  
fai(t) fal(t) fbb fbc fbm(t) fbn(t)

(c, I, β) C: eah eaj fbb fbc fbf fbg  
fbh

D: eah fac fae faf fai fbf

E-III: fbm(t) fbn(t)

E-V: eah fbf fbg

E-XIII: fae fai(t) fal(t) fbf

F: eah eal fae(t) faf(t) fai(t) fal(t)  
fbf fbg fbn fbn

(c) E-XI: fac fae(-t)

(liq) C: eaq fbj fbk

D: eaq fac(t) fae(t) faf(t) fai(t) fbj

E-III: eaq eal(t) fbi(t) fbj(t) fbk

E-XIII: fae fai(t) fal(t)

F: eal(t) fae(t) faf(t) fai(t) fal(t) fbi(t)  
fbj(t) fbk

(g) C: faa fab fac fad fae

D: faa(t,+) fab(t,+) fac(t,+) fad(t,+) fae(t,+) faf(t,+) fai(t,+) fal(t,+) fbi(t,+) fbj(t,+) fbk(t,+) fcl(t,+) fcm(t,+) fcn(t,+) fco(t,+) fcp(t,+) fcr(t,+) fct(t,+) fcv(t,+) fcw(t,+) fca(x) fcb(x) fcc(x) fcd(x) fce(x) fcf(x) fch(x) fcl(x) fcm(x) fcn(x) fco(x) fcp(x) fcr(x) fct(x) fcv(x) fcw(x) fca(x) fcb(x) fcc(x) fcd(x) fce(x) fcf(x) fch(x) fcl(x) fcm(x) fcn(x) fco(x) fcp(x) fcr(x) fct(x) fcv(x) fcw(x)

E-III: fac

E-XI: fac

E-XIII: fae(t,+) fai(t,+) fal(t,+) fbb

F: fac fae(t,+) faf(t,+) fai(t,+) fal(t,+) fbb

fai(t,+) fal(t,+) fbi(t,+) fbj(t,+) fbk(t,+) fcl(t,+) fcm(t,+) fcn(t,+) fco(t,+) fcp(t,+) fcr(t,+) fct(t,+) fcv(t,+) fcw(t,+) fca(x) fcb(x) fcc(x) fcd(x) fce(x) fcf(x) fch(x) fcl(x) fcm(x) fcn(x) fco(x) fcp(x) fcr(x) fct(x) fcv(x) fcw(x) fca(x) fcb(x) fcc(x) fcd(x) fce(x) fcf(x) fch(x) fcl(x) fcm(x) fcn(x) fco(x) fcp(x) fcr(x) fct(x) fcv(x) fcw(x)

fai(t,+) fal(t,+) fbi(t,+) fbj(t,+) fbk(t,+) fcl(t,+) fcm(t,+) fcn(t,+) fco(t,+) fcp(t,+) fcr(t,+) fct(t,+) fcv(t,+) fcw(t,+) fca(x) fcb(x) fcc(x) fcd(x) fce(x) fcf(x) fch(x) fcl(x) fcm(x) fcn(x) fco(x) fcp(x) fcr(x) fct(x) fcv(x) fcw(x)

fai(t,+) fal(t,+) fbi(t,+) fbj(t,+) fbk(t,+) fcl(t,+) fcm(t,+) fcn(t,+) fco(t,+) fcp(t,+) fcr(t,+) fct(t,+) fcv(t,+) fcw(t,+) fca(x) fcb(x) fcc(x) fcd(x) fce(x) fcf(x) fch(x) fcl(x) fcm(x) fcn(x) fco(x) fcp(x) fcr(x) fct(x) fcv(x) fcw(x)

fai(t,+) fal(t,+) fbi(t,+) fbj(t,+) fbk(t,+) fcl(t,+) fcm(t,+) fcn(t,+) fco(t,+) fcp(t,+) fcr(t,+) fct(t,+) fcv(t,+) fcw(t,+) fca(x) fcb(x) fcc(x) fcd(x) fce(x) fcf(x) fch(x) fcl(x) fcm(x) fcn(x) fco(x) fcp(x) fcr(x) fct(x) fcv(x) fcw(x)

fai(t,+) fal(t,+) fbi(t,+) fbj(t,+) fbk(t,+) fcl(t,+) fcm(t,+) fcn(t,+) fco(t,+) fcp(t,+) fcr(t,+) fct(t,+) fcv(t,+) fcw(t,+) fca(x) fcb(x) fcc(x) fcd(x) fce(x) fcf(x) fch(x) fcl(x) fcm(x) fcn(x) fco(x) fcp(x) fcr(x) fct(x) fcv(x) fcw(x)

fai(t,+) fal(t,+) fbi(t,+) fbj(t,+) fbk(t,+) fcl(t,+) fcm(t,+) fcn(t,+) fco(t,+) fcp(t,+) fcr(t,+) fct(t,+) fcv(t,+) fcw(t,+) fca(x) fcb(x) fcc(x) fcd(x) fce(x) fcf(x) fch(x) fcl(x) fcm(x) fcn(x) fco(x) fcp(x) fcr(x) fct(x) fcv(x) fcw(x)

fai(t,+) fal(t,+) fbi(t,+) fbj(t,+) fbk(t,+) fcl(t,+) fcm(t,+) fcn(t,+) fco(t,+) fcp(t,+) fcr(t,+) fct(t,+) fcv(t,+) fcw(t,+) fca(x) fcb(x) fcc(x) fcd(x) fce(x) fcf(x) fch(x) fcl(x) fcm(x) fcn(x) fco(x) fcp(x) fcr(x) fct(x) fcv(x) fcw(x)

fai(t,+) fal(t,+) fbi(t,+) fbj(t,+) fbk(t,+) fcl(t,+) fcm(t,+) fcn(t,+) fco(t,+) fcp(t,+) fcr(t,+) fct(t,+) fcv(t,+) fcw(t,+) fca(x) fcb(x) fcc(x) fcd(x) fce(x) fcf(x) fch(x) fcl(x) fcm(x) fcn(x) fco(x) fcp(x) fcr(x) fct(x) fcv(x) fcw(x)

T1<sup>+</sup>

(g) C: fab

(aq) C: faa fab fac fad

E-XI: fac

T1<sup>2+</sup>

(g) C: fab

T1<sup>3+</sup>

(g) C: fab

(aq) C: faa fab fac fad

T1<sup>4+</sup>

(g) C: fab

32-1

Tl<sub>2</sub>O Thallium(I) oxide  
(c) C: eah faa fab fac fad

E-XII: faa(t) fab(t)

(liq) C: eaq

E-XII: faa(t) fab(t)

(g) E-XII: faa(t) fab(t)

Tl<sub>2</sub>O<sub>3</sub>

Thallium(III) oxide

(c) C: eah

E-XII: faa(t) fab(t)

(liq) E-XII: faa(t) fab(t)

Tl<sub>2</sub>O<sub>4</sub>

Dithallium tetroxide

(c) E-XII: faa(t) fab(t)

32-2

TlH Thallium(I) hydride

(g) C: faa fab fac fad

E-XI: fac

E-XIII: fae(t) fai(t) fal(t)



**THALLIUM**  
**32-2-1 TlOH**

**32-2-1**  
TlOH Thallium(I) hydroxide  
(c) C: faa fab fac fad  
(aq) C: fab  
E-IV: eam

Tl(OH)<sub>3</sub> Thallium(III) hydroxide  
(c) C: fab

**32-9**  
TlF Thallium(I) fluoride  
(c) C: eah  
(liq) C: eaq  
(g) C: fab  
E-XI: fac  
E-XIII: fae(t) fai(t) fal(t)  
(aq) C: fab

TlF<sub>3</sub> Thallium(III) fluoride  
(c) C: eah

**32-9-2**  
TlHF<sub>2</sub> Thallium hydrogen difluoride  
(aq) C: fab

**32-10**  
TlCl Thallium(I) chloride  
(c) C: eah eai faa fab fac fad  
fbf fbq fbn fbo  
E-III: eal(t) fbn(t) fbn(t)  
E-V: eah fbf fbq  
E-XI: fac fae(-t)  
E-XIII: fae(t) fai(t) fal(t) fbf  
(liq) C: eaq fbj fbk  
E-III: eaq eal(t) fbi(t) fbj(t) fbk  
E-XIII: fae fai(t) fal(t)  
(g) C: faa fab fac fad fae  
E-III: fac  
E-XI: fac  
E-XIII: fae(t) fai(t) fal(t)  
(aq) C: faa fab fac fad

TlCl<sub>3</sub> Thallium(III) chloride  
(c) C: fab  
(aq) C: fab

TlCl<sub>3</sub>·4H<sub>2</sub>O Thallium(III) chloride-4-Water  
(c) C: eah fab

**32-10-1**  
TlClO<sub>4</sub> Thallium(I) perchlorate  
(c, II) C: eaj  
(c, I) C: eah

**32-11**  
TlBr Thallium(I) bromide  
(c) C: eah eai faa fab fac fad  
fbf fbq fbn fbo  
E-III: eal(t) fbn(t) fbn(t)  
E-V: eah fbf fbq  
E-XI: fac  
E-XIII: fae(t) fai(t) fal(t) fbf  
(liq) C: eaq fbj fbk  
E-III: eaq eal(t) fbi(t) fbj(t) fbk  
E-XIII: fae fai(t) fal(t)

(g) C: faa fab fac fad fae  
E-III: fac  
E-XI: fac  
E-XIII: fae(t) fai(t) fal(t)  
(aq) C: faa fab fac fad

TlBr<sub>3</sub> Thallium(III) bromide  
(c) C: fab

TlBr<sub>3</sub>·4H<sub>2</sub>O Thallium(III) bromide-4-Water  
(c) C: fab

**32-11-1**  
TlBrO<sub>3</sub> Thallium(I) bromate  
(c) C: fab  
(aq) C: faa fab fac fad

**32-11-10**  
TlBr<sub>2</sub>Cl Thallium dibromide chloride  
(aq) C: fab

TlBr<sub>2</sub>Cl·4H<sub>2</sub>O Thallium dibromide chloride-4-Water  
(c) C: fab

**32-12**  
TlI Thallium(I) iodide  
(c, II, yellow) C: eaj faa fab fac  
fad  
(c, I, red) C: eah eai fbf fbq fbn  
fbo  
E-V: eah fbf fbq  
(c) E-III: eal(t) fbn(t) fbn(t)  
E-XI: fac  
(liq) C: eaq fbj fbk  
E-III: eaq eal(t) fbi(t) fbj(t) fbk  
(g) C: faa fab fac fad fae  
E-III: fac  
E-XI: fac  
E-XIII: fae(t) fai(t) fal(t)  
(aq) C: faa fab fac fad

**32-12-1**  
TlIO<sub>3</sub> Thallium(I) iodate  
(c) C: faa fad  
(aq) C: faa fab fac fad

**32-14**  
Tl<sub>2</sub>S Thallium(I) sulfide  
(c) C: eah fab fbf fbq  
E-V: eah fbf fbq  
E-VII: faa

Tl<sub>2</sub>S<sub>3</sub> Thallium(III) sulfide  
(c) C: eah

Tl<sub>2</sub>S<sub>5</sub> Dithallium pentasulfide  
(c) C: eah

**32-14-1**  
Tl<sub>2</sub>SO<sub>4</sub> Thallium(I) sulfate  
(c) C: eah fab fbf fbq  
E-V: eah fbf fbq  
E-VII: faa fab  
(aq) C: faa fab fac fad

**32-14-2-1**  
TlHSO<sub>4</sub> Thallium(I) hydrogen sulfate  
(aq) C: fab

**32-15**  
Tl<sub>2</sub>Se Thallium(I) selenide  
(c) C: eah fab  
Tl<sub>2</sub>Se<sub>3</sub> Thallium(III) selenide  
(c, II) C: eaj

**32-16**  
Tl<sub>2</sub>Te Thallium(I) telluride  
(c) C: fab  
Tl<sub>2</sub>Te<sub>3</sub> Thallium(III) telluride  
(c) C: eah

**32-18**  
TlN<sub>3</sub> Thallium(I) azide  
(c) C: fab

**32-18-1**  
TlNO<sub>2</sub> Thallium(I) nitrite  
(c) C: eah  
TlNO<sub>3</sub> Thallium(I) nitrate  
(c, III, α) C: eaj faa fab fac fad fbb  
fbc  
E-XIII: fae fai fal fbb  
(c, II β) C: eaj fbb fbc  
E-XIII: fae fai(t) fal(t) fbb  
(c, I, γ) C: eah fbf fbq  
E-V: eah fbf fbq  
E-XIII: fae fai(t) fal(t)  
(c) E-XI: fac fae(-t)  
(liq) C: eaq  
(aq) C: faa fab fac fad

**32-18-10-2**  
TlCl·3NH<sub>3</sub> Thallium(I) chloride-3-Ammonia  
(c) C: fab  
TlCl<sub>3</sub>·3NH<sub>3</sub> Thallium(III) chloride-3-Ammonia  
(c) C: fab

**32-18-11-2**  
TlBr·3NH<sub>3</sub> Thallium(I) bromide-3-Ammonia  
(c) C: fab

**32-18-12-2**  
TlI·3NH<sub>3</sub> Thallium(I) iodide-3-Ammonia  
(c) C: fab

**32-19-1**  
TlPO<sub>3</sub> Thallium(I) metaphosphate  
(c) C: eah

**32-19-2-1**  
TlPH<sub>2</sub>O<sub>2</sub> Thallium(I) hypophosphite  
(c) C: eah  
TlHPO<sub>3</sub> Thallium(I) hydrogen phosphite  
C: eah  
TlH<sub>2</sub>PO<sub>4</sub> Thallium(I) dihydrogen phosphate  
(c) C: eah

**32-20-14**  
TlAsS<sub>2</sub> Thallium arsenic disulfide  
(c) C: eah

**32-22**  
Tl-Bi Thallium-Bismuth  
(c) F: fca(x) fcb(x) fcc(x) fcd(x) fcf(x) fcg(x)  
fch fcl(x) fcm(x) fcn(x) fco(x) fcp  
fcr fct fcv(x) fcw(x)  
(liq) F: fca(x) fcb(x) fcc(x) fcd(x) fcf(x) fcg(x)  
fch(t) fcl(x) fcm(x) fcn(x) fco(x) fcp(t)  
fcr(t) fct(t) fcv(x) fcw(x)

TlB<sub>2</sub> Thallium dibismuthide  
(c) E-XIII: fae fai(t) fal(t) fbf  
(liq) E-XIII: fae fai(t) fal(t)

Tl<sub>2</sub>B<sub>3</sub> Dithallium tribismuthide  
(c) E-XIII: fae fai(t) fal(t) fbf  
(liq) E-XIII: fae fai(t) fal(t)

Tl<sub>3</sub>B<sub>5</sub> Trithallium pentabismuthide  
(c) C: eah

**32-22-10**  
3TlCl·BiCl<sub>3</sub> 3-Thallium(I) chloride-Bismuth(III) chloride  
(c) C: eah

**32-23-1**  
Tl<sub>2</sub>CO<sub>3</sub> Thallium(I) carbonate  
(c, II) C: eaj  
(c, I) C: eah fbf fbq  
E-V: eah fbf fbq  
(aq) E-IV: eam

**32-23-2**  
TlC<sub>6</sub>H<sub>15</sub> Triethylthallium  
(c) C: eah

**32-23-2-1**  
TlCHO<sub>2</sub> Thallium(I) formate  
(c) C: eah  
TlC<sub>2</sub>H<sub>3</sub>O<sub>2</sub> Thallium(I) acetate  
(c) C: eah  
(aq) C: fab  
TlC<sub>2</sub>H<sub>5</sub>O Thallium(I) ethanolate  
(liq) C: fab  
(in ethanol) C: fab

**32-23-9-1**  
TlC<sub>2</sub>F<sub>3</sub>O<sub>2</sub> Thallium(I) trifluoroacetate  
(c) C: eah  
(liq) C: eaq

**32-23-18-1**  
TlCNO Thallium(I) fulminate  
(c) C: fab  
Tl<sub>2</sub>CO<sub>3</sub>·TlNO<sub>3</sub> Thallium(I) carbonate-Thallium(I) nitrate  
(c) C: eah  
Tl<sub>2</sub>CO<sub>3</sub>·2TlNO<sub>3</sub> Thallium(I) carbonate-2-Thallium(I) nitrate  
(c) C: eah

**THALLIUM**  
32-26 Tl-Sn

**32-26**  
Tl-Sn Thallium-Tin  
(liq) F: fca(x) fcb(x) fcc(x) fcd(x) fcf(x) fcg(x)  
fcl(x) fcm(x) fcn(x) fco(x) fcv(x) fcw(x)

**32-26-10**  
TlCl-SnCl<sub>2</sub> Thallium(I) chloride-Tin(II) chloride  
(c) C: eah  
3TlCl-SnCl<sub>2</sub> 3-Thallium(I) chloride-Tin(II) chloride  
(c) C: eah

**32-27**  
Tl-Pb Thallium-Lead  
(c) F: eah fbf fbq fca(x) fcb(x) fcc(x)  
fcd(x) fcf(x) fcg(x) fch(t) fcl(x) fcm(x)  
fcn(x) fco(x) fcp(t) fcr(t) fct(t) fcv(x)  
fcw(x)  
(liq) F: fca(x) fcb(x) fcc(x) fcd(x) fcf(x) fcg(x)  
fch(t) fcl(x) fcm(x) fcn(x) fco(x) fcp(t)  
fcr(t) fct(t) fcv(x) fcw(x)

Tl<sub>3</sub>Pb<sub>3</sub> Pentathallium triplumbide  
(c) E-XIII: fae(t) fai(t) fal(t) fbf  
(liq) E-XIII: fae fai(t) fal(t)  
Tl<sub>7</sub>Pb Heptathallium plumbide  
(c) E-XIII: fae(t) fai(t) fal(t) fbf  
(liq) E-XIII: fae fai(t) fal(t)

**32-27-10**  
TlCl-2PbCl<sub>2</sub> Thallium(I) chloride-2-Lead(II) chloride  
(c) C: eah  
3TlCl-PbCl<sub>2</sub> 3-Thallium(I) chloride-Lead(II) chloride  
(c) C: eah

**32-29-10**  
2TlCl-Al<sub>2</sub>Cl<sub>6</sub> 2-Thallium(I) chloride-Aluminum hexachloride  
(c) C: eah

**32-29-11**  
TlBr-Al<sub>2</sub>Br<sub>3</sub> Thallium(I) bromide-Aluminum hexabromide  
(c) C: eah  
2TlBr-Al<sub>2</sub>Br<sub>3</sub> 2-Thallium(I) bromide-Aluminum hexabromide  
(c) C: eah

**32-29-14-1**  
TlAl(SO<sub>4</sub>)<sub>2</sub>·12H<sub>2</sub>O Thallium(I) aluminum sulfate-12-Water  
(c) C: eah

**33 - Zinc - Zn**

**33**  
Zn  
(c) C: eah fac fae fbf fbq  
D: eah fac(t) fae(t) faf(t) fai(t) fbf  
E-III: eal fbn(t) fbn(t)  
E-V: eah fbf fbq  
E-XI: fac fae(-t)  
E-XIII: fae(t) fai(t) fal(t) fbf  
F: eah eal(t) fac fae(-t,t) faf(t)  
fai(t) fal(t) fbf fbq fbn(t) fbn(t)

(liq) C: eaq fbj fbk  
D: eaq fac(t) fae(t) faf(t) fai(t) fbf  
E-III: eaq eal(t) fbi(t) fbj(t) fbk  
E-XIII: fae fai(t) fal(t)  
F: eal(t) fae(t) faf(t) fai(t) fal(t) fbi(t)  
fbj(t) fbk  
(g) C: faa fab fac fad fae  
D: faa(t,+t) fab(t,+t) fac(t,+t)  
fad(t,+t) fae(t,+t) faf(t,+t)  
fai(t,+t)  
E-III: fac  
E-XI: fac  
E-XIII: fae fai(t,+t) fal(t,+t)  
F: fac fae(t) faf(t) fai(t) fal(t)

Zn<sup>+</sup>  
(g) C: fab  
Zn<sup>2+</sup>  
(g) C: fab  
(aq) C: faa fab fac fad  
E-IV: faa fam  
E-XI: fac

Zn<sup>3+</sup>  
(g) C: fab

**33-1**  
ZnO Zinc oxide  
(c) C: eah faa fab fac fad fae  
E-IV: fam(t) fan(t)  
E-V: eah fbf fbq  
E-XI: fac fae(-t)  
E-XII: faa(t) fab(t)  
E-XIII: fae(t) fai(t) fal(t)  
(g) E-XI: fac  
E-XIII: fae(t) fai(t) fal(t)

ZnO<sub>2</sub>·2H<sub>2</sub>O Zinc peroxide-2-Water  
(c) C: fab  
Zn<sub>3</sub>O<sub>5</sub>·2H<sub>2</sub>O Trizinc pentoxide-2-Water  
(c) C: fab  
Zn<sub>3</sub>O<sub>5</sub>·3H<sub>2</sub>O Trizinc pentoxide-3-Water  
(c) C: fab

**33-2**  
ZnH Zinc monohydride  
(g) C: faa fab fac fad fae  
E-XI: fac  
E-XIII: fae(t) fai(t) fal(t)

**33-2-1**  
Zn(OH)<sub>2</sub> Zinc hydroxide  
(c, l) C: fab  
(c, l) C: fab fae  
(c) E-XIII: fae  
(aq) E-IV: eam

**33-9**  
ZnF Zinc monofluoride  
(g) E-XIII: fae(t) fai(t) fal(t)  
ZnF<sub>2</sub> Zinc fluoride  
(c) C: eah  
E-XII: fae(t)  
(liq) C: eaq fbj fbk  
(aq) C: fab

**33-10**

**ZnCl** Zinc monochloride  
(g) C: faa fab fac fad fae  
E-XI: fac  
E-XIII: fae(t) fa(t) fal(t)

**ZnCl<sub>2</sub>** Zinc chloride  
(c) C: eah faa fab fac fad fae  
fbf fbq  
E-V: eah fbf fbq  
E-XI: fac  
E-XIII: fae(t)  
(liq) C: eaq fbj fbk  
E-III: eaq eal(t) fbi(t) fbj(t) fbk  
(aq) C: faa fab(x) fac fad  
(in ethanol) C: fab

**ZnCl<sub>2</sub>·1/2H<sub>2</sub>O** Zinc chloride-1/2-Water  
(c) C: eah

**ZnCl<sub>2</sub>·2H<sub>2</sub>O** Zinc chloride-2-Water  
(c) C: eah

**ZnCl<sub>2</sub>·2 1/2H<sub>2</sub>O** Zinc chloride-2 1/2-Water  
(c) C: eah

**ZnCl<sub>2</sub>·3H<sub>2</sub>O** Zinc chloride-3-Water  
(c) C: eah

**33-10-1**

**ZnCl<sub>2</sub>·3ZnO·5H<sub>2</sub>O** Zinc chloride-3-Zinc oxide-5-Water  
(c) C: fab

**ZnCl<sub>2</sub>·4ZnO·11H<sub>2</sub>O** Zinc chloride-4-Zinc oxide-11-Water  
(c) C: fab

**ZnCl<sub>2</sub>·5ZnO·8H<sub>2</sub>O** Zinc chloride-5-Zinc oxide-8-Water  
(c) C: fab

**ZnCl<sub>2</sub>·8ZnO·10H<sub>2</sub>O** Zinc chloride-8-Zinc oxide-10-Water  
(c) C: fab

**33-11**

**ZnBr** Zinc monobromide  
(g) C: fac fae  
E-XI: fac  
E-XIII: fae(t) fa(t) fal(t)

**ZnBr<sub>2</sub>** Zinc bromide  
(c) C: eah eai faa fab fac fad  
fbn fbo  
E-XI: fac  
(liq) C: eaq  
(aq) C: faa fab fac fad

**ZnBr<sub>2</sub>·2H<sub>2</sub>O** Zinc bromide-2-Water  
(c) C: eah faa fab fac fad

**ZnBr<sub>2</sub>·3H<sub>2</sub>O** Zinc bromide-3-Water  
(c) C: eah

**33-11-1**

**ZnBr<sub>2</sub>·4ZnO·13H<sub>2</sub>O** Zinc bromide-4-Zinc oxide-13-Water  
(c) C: fab

**33-12**

**ZnI** Zinc moniodide  
(g) C: faa fab fac fad fae  
E-XI: fac

**ZnI<sub>2</sub>** Zinc iodide  
(c) C: eah eai faa fab fac fad  
fbn fbo  
E-XI: fac  
(aq) C: faa fab fac fad

**ZnI<sub>2</sub>·2H<sub>2</sub>O** Zinc iodide-2-Water  
(c) C: eah

**33-12-1**

**ZnI<sub>2</sub>·5ZnO·11H<sub>2</sub>O** Zinc iodide-5-Zinc oxide-11-Water  
(c) C: fab

**33-14**

**ZnS** Zinc sulfide  
(c, II) C: eai eaj eal faa fab fac  
fad fae fbn fbo  
(c, I) C: eai fab  
(c) E-V: eah fbf fbq  
E-VII: faa(t) fab(t)  
E-XI: fac fae(-t)  
E-XIII: fae(t) fa(t) fal(t)  
(g) C: fab

**33-14-1**

**ZnSO<sub>4</sub>** Zinc sulfate  
(c) C: faa fab fac fad fae  
E-VII: faa(t) fab(t) fam fan  
E-XI: fac  
E-XIII: fae(t) fa(t) fal(t)  
(aq) C: faa fab(x) fac fad

**ZnSO<sub>4</sub>·H<sub>2</sub>O** Zinc sulfate-Water  
(c) C: faa fab fac fad fae  
E-VII: fam fan  
E-XIII: fae

**ZnSO<sub>4</sub>·6H<sub>2</sub>O** Zinc sulfate-6-Water  
(c) C: faa fab fac fad fae  
E-VII: fam fan  
E-XI: fac  
E-XIII: fae

**ZnSO<sub>4</sub>·7H<sub>2</sub>O** Zinc sulfate-7-Water  
(c) C: faa fab fac fad fae  
E-VII: fam fan  
E-XI: fac  
E-XIII: fae

**ZnS<sub>2</sub>O<sub>4</sub>** Zinc dithionite  
(aq) C: fab

**ZnS<sub>2</sub>O<sub>5</sub>** Zinc dithionate  
(aq) C: fab

**ZnS<sub>2</sub>O<sub>5</sub>·6H<sub>2</sub>O** Zinc dithionate-6-Water  
(c) C: fab

**33-14-2-1**

**Zn(HSO<sub>3</sub>)<sub>2</sub>** Zinc hydrogen sulfite  
(aq) C: fab

**33-15**

**ZnSe** Zinc selenide  
(c) C: fab

**33-16**

**Zn-Te** Zinc-Tellurium  
(c) F: fca fcf fcl

**ZnTe** Zinc telluride  
(c) C: eah faa fab fac fad  
E-XI: fac  
(g) C: fab

## ZINC

33-18 Zn(N<sub>3</sub>)<sub>2</sub>

**33-18**  
 Zn(N<sub>3</sub>)<sub>2</sub> Zinc azide  
 (c) C: fab  
 Zn<sub>3</sub>N<sub>2</sub> Zinc nitride  
 (c) C: fab fae  
 E-XIII: fae(t) fai(t) fal(t)

**33-18-1**  
 Zn(NO<sub>3</sub>)<sub>2</sub> Zinc nitrate  
 (c) C: fab  
 (aq) C: fab(x)  
 Zn(NO<sub>3</sub>)<sub>2</sub>·H<sub>2</sub>O Zinc nitrate-Water  
 (c) C: eah fab  
 Zn(NO<sub>3</sub>)<sub>2</sub>·2H<sub>2</sub>O Zinc nitrate-2-Water  
 (c) C: eah fab  
 Zn(NO<sub>3</sub>)<sub>2</sub>·4H<sub>2</sub>O Zinc nitrate-4-Water  
 (c) C: eah fab  
 Zn(NO<sub>3</sub>)<sub>2</sub>·6H<sub>2</sub>O Zinc nitrate-6-Water  
 (c) C: eah fab

**33-18-2**  
 Zn(NH<sub>2</sub>)<sub>2</sub> Zinc diamide  
 (c) C: fab

**33-18-10-2**  
 ZnCl<sub>2</sub>·2N<sub>2</sub>H<sub>4</sub> Zinc chloride-2-Hydrazine  
 (c) C: fab  
 ZnCl<sub>2</sub>·NH<sub>3</sub> Zinc chloride-Ammonia  
 (c) C: fab  
 ZnCl<sub>2</sub>·2NH<sub>3</sub> Zinc chloride-2-Ammonia  
 (c) C: fab  
 ZnCl<sub>2</sub>·4NH<sub>3</sub> Zinc chloride-4-Ammonia  
 (c) C: fab  
 ZnCl<sub>2</sub>·6NH<sub>3</sub> Zinc chloride-6-Ammonia  
 (c) C: fab  
 ZnCl<sub>2</sub>·10NH<sub>3</sub> Zinc chloride-10-Ammonia  
 (c) C: fab  
 2ZnCl<sub>2</sub>·NH<sub>4</sub>Cl 2-Zinc chloride-Ammonium chloride  
 (c) C: eah  
 2ZnCl<sub>2</sub>·4NH<sub>3</sub>·½H<sub>2</sub>O 2-Zinc chloride-4-Ammonia-½-Water  
 (c) C: fab  
 ZnCl<sub>2</sub>·5NH<sub>3</sub>·2H<sub>2</sub>O Zinc chloride-5-Ammonia-2-Water  
 (c) C: fab  
 3ZnCl<sub>2</sub>·6NH<sub>4</sub>Cl·H<sub>2</sub>O 3-Zinc chloride-6-Ammonium chloride-Water  
 (c) C: fab

**33-18-10-2-1**  
 2ZnCl<sub>2</sub>·8NH<sub>4</sub>Cl·ZnO 2-Zinc chloride-8-Ammonium chloride-Zinc oxide  
 (c) C: fab  
 3ZnCl<sub>2</sub>·10NH<sub>4</sub>Cl·ZnO 3-Zinc chloride-10-Ammonium chloride-Zinc oxide  
 (c) C: fab  
 6ZnCl<sub>2</sub>·12NH<sub>3</sub>·ZnO 6-Zinc chloride-12-Ammonia-Zinc oxide  
 (c) C: fab

**33-18-11-2**  
 ZnBr<sub>2</sub>·2N<sub>2</sub>H<sub>4</sub> Zinc bromide-2-Hydrazine  
 (c) C: fab  
 ZnBr<sub>2</sub>·NH<sub>3</sub> Zinc bromide-Ammonia  
 (c) C: fab

ZnBr<sub>2</sub>·2NH<sub>3</sub> Zinc bromide-2-Ammonia  
 (c) C: fab  
 ZnBr<sub>2</sub>·4NH<sub>3</sub> Zinc bromide-4-Ammonia  
 (c) C: fab  
 ZnBr<sub>2</sub>·6NH<sub>3</sub> Zinc bromide-6-Ammonia  
 (c) C: fab

**33-18-12-2**  
 ZnI<sub>2</sub>·2N<sub>2</sub>H<sub>4</sub> Zinc iodide-2-Hydrazine  
 (c) C: fab  
 ZnI<sub>2</sub>·NH<sub>3</sub> Zinc iodide-Ammonia  
 (c) C: fab  
 ZnI<sub>2</sub>·2NH<sub>3</sub> Zinc iodide-2-Ammonia  
 (c) C: fab  
 ZnI<sub>2</sub>·4NH<sub>3</sub> Zinc iodide-4-Ammonia  
 (c) C: fab  
 ZnI<sub>2</sub>·6NH<sub>3</sub> Zinc iodide-6-Ammonia  
 (c) C: fab

**33-18-14-2-1**  
 ZnSO<sub>4</sub>·½NH<sub>3</sub> Zinc sulfate-½-Ammonia  
 (c) C: fab  
 ZnSO<sub>4</sub>·NH<sub>3</sub> Zinc sulfate-Ammonia  
 (c) C: fab  
 ZnSO<sub>4</sub>·2NH<sub>3</sub> Zinc sulfate-2-Ammonia  
 (c) C: fab  
 ZnSO<sub>4</sub>·3NH<sub>3</sub> Zinc sulfate-3-Ammonia  
 (c) C: fab  
 ZnSO<sub>4</sub>·4NH<sub>3</sub> Zinc sulfate-4-Ammonia  
 (c) C: fab  
 ZnSO<sub>4</sub>·5NH<sub>3</sub> Zinc sulfate-5-Ammonia  
 (c) C: fab  
 (NH<sub>4</sub>)<sub>2</sub>Zn(SO<sub>4</sub>)<sub>2</sub>·2H<sub>2</sub>O Diammonium zinc sulfate-2-Water  
 (c) C: fab  
 (NH<sub>4</sub>)<sub>2</sub>Zn(SO<sub>4</sub>)<sub>2</sub>·6H<sub>2</sub>O Diammonium zinc sulfate-6-Water  
 (c) C: fab

**33-20**  
 ZnAs<sub>2</sub> Zinc diarsenide  
 (c) C: eah

**33-21**  
 Zn-Sb Zinc-Antimony  
 (liq) F: fca(x) fcb(x) fcc(x) fcd(x) fcf(x) fcg(x)  
 fcl(x) fcm(x) fcn(x) fco(x) fcv(x) fcw(x)

ZnSb Zinc antimonide  
 (c) C: eah fab fae  
 E-XI: fac  
 E-XIII: fae(t)

Zn<sub>3</sub>Sb<sub>2</sub> Trizinc diantimonide  
 (c) C: eah fbf fbq  
 E-XI: fac

Zn<sub>4</sub>Sb<sub>3</sub> Tetrazinc triantimonide  
 (c) E-XI: fac

**33-22**  
 Zn-Bi Zinc-Bismuth  
 (liq) F: fca(x) fcb(x) fcc(x) fcd(x) fcf(x) fcg(x)  
 fcl(x) fcm(x) fcn(x) fco(x) fcv(x) fcw(x)

**33-23-1**  
ZnCO<sub>3</sub> Zinc carbonate  
(c) C: faa fab fac fad fae  
E-IV: faa(t) fab(t) fam(t) fan  
E-XI: fac fae(-t)  
E-XIII: fae(t)  
(aq) E-IV: eam fam fap  
ZnC<sub>2</sub>O<sub>4</sub>·2H<sub>2</sub>O Zinc oxalate-2-Water  
(c) C: fab

**33-23-2**  
ZnC<sub>2</sub>H<sub>6</sub> Dimethyl zinc  
(liq) C: eaq fab fbj fbk  
ZnC<sub>4</sub>H<sub>10</sub> Diethyl zinc  
(liq) C: eaq fab fbj fbk  
E-III: eaq eal(-t,t) fbi(t) fbj  
fbk

**33-23-2-1**  
ZnC<sub>2</sub>H<sub>3</sub>O<sub>4</sub> Zinc formate  
(c) C: fab  
(aq) C: fab  
ZnC<sub>2</sub>H<sub>3</sub>O<sub>4</sub>·2H<sub>2</sub>O Zinc formate-2-Water  
(c) C: fab  
ZnC<sub>4</sub>H<sub>5</sub>O<sub>4</sub> Zinc acetate  
(c) C: fab  
(aq) C: fab(x)  
ZnC<sub>4</sub>H<sub>5</sub>O<sub>4</sub>·H<sub>2</sub>O Zinc acetate-Water  
(c) C: fab  
ZnC<sub>4</sub>H<sub>5</sub>O<sub>4</sub>·2H<sub>2</sub>O Zinc acetate-2-Water  
(c) C: fab  
ZnC<sub>4</sub>H<sub>5</sub>O<sub>6</sub> Zinc glycollate  
(c) C: fab  
(aq) C: fab  
ZnC<sub>4</sub>H<sub>5</sub>O<sub>6</sub>·2H<sub>2</sub>O Zinc glycollate-2-Water  
(c) C: fab

**33-23-11-2-1**  
ZnBr<sub>2</sub>·2CH<sub>3</sub>O Zinc bromide-2-Methanol  
(c) C: eah

**33-23-18**  
ZnC<sub>2</sub>N<sub>2</sub> Zinc cyanide  
(c) C: fab  
ZnC<sub>4</sub>N<sub>4</sub><sup>2-</sup> Tetracyanozincate(II) ion  
(aq) C: fab

**33-23-18-1**  
ZnC<sub>2</sub>N<sub>2</sub>·ZnO Zinc cyanide-Zinc oxide  
(c) C: fab

**33-23-18-2-1**  
ZnC<sub>2</sub>H<sub>2</sub>O<sub>4</sub>·2NH<sub>3</sub> Zinc formate-2-Ammonia  
(c) C: fab  
ZnC<sub>2</sub>H<sub>2</sub>O<sub>4</sub>·2½NH<sub>3</sub> Zinc formate-2½-Ammonia  
(c) C: fab  
ZnC<sub>2</sub>H<sub>2</sub>O<sub>4</sub>·4NH<sub>3</sub> Zinc formate-4-Ammonia  
(c) C: fab  
ZnC<sub>2</sub>H<sub>2</sub>O<sub>4</sub>·5NH<sub>3</sub> Zinc formate-5-Ammonia  
(c) C: fab  
ZnC<sub>2</sub>H<sub>2</sub>O<sub>4</sub>·6NH<sub>3</sub> Zinc formate-6-Ammonia  
(c) C: fab

**33-23-18-10-2**  
ZnC<sub>12</sub>·C<sub>2</sub>N<sub>2</sub>H<sub>6</sub> Zinc chloride-Ethylenediamine  
(c) C: fab  
ZnC<sub>12</sub>·3C<sub>2</sub>N<sub>2</sub>H<sub>6</sub> Zinc chloride-3-Ethylenediamine  
(c) C: fab

**33-23-18-11-2**  
ZnBr<sub>2</sub>·C<sub>2</sub>N<sub>2</sub>H<sub>6</sub> Zinc bromide-Ethylenediamine  
(c) C: fab  
ZnBr<sub>2</sub>·3C<sub>2</sub>N<sub>2</sub>H<sub>6</sub> Zinc bromide-3-Ethylenediamine  
(c) C: fab

**33-23-18-12-2**  
ZnI<sub>2</sub>·C<sub>2</sub>N<sub>2</sub>H<sub>6</sub> Zinc iodide-Ethylenediamine  
(c) C: fab  
ZnI<sub>2</sub>·3C<sub>2</sub>N<sub>2</sub>H<sub>6</sub> Zinc iodide-3-Ethylenediamine  
(c) C: fab

**33-24-1**  
ZnSiO<sub>3</sub> Zinc metasilicate  
(c) C: eah fab  
Zn<sub>2</sub>SiO<sub>4</sub> Zinc orthosilicate  
(gls) C: fab  
(c) C: eah fab  
E-XIII: fae

**33-26**  
Zn-Sn Zinc-Tin  
(liq) F: fca(x) fcb(x) fcc(x) fcd(x) fcf(x) fcg(x)  
fcl(x) fcm(x) fcn(x) fco(x) fcs(x)  
fct(x) fcv(x) fcw(x)

**33-27**  
Zn-Pb Zinc-Lead  
(liq) F: fca(x) fcb(x) fcc(x) fcd(x) fcf(x) fcg(x)  
fcl(x) fcm(x) fcn(x) fco(x) fcv(x) fcw(x)

**33-27-12**  
2ZnI<sub>2</sub>·PbI<sub>2</sub> 2-Zinc iodide-Lead(II) iodide  
(c) C: fab

**33-28-1**  
3ZnO·2B<sub>2</sub>O<sub>3</sub> 3-Zinc oxide-2-Diboron trioxide  
(c) C: eah

**33-29**  
Zn-Al Zinc-Aluminum  
(c) F: fca(x) fcb(x) fcc(x) fcd(x) fcf(x) fcg(x)  
fcl(x) fcm(x) fcn(x) fco(x) fcv(x) fcw(x)  
(liq) F: fca(x) fcb(x) fcc(x) fcd(x) fcv(x) fcw(x)

**33-29-1**  
ZnAl<sub>2</sub>O<sub>4</sub> Zinc tetroxodialuminate  
(c) E-XIII: fae(t)  
ZnO·Al<sub>2</sub>O<sub>3</sub> Zinc oxide-Aluminum oxide  
(c) C: eah

**33-29-11**  
ZnBr<sub>2</sub>·Al<sub>2</sub>Br<sub>3</sub> Zinc bromide-Aluminum hexabromide  
(c) C: eah

**ZINC**  
33-30 Zn-Ga

**33-30**  
Zn-Ga Zinc-Gallium  
(liq) F: fca(x) fcb(x) fcc(x) fcd(x) fcf(x) fcg(x)  
fcl(x) fcm(x) fcn(x) fco(x) fcv(x) fcw(x)

**33-31**  
Zn-In Zinc-Indium  
(liq) F: fca(x) fcb(x) fcc(x) fcd(x) fcf(x) fcg(x)  
fcl(x) fcm(x) fcn(x) fco(x) fcv(x) fcw(x)

**33-32**  
Zn-Tl Zinc-Thallium  
(liq) F: fca(x) fcb(x) fcc(x) fcd(x) fcf(x) fcg(x)  
fcl(x) fcm(x) fcn(x) fco(x) fcv(x) fcw(x)

**33-32-10**  
ZnCl<sub>2</sub>·2TlCl Zinc chloride-2-Thallium(I) chloride  
(c) C: eah  
2ZnCl<sub>2</sub>·TlCl 2-Zinc chloride-Thallium(I) chloride  
(c) C: eah

**34 - Cadmium - Cd**

**34**  
Cd Cadmium  
(c, a) C: fac fae  
(c, γ) C: faa fad  
(c) C: eah eai fbf fbg fbn fbo  
D: eah fac(t) fae(t) faf(t) fal(t) fbf  
E-III: eal fbn(t) fbn(t)  
E-V: eah fbf fbg  
E-XI: fac fae(-t)  
E-XIII: fae(t) fai(t) fal(t) fbf  
F: eah eal(t) fac fae(-t,t) faf(t)  
fal(t) fal(t) fbf fbg fbn(t) fbn(t)  
(liq) C: eaq fbj fbk  
D: eaq fac(t) fae(t) faf(t) fal(t) fbj  
E-III: eaq eal(t) fbi(t) fbj(t) fbk  
E-XIII: fae fai(t) fal(t)  
F: eal(t) fae(t) faf(t) fal(t) fal(t) fbi(t)  
fbj(t) fbk  
(g) C: faa fab fac fad fae  
D: faa(t,+t) fab(t,+t) fac(t,+t)  
fad(t,+t) fae(t,+t) faf(t,+t)  
fal(t,+t)  
E-III: fac  
E-XI: fac  
E-XIII: fae fai(t,+t) fal(t,+t)  
F: fac fae(t) faf(t) fal(t) fal(t)  
(in mercury) C: faa fad

Cd<sup>+</sup>  
(g) C: fab

Cd<sup>2+</sup>  
(g) C: fab  
(aq) C: faa fab fac fad  
E-XI: fac

Cd<sup>3+</sup>  
(g) C: fab

Cd<sub>2</sub> Dicadmium  
(g) C: fab

**34-1**  
CdO Cadmium oxide  
(c) C: eai faa fab fac fad fae  
fbn fbo  
E-III: eai eal(t) fbn(t) fbn(t) fbo  
E-IV: fam(t) fan(t)  
E-XI: fac fae(-t)  
E-XII: faa(t) fab(t)  
E-XIII: fae(t)  
(g) E-III: fac  
E-XI: fac

**34-2**  
CdH Cadmium monohydride  
(g) C: faa fab fac fad  
E-XI: fac  
E-XIII: fae(t) fai(t) fal(t)

CdH<sup>+</sup>  
(g) C: fab

**34-2-1**  
Cd(OH)<sub>2</sub> Cadmium hydroxide  
(c) C: faa fab fac fad  
E-XI: fac  
(aq) E-IV: eam

**34-9**  
CdF Cadmium monofluoride  
(g) E-XIII: fae(t) fai(t) fal(t)  
CdF<sub>2</sub> Cadmium fluoride  
(c) C: eah faa fab fac fad fbf  
fbg  
(liq) C: eaq fbj fbk  
E-V: eah fbf fbg  
(aq) C: fab

**34-10**  
CdCl Cadmium monochloride  
(g) C: faa fab fac fad  
E-XI: fac  
E-XIII: fae(t) fai(t) fal(t)

CdCl<sub>2</sub> Cadmium chloride  
(c) C: eah eai faa fab fac fad  
fbf fbg fbn fbo  
E-V: eah fbf fbg  
E-XI: fac  
E-XIII: fae(t) fai(t) fal(t)  
(liq) C: eaq fbj fbk  
E-III: eaq eal(t) fbi(t) fbj(t) fbk  
(aq) C: faa fab(x) fac fad

CdCl<sub>2</sub>·H<sub>2</sub>O Cadmium chloride-Water  
(c) C: faa fab fac fad  
CdCl<sub>2</sub>·2½H<sub>2</sub>O Cadmium chloride-2½ Water  
(c) C: faa fab fac fad

**34-10-1**  
CdCl<sub>2</sub>·CdO·H<sub>2</sub>O Cadmium chloride-Cadmium oxide-Water  
(c) C: fab

**34-10-2**  
CdCl<sub>2</sub>·2HCl·7H<sub>2</sub>O Cadmium chloride-2-Hydrogen chloride-7-Water  
(c) C: fab

**34-11**  
CdBr Cadmium monobromide  
(g) C: faa fab fac fad  
E-XI: fac  
E-XIII: fae(t) fal(t) fal(t)

CdBr<sub>2</sub> Cadmium bromide  
(c) C: eah eal faa fab fac fad  
fbf fbq fbn fbo  
E-V: eah fbf fbq  
E-XI: fac  
(liq) C: eaq fbj  
(aq) C: fab(x)

CdBr<sub>2</sub>·4H<sub>2</sub>O Cadmium bromide-4-Water  
(c) C: faa fab fac fad

**34-11-1**  
CdBr<sub>2</sub>·CdO·H<sub>2</sub>O Cadmium bromide-Cadmium oxide-Water  
(c) C: fab

**34-12**  
CdI Cadmium monoiodide  
(g) C: faa fab fac fad  
E-XI: fac  
E-XIII: fae(t) fal(t) fal(t)

CdI<sub>2</sub> Cadmium diiodide  
(c) C: eah eal faa fab fac fad  
fbf fbq fbn fbo  
E-III: eal fbn(t) fbn  
E-V: eah fbf fbq  
E-XI: fac  
(liq) E-III: eaq eal(t) fbi(t) fbj fbk  
(aq) C: fab(x)

**34-12-1**  
CdI<sub>2</sub>·CdO·H<sub>2</sub>O Cadmium diiodide-Cadmium oxide-Water  
(c) C: fab

**34-14**  
CdS Cadmium sulfide  
(c) C: eah faa fab fac fad fbn  
fbo  
E-VII: faa(t) fab(t)  
E-XI: fac  
E-XIII: fae(t)

**34-14-1**  
CdSO<sub>4</sub> Cadmium sulfate  
(c) C: eah faa fab fac fad  
E-V: eah fbf fbq  
E-VII: faa(t) fab(t) fam fan  
E-XI: fac  
E-XIII: fae  
(aq) C: faa fab(x) fac fad

CdSO<sub>4</sub>·H<sub>2</sub>O Cadmium sulfate-Water  
(c) C: faa fab fac fad  
E-VII: fam fan  
E-XI: fac  
E-XIII: fae

CdSO<sub>4</sub>·2<sup>2</sup>/<sub>3</sub>H<sub>2</sub>O Cadmium sulfate-2<sup>2</sup>/<sub>3</sub>-Water  
(c) C: faa fab fac fad  
E-VII: fam fan  
E-XI: fac  
E-XIII: fae

CdS<sub>2</sub>O<sub>8</sub> Cadmium dithionate  
(aq) C: fab

**34-14-2-1**  
CdSO<sub>4</sub>·2<sup>1</sup>/<sub>2</sub>H<sub>2</sub>SO<sub>4</sub> Cadmium sulfate-2<sup>1</sup>/<sub>2</sub>-Sulfuric acid  
(c) C: fab

**34-15**  
CdSe Cadmium selenide  
(g) C: fab

**34-16**  
Cd-Te Cadmium-Tellurium  
(c) F: fca(x) fcb(x) fcf(x) fcl(x) fcm(x)  
CdTe Cadmium telluride  
(c) C: eah faa fab fac fad  
E-XI: fac

**34-18**  
Cd(N<sub>3</sub>)<sub>2</sub> Cadmium azide  
(c) C: fab

**34-18-1**  
Cd(NO<sub>3</sub>)<sub>2</sub> Cadmium nitrate  
(c) C: fab  
(aq) C: faa fab fac fad

Cd(NO<sub>3</sub>)<sub>2</sub>·2H<sub>2</sub>O Cadmium nitrate-2-Water  
(c) C: fab

Cd(NO<sub>3</sub>)<sub>2</sub>·4H<sub>2</sub>O Cadmium nitrate-4-Water  
(c) C: eah fab fbf fbq

**34-18-2**  
Cd(NH<sub>2</sub>)<sub>2</sub> Cadmium amide  
(c) C: fab

**34-18-10-2**  
CdCl<sub>2</sub>·NH<sub>3</sub> Cadmium chloride-Ammonia  
(c) C: fab

CdCl<sub>2</sub>·2NH<sub>3</sub> Cadmium chloride-2-Ammonia  
(c) C: fab

CdCl<sub>2</sub>·4NH<sub>3</sub> Cadmium chloride-4-Ammonia  
(c) C: fab

CdCl<sub>2</sub>·6NH<sub>3</sub> Cadmium chloride-6-Ammonia  
(c) C: fab

CdCl<sub>2</sub>·10NH<sub>3</sub> Cadmium chloride-10-Ammonia  
(c) C: fab

CdCl<sub>2</sub>·4NH<sub>4</sub>Cl Cadmium chloride-4-Ammonium chloride  
(c) C: fab

2CdCl<sub>2</sub>·NH<sub>4</sub>Cl 2-Cadmium chloride-Ammonium chloride  
(c) C: eah

CdCl<sub>2</sub>·NH<sub>4</sub>Cl·<sup>1</sup>/<sub>2</sub>H<sub>2</sub>O Cadmium chloride-Ammonium chloride-<sup>1</sup>/<sub>2</sub>-Water  
(c) C: fab

**34-18-11-2**  
CdBr<sub>2</sub>·NH<sub>3</sub> Cadmium bromide-Ammonia  
(c) C: fab



**CADMIUM**  
**34-18-11-2 CdBr<sub>2</sub>·2NH<sub>3</sub>**

CdBr<sub>2</sub>·2NH<sub>3</sub> Cadmium bromide—2-Ammonia  
 (c) C: fab  
 CdBr<sub>2</sub>·6NH<sub>3</sub> Cadmium bromide—6-Ammonia  
 (c) C: fab  
 CdBr<sub>2</sub>·12NH<sub>3</sub> Cadmium bromide—12-Ammonia  
 (c) C: fab  
 CdBr<sub>2</sub>·NH<sub>4</sub>Br·½H<sub>2</sub>O Cadmium bromide—Ammonium bromide—½-Water  
 (c) C: fab

**34-18-12-2**

CdI<sub>2</sub>·2NH<sub>3</sub> Cadmium iodide—2-Ammonia  
 (c) C: fab  
 CdI<sub>2</sub>·6NH<sub>3</sub> Cadmium iodide—6-Ammonia  
 (c) C: fab  
 CdI<sub>2</sub>·NH<sub>4</sub>I·½H<sub>2</sub>O Cadmium iodide—Ammonium iodide—½-Water  
 (c) C: fab

**34-18-14-2-1**

CdSO<sub>4</sub>·4NH<sub>3</sub> Cadmium sulfate—4-Ammonia  
 (c) C: fab  
 CdSO<sub>4</sub>·6NH<sub>3</sub> Cadmium sulfate—6-Ammonia  
 (c) C: fab

**34-21**

Cd-Sb Cadmium-Antimony  
 (liq) F: fca(x) fcb(x) fcc(x) fcd(x) fcf(x) fcg(x)  
 fcl(x) fcm(x) fcn(x) fco(x) fcv(x) fcw(x)  
 CdSb Cadmium antimonide  
 (c) C: eah fab fbf fbg  
 E-XI: fac  
 E-XIII: fae(t) fai(t) fal(t) fbf  
 (liq) E-XIII: fae fai(t) fal(t)  
 Cd<sub>3</sub>Sb<sub>2</sub> Tricadmium diantimonide  
 (c) C: eah faa fab fac fad  
 E-XI: fac

**34-22**

Cd-Bi Cadmium-Bismuth  
 (liq) F: fca(x) fcb(x) fcc(x) fcd(x) fcf(x) fcg(x)  
 fcl(x) fcm(x) fcn(x) fco(x) fcv(x) fcw(x)

**34-23-1**

CdCO<sub>3</sub> Cadmium carbonate  
 (c) C: faa fab fac fad  
 E-IV: faa(t) fab(t) fac fam(t) fan(t)  
 E-XI: fac  
 (amorph) C: fab  
 (aq) E-IV: eam fap

**34-23-2**

CdC<sub>2</sub>H<sub>6</sub> Dimethylcadmium  
 (liq) C: fab  
 CdC<sub>4</sub>H<sub>10</sub> Diethylcadmium  
 (liq) C: fab

**34-23-18**

CdC<sub>2</sub>N<sub>2</sub> Cadmium cyanide  
 (c) C: fab  
 (aq) C: fab

**34-23-18-1**

CdC<sub>2</sub>N<sub>2</sub>O<sub>2</sub> Cadmium fulminate  
 (c) C: fab  
 2CdC<sub>2</sub>N<sub>2</sub>·CdO·5H<sub>2</sub>O 2-Cadmium cyanide—Cadmium oxide—5-Water  
 (c) C: fab

**34-23-18-2-1**

CdC<sub>2</sub>H<sub>2</sub>O<sub>4</sub>·3NH<sub>3</sub> Cadmium formate—3-Ammonia  
 (c) C: eah

**34-24-1**

CdSiO<sub>3</sub> Cadmium metasilicate  
 (c) C: eah

**34-26**

Cd-Sn Cadmium-Tin  
 (c) F: fca fcb fcc(x,t) fcd(x,t)  
 fcf fcg fcl fcm fcn fco  
 fcv(x,t) fcw(x,t)  
 (liq) F: fca(x) fcb(x) fcc(x) fcd(x) fcf(x) fcg(x)  
 fcl(x) fcm(x) fcn(x) fco(x) fcs(x) fct(x)  
 fcv(x) fcw(x)

**34-27**

Cd-Pb Cadmium-Lead  
 (liq) F: fca(x) fcb(x) fcc(x) fcd(x) fcf(x) fcg(x)  
 fcl(x) fcm(x) fcn(x) fco(x) fcv(x) fcw(x)

**34-27-12**

2CdI<sub>2</sub>·PbI<sub>2</sub> 2-Cadmium iodide—Lead(II) iodide  
 (c) C: fab

**34-28-1**

CdO·B<sub>2</sub>O<sub>3</sub> Cadmium oxide—Diboron trioxide  
 (c) C: eah  
 2CdO·3B<sub>2</sub>O<sub>3</sub> 2-Cadmium oxide—3-Diboron trioxide  
 (c) C: eah

**34-29-11**

CdBr<sub>2</sub>·Al<sub>2</sub>Br<sub>6</sub> Cadmium bromide—Aluminum hexabromide  
 (c) C: eah

**34-30**

Cd-Ga Cadmium-Gallium  
 (liq) F: fca(x) fcb(x) fcc(x) fcd(x) fcf(x) fcg(x)  
 fcl(x) fcm(x) fcn(x) fco(x) fcv(x) fcw(x)

**34-31**

Cd-In Cadmium-Indium  
 (liq) F: fca(x) fcb(x) fcc(x) fcd(x) fcf(x) fcg(x)  
 fcl(x) fcm(x) fcn(x) fco(x) fcv(x) fcw(x)

**34-32**

Cd-Tl Cadmium-Thallium  
 (liq) F: fca(x) fcb(x) fcc(x) fcd(x) fcf(x) fcg(x)  
 fcl(x) fcm(x) fcn(x) fco(x) fcv(x) fcw(x)

**34-32-10**

CdCl<sub>2</sub>·TlCl Cadmium chloride—Thallium(I) chloride  
 (c) C: eah

**34-33**  
Cd-Zn Cadmium-Zinc  
(liq) F: fca(x) fcb(x) fcc(x) fcd(x) fcf(x) fcg(x)  
fcl(x) fcm(x) fcn(x) fco(x) fcv(x) fcw(x)

**35 – Mercury – Hg**

**Hg** **35**  
Mercury  
(c) C: eah eal fbf fbq fbn fbo  
D: eah fbf  
E-III: fbn(t) fbn(t)  
E-V: eah fbf fbq  
E-XI: eah fae(-t) fbf  
F: eah fae(-t) fbf fbq fbn  
(liq) C: eaq fac fae fbj fbk  
D: eaq fac(t) fae(t) faf(t) fai(t) fbj  
E-III: eal(t) fbi(t) fbj(t) fbk  
E-XI: fac fae  
E-XIII: fae(t) fai(t) fal(t) fbj  
F: eal(t) fac fae(-t,t) faf(t) fai(t)  
fal(t) fbk  
(g) C: faa fab fac fad fae  
D: faa(t,+t) fab(t,+t) fac(t,+t)  
fad(t,+t) fae(t,+t) faf(t,+t)  
fai(t,+t)  
E-III: fac  
E-XI: fac  
E-XIII: fae fai(t,+t) fal(t,+t)  
F: fac fae(t) faf(t) fai(t) fal(t)

Hg<sup>+</sup>

(g) C: fab

Hg<sup>2+</sup>

(g) C: fab  
(aq) C: faa fad

Hg<sub>2</sub>

Dimercury  
(g) C: fab  
E-XI: fac  
E-XIII: fae fai(t) fal(t)

Hg<sub>2</sub><sup>2+</sup>

(aq) C: faa fad  
E-IV: faa  
E-XI: fac

HgO

**35-1**  
Mercury(II) oxide  
(c, ll, red) C: faa fab fac fad fae  
E-XI: fac fae(-t)  
E-XII: faa(t) fab(t)  
E-XIII: fae(t)  
(c, l, yellow) C: faa faib fac fad  
E-XI: fac

Hg<sub>2</sub>O

Mercury(I) oxide  
(c) C: fab  
E-XII: faa(t) fab(t)  
(aq) E-IV: eam

**35-2**  
HgH Mercury(I) hydride  
(g) C: faa fab fac fad fae  
E-XI: fac  
E-XIII: fae(t) fai(t) fal(t)  
Hg<sup>2</sup>H Mercury(I) deuteride  
(g) E-XI: fac  
E-XIII: fae(t) fai(t) fal(t)

**35-2-1**

HHgO<sub>2</sub><sup>-</sup>  
(aq) C: faa fad  
Hg(OH)<sub>2</sub> Mercury(II) hydroxide  
(aq) C: faa fad

**35-9**

HgF Mercury(I) fluoride  
(g) C: fab  
E-XI: fac  
E-XIII: fae(t) fai(t) fal(t)  
HgF<sub>2</sub> Mercury(II) fluoride  
(c) C: eah eal fbn fbo

**35-10**

HgCl Mercury(I) chloride  
(c) E-XI: fac fae(-t)  
E-XIII: fae(t)  
(g) C: faa fab fac fad fae  
E-XI: fac  
E-XIII: fae(t) fai(t) fal(t)

HgCl<sub>2</sub>

Mercury(II) chloride  
(c) C: eah eal fab fae fbf fbq  
fbn fbo  
E-III: eal(t) fbn(t) fbn(t)  
E-V: eah fbf fbq  
E-XI: fac  
E-XIII: fae(t)  
(liq) C: eaq fbj fbk  
E-III: eaq eal(t) fbi(t) fbj(t) fbk  
(g) E-XI: fac  
E-XIII: fae(t) fai(t) fal(t)

HgCl<sub>3</sub><sup>-</sup>

Trichloromercurate(II) ion  
(aq) C: fab

Hg<sub>2</sub>Cl<sub>2</sub>

Mercury(I) dichloride  
(c) C: faa fab fac fad fae

**35-10-1**

HgCl<sub>2</sub>·HgO Mercury(II) chloride—Mercury(II) oxide  
(c) C: fab  
HgCl<sub>2</sub>·2HgO Mercury(II) chloride—2-Mercury(II) oxide  
(c) C: fab  
HgCl<sub>2</sub>·3HgO Mercury(II) chloride—3-Mercury(II) oxide  
(c) C: fab  
HgCl<sub>2</sub>·4HgO Mercury(II) chloride—4-Mercury(II) oxide  
(c) C: fab

**35-11**

HgBr Mercury(I) bromide  
(c) E-XI: fac  
(g) C: faa fab fac fad fae  
E-XI: fac  
E-XIII: fae(t) fai(t) fal(t)

**MERCURY**  
35-11 HgBr<sub>2</sub>

HgBr <sub>2</sub>	Mercury(II) bromide
(c)	C: eah eaf fab fbf fbq fbn fbo
	E-III: eal(t) fbn(t) fbn(t)
	E-V: eah fbf fbq
	E-XI: fac
(liq)	C: eaq fbj fbk
	E-II: eaq eal(t) fbi(t) fbj(t) fbk
(g)	E-XI: fac
	E-XIII: fae(t) fai(t) fal(t)
(aq)	C: fab
HgBr <sub>4</sub> <sup>2-</sup>	Tetrabromomercurate(II) ion
(aq)	C: fab
Hg <sub>2</sub> Br <sub>2</sub>	Mercury(I) dibromide
(c)	C: faa fab fac fad

**35-11-1**

HgBr <sub>2</sub> ·HgO	Mercury(II) Bromide—Mercury(II) oxide
(c)	C: fab
HgBr <sub>2</sub> ·2HgO	Mercury(II) bromide—2-Mercury(II) oxide
(c)	C: fab
HgBr <sub>2</sub> ·3HgO	Mercury(II) bromide—3-Mercury(II) oxide
(c)	C: fab
HgBr <sub>2</sub> ·4HgO	Mercury(II) bromide—4-Mercury(II) oxide
(c)	C: fab

**35-12**

HgI	Mercury(I) iodide
(c)	E-XIII: fae(t)
(g)	C: faa fab fac fad fae
	E-XI: fac
	E-XIII: fae(t) fai(t) fal(t)
HgI <sub>2</sub>	Mercury(II) iodide
(c, II, red, α)	C: eaj fab fbb fbc
	E-III: eal(t) fbn(-t,t) fbn(-t,t)
	E-XIII: fae fai(t) fal(t) fbb
(c, I, yellow, β)	C: eah eaf fab fbf fbq fbn fbo
	E-III: eal(t) fbn(t) fbn(t)
	E-V: eah fbf fbq
	E-XIII: fae fai(t) fal(t) fbf
(c)	E-XI: fac
(liq)	C: eaq fbj fbk
	E-II: eaq eal(t) fbi(t) fbj(t) fbk
	E-XIII: fae fai(t) fal(t)
(g)	E-XI: fac
	E-XIII: fae(t) fai(t) fal(t)
HgI <sub>4</sub> <sup>2-</sup>	Tetraiodomercurate(II) ion
(aq)	C: fab
Hg <sub>2</sub> I <sub>2</sub>	Mercury(I) di-iodide
(c)	C: faa fab fac fad fae

**35-14**

HgS	Mercury(II) sulfide
(c, II, red)	C: eaj faa fab fac fad fbb fbc
	E-VII: fam(t) fan(t) fba(t) fbb(t)
(c, I, black)	C: faa fab fac fad
(c)	E-XIII: fae(t)
(g)	C: fab

**35-14-1**

HgSO <sub>4</sub>	Mercury(II) sulfate
(c)	C: fab
	E-V: eah fbf fbq
Hg <sub>2</sub> SO <sub>4</sub>	Mercury(I) sulfate
(c)	C: faa fab fac fad fae
	E-VII: faa fab
	E-XI: fac fae(-t)
	E-XIII: fae
HgSO <sub>4</sub> ·2HgO	Mercury(II) sulfate—2-Mercury(II) oxide
(c)	C: fab

**35-15**

HgSe	Mercury(II) selenide
(c)	C: fab
(g)	C: fab

**35-18**

Hg <sub>2</sub> (NO <sub>3</sub> ) <sub>2</sub>	Mercury(I) diazide
(c)	C: fab

**35-18-1**

Hg(NO <sub>3</sub> ) <sub>2</sub>	Mercury(II) nitrate
(aq)	C: fab
Hg(NO <sub>3</sub> ) <sub>2</sub> ·½H <sub>2</sub> O	Mercury(II) nitrate—½-Water
(c)	C: fab
Hg <sub>2</sub> (NO <sub>3</sub> ) <sub>2</sub>	Mercury(I) dinitrate
(aq)	C: fab
Hg <sub>2</sub> (NO <sub>3</sub> ) <sub>2</sub> ·2H <sub>2</sub> O	Mercury(I) dinitrate—2-Water
(c)	C: fab
Hg(NO <sub>3</sub> ) <sub>2</sub> ·2HgO·H <sub>2</sub> O	Mercury(II) nitrate—2-Mercury(II) oxide—Water
(c)	C: fab
(Hg <sub>2</sub> N) <sub>2</sub> O	Millon's oxide
(c)	C: fab

**35-18-2-1**

Hg <sub>2</sub> NOH	Millon's hydroxide
(c)	C: fab
Hg <sub>2</sub> NOH·1½H <sub>2</sub> O	Millon's hydroxide—1½-Water
(c)	C: fab
Hg <sub>2</sub> NOH·2H <sub>2</sub> O	Millon's base
(c)	C: fab

**35-18-10**

Hg <sub>2</sub> NCI·½H <sub>2</sub> O	Millon's chloride—½-Water
(c)	C: fab
Hg <sub>2</sub> NCI·H <sub>2</sub> O	Millon's chloride—Water
(c)	C: fab
Hg <sub>2</sub> NCI·½HgCl <sub>2</sub>	Millon's chloride—½-Mercury(II) chloride
(c)	C: fab

**35-18-10-2**

HgCl <sub>2</sub> ·2NH <sub>3</sub>	Mercury(II) chloride—2-Ammonia
(c)	C: fab
HgCl <sub>2</sub> ·8NH <sub>3</sub>	Mercury(II) chloride—8-Ammonia
(c)	C: fab
HgCl <sub>2</sub> ·9½NH <sub>3</sub>	Mercury(II) chloride—9½-Ammonia
(c)	C: fab
Hg <sub>2</sub> NCI·½NH <sub>3</sub>	Millon's chloride—½-Ammonia
(c)	C: fab

Hg<sub>2</sub>NC1·NH<sub>3</sub> Millon's chloride—Ammonia  
(c) C: fab  
Hg<sub>2</sub>NC1·NH<sub>4</sub>Cl Millon's chloride—Ammonium chloride  
(c) C: fab  
Hg<sub>2</sub>NC1·3NH<sub>4</sub>Cl Millon's chloride—3-Ammonium chloride  
(c) C: fab

35-18-11

Hg<sub>2</sub>NBr Millon's bromide  
(c) C: fab  
Hg<sub>2</sub>NBr·½HgBr<sub>2</sub> Millon's bromide—¼-Mercury(II) bromide  
(c) C: fab  
Hg<sub>2</sub>NBr·½HgBr<sub>2</sub> Millon's bromide—½-Mercury(II) bromide  
(c) C: fab

35-18-11-2

HgBr<sub>2</sub>·2NH<sub>3</sub> Mercury(II) bromide—2-Ammonia  
(c) C: fab  
HgBr<sub>2</sub>·8NH<sub>3</sub> Mercury(II) bromide—8-Ammonia  
(c) C: fab  
Hg<sub>2</sub>NBr·NH<sub>4</sub>Br Millon's bromide—Ammonium bromide  
(c) C: fab  
Hg<sub>2</sub>NBr·3NH<sub>4</sub>Br Millon's bromide—3-Ammonium bromide  
(c) C: fab

35-18-12-2

HgI<sub>2</sub>·1½NH<sub>3</sub> Mercury(II) iodide—1½-Ammonia  
(c) C: fab  
HgI<sub>2</sub>·2NH<sub>3</sub> Mercury(II) iodide—2-Ammonia  
(c) C: fab  
HgI<sub>2</sub>·6NH<sub>3</sub> Mercury(II) iodide—6-Ammonia  
(c) C: fab  
HgI<sub>2</sub>·2N<sub>2</sub>H<sub>5</sub>I·H<sub>2</sub>O Mercury(II) iodide—2-Hydrazinium(1+) iodide—Water  
(c) C: eah

35-22

Hg-Bi Mercury-Bismuth  
(liq) F: fca(x) fcb(x) fcc(x) fcd(x) fcf(x) fcg(x)  
fcl(x) fcm(x) fcn(x) fco(x) fct fcv(x)  
fcw(x)

35-23-1

Hg<sub>2</sub>CO<sub>3</sub> Mercury(I) carbonate  
(c) E-IV: fca  
(aq) E-IV: eam fap  
HgC<sub>2</sub>O<sub>4</sub> Mercury(II) oxalate  
(c) C: fab

35-23-2

HgC<sub>2</sub>H<sub>3</sub> Dimethylmercury  
(liq) C: eaq fab fbj fbk  
HgC<sub>4</sub>H<sub>10</sub> Diethylmercury  
(liq) C: eaq fab fbj fbk

35-23-2-1

HgC<sub>4</sub>H<sub>8</sub>O<sub>4</sub> Mercury(II) acetate  
(c) C: fab  
(aq) C: fab  
Hg<sub>2</sub>C<sub>4</sub>H<sub>8</sub>O<sub>4</sub> Mercury(I) diacetate  
(c) C: fab

35-23-10-2-1

HgCl<sub>2</sub>·CH<sub>3</sub>O Mercury(II) chloride—Methanol  
(c) C: fab

35-23-18

HgC<sub>2</sub>N<sub>2</sub> Mercury(II) cyanide  
(c) C: fab  
E-XIII: fae  
(aq) C: fab  
HgC<sub>4</sub>N<sub>4</sub><sup>2-</sup> Tetracyanomercurate(II) ion  
(aq) C: fab

35-23-18-1

HgC<sub>2</sub>N<sub>2</sub>O<sub>2</sub> Mercury(II) fulminate  
(c) C: fab  
HgC<sub>2</sub>N<sub>2</sub>·HgO Mercury(II) cyanide—Mercury(II) oxide  
(c) C: fab  
3HgC<sub>2</sub>N<sub>2</sub>·HgO 3-Mercury(II) cyanide—Mercury(II) oxide  
(c) C: fab

35-23-18-10-2

HgC<sub>2</sub>N<sub>2</sub>·NH<sub>4</sub>Cl·½H<sub>2</sub>O Mercury(II) cyanide—Ammonium chloride—½-Water  
(c) C: fab  
HgCl<sub>2</sub>·C<sub>2</sub>N<sub>2</sub>H<sub>5</sub> Mercury(II) chloride—Ethylenediamine  
(c) C: fab

35-23-18-11-2

HgC<sub>2</sub>N<sub>2</sub>·NH<sub>4</sub>Br·½H<sub>2</sub>O Mercury(II) cyanide—Ammonium bromide—½-Water  
(c) C: fab  
HgBr<sub>2</sub>·C<sub>2</sub>N<sub>2</sub>H<sub>5</sub> Mercury(II) bromide—Ethylenediamine  
(c) C: fab

35-23-18-12-2

HgC<sub>2</sub>N<sub>2</sub>·NH<sub>4</sub>I·¼H<sub>2</sub>O Mercury(II) cyanide—Ammonium iodide—¼-Water  
(c) C: fab  
HgI<sub>2</sub>·C<sub>2</sub>N<sub>2</sub>H<sub>5</sub> Mercury(II) iodide—Ethylenediamine  
(c) C: fab

35-23-18-14

HgC<sub>2</sub>N<sub>2</sub>S<sub>2</sub> Mercury(II) thiocyanate  
(c) C: fab

35-26

Hg-Sn Mercury-Tin  
(liq) F: fca(x) fcb(x) fcc(x) fcd(x) fcf(x) fcg(x)  
fcl(x) fcm(x) fcn(x) fco(x) fct fcv(x)  
fcw(x)

35-27

Hg-Pb Mercury-Lead  
(liq) F: fca(x) fcb(x) fcc(x) fcd(x) fcg fco  
fcv(x) fcw(x)

35-29-11

HgBr<sub>2</sub>·Al<sub>2</sub>B<sub>6</sub> Mercury(II) bromide—Aluminum hexabromide  
(c) C: eah  
Hg<sub>2</sub>Br<sub>2</sub>·Al<sub>2</sub>B<sub>6</sub> Mercury(I) dibromide—Aluminum hexabromide  
(c) C: eah

**MERCURY**  
35-31 Hg-In

**35-31**  
Hg-In Mercury-Indium  
(liq) F: fca(x) fcb(x) fcc(x) fcd(x) fcl(x) fcg(x)  
fcl(x) fcm(x) fcn(x) fco(x) fcv(x) fcw(x)

**35-32**  
Hg-Tl Mercury-Thallium  
(c) F: fca(x) fcb(x) fcc(x) fcd(x) fcl fcl  
fcm fcv(x) fcw(x)  
(liq) F: fca(x) fcb(x) fcc(x) fcd(x) fcl(x) fcg(x)  
fcl(x) fcm(x) fcn(x) fco(x) fcr(x) fcs(x)  
fct(x) fcv(x) fcw(x)

HgTl Mercury thallide  
(g) E-XIII: fae fai(t) fal(t)

Hg<sub>2</sub>Tl Dimercury thallide  
(c) C: eah

Hg<sub>5</sub>Tl<sub>2</sub> Pentamercury dithallide  
(c) C: fab

**35-32-10**  
HgCl<sub>2</sub>·TlCl Mercury(II) chloride-Thallium(I) chloride  
(c) C: eah

**35-32-18-10-1**  
HgCl<sub>2</sub>·2TlNO<sub>3</sub> Mercury(II) chloride-2-Thallium(I) nitrate  
(c) C: eah

**35-33**  
Hg-Zn Mercury-Zinc  
(liq) F: fca(x) fcb(x) fcc(x) fcd(x) fcl(x) fcg(x)  
fcl(x) fcm(x) fcn(x) fco(x) fcv(x) fcw(x)

**35-33-23-18-10**  
HgC<sub>2</sub>N<sub>2</sub>·ZnCl<sub>2</sub>·7H<sub>2</sub>O Mercury(II) cyanide-Zinc chloride-7-  
Water  
(c) C: fab

**35-33-23-18-11**  
2HgC<sub>2</sub>N<sub>2</sub>·ZnBr<sub>2</sub>·8H<sub>2</sub>O 2-Mercury(II) cyanide-Zinc bromide-8-  
Water  
(c) C: fab

**35-34**  
Hg-Cd Mercury-Cadmium  
(liq) F: fca(x) fcb(x) fcc(x) fcd(x) fcl(x) fcg(x)  
fcl(x) fcm(x) fcn(x) fco(x) fcv(x) fcw(x)

**35-34-23-18-10**  
HgC<sub>2</sub>N<sub>2</sub>·CdCl<sub>2</sub>·2H<sub>2</sub>O Mercury(II) cyanide-Cadmium chloride-  
2-Water  
(c) C: fab

**35-34-23-18-11**  
HgC<sub>2</sub>N<sub>2</sub>·CdBr<sub>2</sub>·3H<sub>2</sub>O Mercury(II) cyanide-Cadmium bromide-  
3-Water  
(c) C: fab

**35-34-23-18-12**  
HgC<sub>2</sub>N<sub>2</sub>·CdI<sub>2</sub>·8H<sub>2</sub>O Mercury(II) cyanide-Cadmium iodide-8-  
Water  
(c) C: fab

**36 - Copper - Cu**

**36**  
Cu Copper  
(c) C: eah fac fae fbf fbg fbh  
D: eah fac(t) fae(t) faf(t) fai(t) fbf  
E-III: fbm(t) fbn(t)  
E-V: eah fbf fbg  
E-XI: fac fae(-t)  
E-XIII: fae(t) fai(t) fal(t) fbf  
F: eah eal(t) fac fae(-t,t) faf(t)  
fai(t) fal(t) fbf fbg fbm(t) fbn(t)  
(liq) C: eaq fbj fbk  
D: eaq fac(t,+) fae(t,+) faf(t,+)  
fai(t,+) fbj  
E-III: eaq eal(t,+) fbi(+t) fbj(+t)  
fbk  
E-XIII: fae fai(t,+) fal(t,+) fbf  
F: eal(t,+) fae(t,+) faf(t,+) fbi(t,+) fbj(t,+) fbk  
(g) C: faa fab fac fad fae  
D: faa(t,+) fab(t,+) fac(t,+) fad(t,+) fae(t,+) faf(t,+) fai(t,+) fbf  
E-III: fac  
E-XI: fac  
E-XIII: fae(t,+) fai(t,+) fal(t,+) fbf  
F: fac fae(t,+) faf(t,+) fai(t,+) fal(t,+) fbf

(in mercury) C: faa fad

Cu<sup>+</sup>  
(g) C: fab  
(aq) C: faa fab fac fad

Cu<sup>2+</sup>  
(g) C: fab  
(aq) C: faa fab fac fad  
E-XI: fac

Cu<sub>2</sub> Diccopper  
(g) E-XI: fac

**36-1**  
CuO Copper(II) oxide  
(c) C: faa fab fac fad fae  
E-V: eah fbf fbg  
E-VII: fam(t) fan(t)  
E-XI: fac fae(-t)  
E-XII: faa(t) fab(t)  
E-XIII: fae(t) fai(t) fal(t)  
(liq) E-XII: faa(t) fab(t)  
(g) C: fab  
E-XIII: fae(t) fai(t) fal(t)

(aq) E-IV: eam  
CuO<sub>2</sub><sup>2-</sup> Dioxocuprate(II) ion  
(aq) C: faa fad

Cu<sub>2</sub>O Copper(I) oxide  
(c) C: eah faa fab fac fad fae  
fbf fbg  
E-V: eah fbf fbg  
E-VII: fam(t) fan(t)  
E-XI: fac fae(-t)

E-XII: faa(t) fab(t)  
E-XIII: fae(t) fai(t) fal(t)  
(liq) E-XII: faa(+) fab(+)

36-2

CuH Copper(I) hydride  
(g) C: faa fab fac fad fae  
E-XI: fac  
E-XIII: fae(t) fai(t) fal(t)

Cu<sup>2</sup>H Copper(I) deuteride  
(g) E-XI: fac  
E-XIII: fae(t) fai(t) fal(t)

36-2-1

HCuO<sub>2</sub><sup>-</sup> Hydrogen dioxocuprate(II) ion  
(aq) C: faa fad

Cu(OH)<sub>2</sub> Copper(II) hydroxide  
(c) C: fab

36-9

CuF Copper(I) fluoride  
(g) C: fab  
E-XI: fac  
E-XIII: fae(t) fai(t) fal(t)

CuF<sub>2</sub> Copper(II) fluoride  
(c) C: fab  
CuF<sub>2</sub>·2H<sub>2</sub>O Copper(II) fluoride-2-Water  
(c) C: faa fab fac fad

36-10

CuCl Copper(I) chloride  
(c) C: eah faa fab fac fad fbf  
fbg  
E-XI: fac  
E-XIII: fae(t) fai(t) fal(t) fbf  
(liq) E-XIII: fae fai(t) fal(t)  
(g) C: faa fab fac fad fae  
E-XI: fac  
E-XIII: fae(t) fai(t) fal(t)  
(in aq hydrogen chloride) C: fab

CuCl<sub>2</sub> Copper(II) chloride  
(c) C: fab  
E-XIII: fae(t) fai(t) fal(t)  
(aq) C: fab(x)  
(in ethanol) C: fab(x)  
(in HCl·8H<sub>2</sub>O) C: fab

CuCl<sub>2</sub><sup>-</sup> Dichlorocuprate(I) ion  
(aq) C: faa fab fac fad

CuCl<sub>2</sub>·2H<sub>2</sub>O Copper(II) chloride-2-Water  
(c) C: fab

Cu<sub>2</sub>Cl<sub>2</sub> Copper(I) dichloride  
(liq) E-III: eaq eal(t) fbi(t) fbj(t) fbk  
E-V: eah fbf fbq

36-10-1

Cu(ClO<sub>3</sub>)<sub>2</sub> Copper(II) chlorate  
(aq) C: fab  
Cu(ClO<sub>4</sub>)<sub>2</sub> Copper(II) perchlorate  
(aq) C: fab  
CuCl<sub>2</sub>·CuO Copper(II) chloride-Copper(II) oxide  
(c) C: fab

CuCl<sub>2</sub>·3CuO Copper(II) chloride-3-Copper(II) oxide  
(c) C: fab

CuCl<sub>2</sub>·3CuO·4H<sub>2</sub>O Copper(II) chloride-3-Copper oxide-4-Water  
(c) C: fab

36-11

CuBr Copper(I) bromide  
(c) C: eah faa fab fac fad  
E-XI: fac  
E-XIII: fae(t)  
(g) C: faa fab fac fad fae  
E-XI: fac  
E-XIII: fae(t) fai(t) fal(t)

CuBr<sub>2</sub> Copper(II) bromide  
(c) C: fab  
(aq) C: fab

CuBr<sub>2</sub><sup>-</sup> Dibromocuprate(I) ion  
(aq) C: faa fad

CuBr<sub>2</sub>·4H<sub>2</sub>O Copper(II) bromide-4-Water  
(c) C: fab

Cu<sub>2</sub>Br<sub>2</sub> Copper(I) dibromide  
(liq) E-III: eaq eal(t) fbi(t) fbj(t) fbk

36-11-2-1

CuBr<sub>2</sub>·3Cu(OH)<sub>2</sub> Copper(II) bromide-3-Copper(II) hydroxide  
(c) C: fab

36-12

CuI Copper(I) iodide  
(c) C: eah faa fab fac fad fae  
E-XI: fac fae(-)  
E-XIII: fae(t)  
(liq) E-III: eaq eal(t) fbi(t) fbj(t) fbk  
(g) C: faa fab fac fad fae  
E-XI: fac  
E-XIII: fae(t) fai(t) fal(t)

CuI<sub>2</sub> Copper(II) iodide  
(c, II) C: eaj fab fae  
(c) E-XIII: fae  
(aq) C: fab

36-14

CuS Copper(II) sulfide  
(c) C: faa fab fac fad fae  
E-VII: faa(t) fab(t) fam(t) fan(t)  
E-XI: fac fae(-)  
E-XIII: fae(t)

Cu<sub>2</sub>S Copper(I) sulfide  
(c, II, α) C: eaj faa fab fac fad  
fae fbb fbc fbd  
E-VII: faa(t) fab(t)  
E-XI: fac fae(-)  
E-XIII: fae fai(t) fal(t) fbb  
(c, β) E-VII: fam(t) fan(t)  
E-XIII: fae fai(t) fal(t) fbb  
(c, I, γ) C: eah fbf fbq  
E-V: eah fbf fbq  
E-XIII: fae fai(t) fal(t)

<b>36-14-1</b>	
CuSO <sub>4</sub>	Copper(II) sulfate (c) C: faa fab fac fad fae E-VII: faa(t) fab(t) fam(t) fam(t) E-XI: fac E-XIII: fae(t) fai(t) fal(t) (aq) C: faa fab(x) fac fad
CuSO <sub>4</sub> ·H <sub>2</sub> O	Copper(II) sulfate—Water (c) C: faa fab fac fad fae E-VII: fam(t) fam(t) E-XI: fac E-XIII: fae
CuSO <sub>4</sub> ·3H <sub>2</sub> O	Copper(II) sulfate—3-Water (c) C: faa fab fac fad fae E-VII: fam(t) fam(t) E-XI: fac E-XIII: fae
CuSO <sub>4</sub> ·5H <sub>2</sub> O	Copper(II) sulfate—5-Water (c, II) C: eaj faa fab fac fad fae (c) E-VII: fam(t) fam(t) E-XI: fac E-XIII: fae
CuSO <sub>4</sub> ·CuO	Copper(II) sulfate—Copper(II) oxide (c) E-VII: fam(t) fam(t) E-XI: fac
CuSO <sub>4</sub> ·3CuO·4H <sub>2</sub> O	Copper(II) sulfate—3-Copper(II) oxide—4-Water (c) C: fab
CuS <sub>2</sub> O <sub>6</sub>	Copper(II) dithionate (aq) C: fab
CuS <sub>2</sub> O <sub>6</sub> ·5H <sub>2</sub> O	Copper(II) dithionate—5-Water (c) C: fab
Cu <sub>2</sub> SO <sub>4</sub>	Copper(I) sulfate (c) C: fab (aq) C: fab
<b>36-15</b>	
CuSe	Copper(II) selenide (c) C: fab
Cu <sub>2</sub> Se	Copper(I) selenide (c, II, a) C: eaj fab fae fbb fbc fbd E-XIII: fae fai(t) fal(t) fbb (c, I, β) C: eah E-XIII: fae fai(t) fal(t)
<b>36-15-1</b>	
CuSeO <sub>4</sub>	Copper(II) selenate (aq) C: fab
CuSeO <sub>4</sub> ·5H <sub>2</sub> O	Copper(II) selenate—5-Water (c) C: fab
<b>36-16</b>	
Cu <sub>2</sub> Te	Copper(I) telluride (c) C: eah
Cu <sub>4</sub> Te <sub>3</sub>	Tetracopper tritelluride (c, II) C: eaj (c, I) C: eah
<b>36-18</b>	
Cu <sub>3</sub> N <sub>3</sub>	Copper(I) azide (c) C: fab

Cu <sub>3</sub> N	Copper(I) nitride (c) C: fab fae E-XIII: fae
<b>36-18-1</b>	
Cu(NO <sub>3</sub> ) <sub>2</sub>	Copper(II) nitrate (c) C: fab (aq) C: fab
Cu(NO <sub>3</sub> ) <sub>2</sub> ·3H <sub>2</sub> O	Copper(II) nitrate—3-Water (c) C: fab
Cu(NO <sub>3</sub> ) <sub>2</sub> ·6H <sub>2</sub> O	Copper(II) nitrate—6-Water (c) C: eah fab
Cu(NO <sub>3</sub> ) <sub>2</sub> ·3CuO·3H <sub>2</sub> O	Copper(II) nitrate—3-Copper(II) oxide—3-Water (c) C: fab
4CuO·3N <sub>2</sub> O <sub>5</sub>	4-Copper(II) oxide—3-Dinitrogen pentoxide (c) C: fab
<b>36-18-2</b>	
Cu(NH <sub>3</sub> ) <sup>+</sup>	Monamminecopper(I) ion (aq) C: faa fad
Cu(NH <sub>3</sub> ) <sub>2</sub> <sup>2+</sup>	Monamminecopper(II) ion (aq) C: faa fad
Cu(NH <sub>3</sub> ) <sub>2</sub> <sup>+</sup>	Diamminecopper(I) ion (aq) C: faa fad
Cu(NH <sub>3</sub> ) <sub>2</sub> <sup>2+</sup>	Diamminecopper(II) ion (aq) C: faa fab fac fad
Cu(NH <sub>3</sub> ) <sub>3</sub> <sup>3+</sup>	Triamminecopper(II) ion (aq) C: faa fad
Cu(NH <sub>3</sub> ) <sub>4</sub> <sup>4+</sup>	Tetramminecopper(II) ion (aq) C: faa fab fac fad
Cu(NH <sub>3</sub> ) <sub>5</sub> <sup>5+</sup>	Pentamminecopper(II) ion (aq) C: faa fad
<b>36-18-2-1</b>	
Cu(NO <sub>3</sub> ) <sub>2</sub> ·2NH <sub>3</sub>	Copper(II) nitrate—2-Ammonia (c) C: fab
Cu(NO <sub>3</sub> ) <sub>2</sub> ·4NH <sub>3</sub>	Copper(II) nitrate—4-Ammonia (c) C: fab
Cu(NO <sub>3</sub> ) <sub>2</sub> ·6NH <sub>3</sub>	Copper(II) nitrate—6-Ammonia (c) C: fab
<b>36-18-10-2</b>	
CuCl·NH <sub>3</sub>	Copper(I) chloride—Ammonia (c) C: fab
CuCl·1½NH <sub>3</sub>	Copper(I) chloride—1½-Ammonia (c) C: fab
CuCl·3NH <sub>3</sub>	Copper(I) chloride—3-Ammonia (c) C: fab
CuCl <sub>2</sub> ·2NH <sub>3</sub>	Copper(II) chloride—2-Ammonia (c) C: fab
CuCl <sub>2</sub> ·3½NH <sub>3</sub>	Copper(II) chloride—3½-Ammonia (c) C: fab
CuCl <sub>2</sub> ·5NH <sub>3</sub>	Copper(II) chloride—5-Ammonia (c) C: fab
CuCl <sub>2</sub> ·6NH <sub>3</sub>	Copper(II) chloride—6-Ammonia (c) C: fab
CuCl <sub>2</sub> ·10NH <sub>3</sub>	Copper(II) chloride—10-Ammonia (c) C: fab
CuCl <sub>2</sub> ·2NH <sub>3</sub> ·¼H <sub>2</sub> O	Copper(II) chloride—2-Ammonia—¼-Water (c) C: fab

$\text{CuCl}_2 \cdot 4\text{NH}_3 \cdot 2\text{H}_2\text{O}$  Copper(II) chloride-4-Ammonia-2-Water  
(c) C: fab  
 $\text{CuCl}_2 \cdot 5\text{NH}_3 \cdot \frac{1}{2}\text{H}_2\text{O}$  Copper(II) chloride-5-Ammonia- $\frac{1}{2}$ -Water  
(c) C: fab  
 $\text{CuCl}_2 \cdot 5\text{NH}_3 \cdot 1\frac{1}{2}\text{H}_2\text{O}$  Copper(II) chloride-5-Ammonia- $1\frac{1}{2}$ -Water  
(c) C: fab  
 $\text{CuCl}_2 \cdot 2\text{NH}_4\text{Cl}$  Copper(II) chloride-2-Ammonium chloride  
(c) C: fab  
 $\text{CuCl}_2 \cdot 2\text{NH}_4\text{Cl} \cdot 2\text{H}_2\text{O}$  Copper(II) chloride-2-Ammonium chloride-2-Water  
(c) C: fab

36-18-11-2

$\text{CuBr} \cdot \text{NH}_3$  Copper(I) bromide-Ammonia  
(c) C: fab  
 $\text{CuBr} \cdot 1\frac{1}{2}\text{NH}_3$  Copper(I) bromide- $1\frac{1}{2}$ -Ammonia  
(c) C: fab  
 $\text{CuBr} \cdot 3\text{NH}_3$  Copper(I) bromide-3-Ammonia  
(c) C: fab  
 $\text{CuBr}_2 \cdot 2\text{NH}_3$  Copper(II) bromide-2-Ammonia  
(c) C: fab  
 $\text{CuBr}_2 \cdot 3\frac{1}{2}\text{NH}_3$  Copper(II) bromide- $3\frac{1}{2}$ -Ammonia  
(c) C: fab  
 $\text{CuBr}_2 \cdot 5\text{NH}_3$  Copper(II) bromide-5-Ammonia  
(c) C: fab  
 $\text{CuBr}_2 \cdot 10\text{NH}_3$  Copper(II) bromide-10-Ammonia  
(c) C: fab

36-18-12-2

$\text{CuI} \cdot \frac{1}{2}\text{NH}_3$  Copper(I) iodide- $\frac{1}{2}$ -Ammonia  
(c) C: fab  
 $\text{CuI} \cdot \text{NH}_3$  Copper(I) iodide-Ammonia  
(c) C: fab  
 $\text{CuI} \cdot 2\text{NH}_3$  Copper(I) iodide-2-Ammonia  
(c) C: fab  
 $\text{CuI} \cdot 3\text{NH}_3$  Copper(I) iodide-3-Ammonia  
(c) C: fab  
 $\text{CuI}_2 \cdot 2\text{NH}_3$  Copper(II) iodide-2-Ammonia  
(c) C: fab  
 $\text{CuI}_2 \cdot 3\frac{1}{2}\text{NH}_3$  Copper(II) iodide- $3\frac{1}{2}$ -Ammonia  
(c) C: fab  
 $\text{CuI}_2 \cdot 5\text{NH}_3$  Copper(II) iodide-5-Ammonia  
(c) C: fab  
 $\text{CuI}_2 \cdot 10\text{NH}_3$  Copper(II) iodide-10-Ammonia  
(c) C: fab

36-18-14-2-1

$\text{CuSO}_4 \cdot \text{NH}_3$  Copper(II) sulfate-Ammonia  
(c) C: fab  
 $\text{CuSO}_4 \cdot 2\text{NH}_3$  Copper(II) sulfate-2-Ammonia  
(c) C: fab  
 $\text{CuSO}_4 \cdot 4\text{NH}_3$  Copper(II) sulfate-4-Ammonia  
(c) C: fab  
 $\text{CuSO}_4 \cdot 5\text{NH}_3$  Copper(II) sulfate-5-Ammonia  
(c) C: fab  
 $\text{CuSO}_4 \cdot 6\text{NH}_3$  Copper(II) sulfate-6-Ammonia  
(c) C: fab  
 $\text{CuSO}_4 \cdot 4\text{NH}_3 \cdot 1\frac{1}{2}\text{H}_2\text{O}$  Copper(II) sulfate-4-Ammonia- $1\frac{1}{2}$ -Water  
(c) C: fab  
 $\text{CuSO}_4 \cdot (\text{NH}_4)_2\text{SO}_4$  Copper(II) sulfate-Ammonium sulfate  
(c) C: fab

$\text{CuSO}_4 \cdot (\text{NH}_4)_2\text{SO}_4 \cdot 2\text{H}_2\text{O}$  Copper(II) sulfate-Ammonium sulfate-2-Water  
(c) C: fab

$\text{CuSO}_4 \cdot (\text{NH}_4)_2\text{SO}_4 \cdot 6\text{H}_2\text{O}$  Copper(II) sulfate-Ammonium sulfate-6-Water  
(c) C: fab fae

36-19

$\text{CuP}_2$  Copper diphosphide  
(c) C: fab  
 $\text{Cu}_3\text{P}$  Copper(I) phosphide  
(c) C: eah fab

36-19-10-2

$\text{CuCl} \cdot \text{PH}_3$  Copper(I) chloride-Phosphine  
(c) C: fab  
 $\text{CuCl} \cdot 2\text{PH}_3$  Copper(I) chloride-2-Phosphine  
(c) C: fab

36-19-11-2

$\text{CuBr} \cdot \text{PH}_3$  Copper(I) bromide-Phosphine  
(c) C: fab  
 $\text{CuBr} \cdot 2\text{PH}_3$  Copper(I) bromide-2-Phosphine  
(c) C: fab

36-19-12-2

$\text{CuI} \cdot \text{PH}_3$  Copper(I) iodide-Phosphine  
(c) C: fab  
 $\text{CuI} \cdot 2\text{PH}_3$  Copper(I) iodide-2-Phosphine  
(c) C: fab

36-20

$\text{Cu}_3\text{As}$  Copper(I) arsenide(III)  
(c) C: eah  
 $\text{Cu}_5\text{As}_2$  Copper(II) arsenide(V)  
(c) C: eah

36-21

$\text{Cu-Sb}$  Copper-Antimony  
(c) F: fci(x) fch(-t,t) fcp(-t,t) fct(-t,t)  
(liq) F: fci(x)  
 $\text{Cu}_2\text{Sb}$  Diccopper antimonide  
(c) C: fae  
 E-XIII: fae(t) fai(t) fal(t)  
 $\text{Cu}_3\text{Sb}$  Triccopper antimonide  
(c) C: eah fab fae  
 E-XIII: fae(t) fai(t) fal(t)  
 $\text{Cu}_5\text{Sb}_2$  Pentacopper diantimonide  
(c) C: eah

36-22

$\text{Cu-Bi}$  Copper-Bismuth  
(liq) F: fcc(x,t) fcd(x,t) fcv(x,t)  
 fcw(x,t)

36-23-1

$\text{CuCO}_3$  Copper(II) carbonate  
(c) C: faa fab fac fad  
 E-IV: faa fab fac  
 E-XI: fac  
 (aq) E-IV: eam fap



**COPPER**

**36-23-2-1**  $\text{CuC}_2\text{H}_2\text{O}_4$

**36-23-2-1**

- $\text{CuC}_2\text{H}_2\text{O}_4$  Copper(II) formate  
(c) C: fab  
(aq) C: fab
- $\text{CuC}_2\text{H}_2\text{O}_4 \cdot 4\text{H}_2\text{O}$  Copper(II) formate-4-Water  
(c) C: fab
- $\text{CuC}_4\text{H}_6\text{O}_4$  Copper(II) acetate  
(c) C: fab  
(aq) C: fab
- $\text{CuC}_4\text{H}_6\text{O}_4 \cdot \text{H}_2\text{O}$  Copper(II) acetate-Water  
(c) C: fab
- $\text{CuC}_4\text{H}_6\text{O}_8$  Copper(II) glycollate  
(c) C: fab  
(aq) C: fab

**36-23-10-1**

- $2\text{CuCl} \cdot \text{CO}$  2-Copper(I) chloride-Carbon monoxide  
(aq) C: fab
- $2\text{CuCl} \cdot \text{CO} \cdot 2\text{H}_2\text{O}$  2-Copper(I) chloride-Carbon monoxide-2-Water  
(c) C: fab

**36-23-10-2**

- $2\text{CuCl} \cdot \text{C}_2\text{H}_2$  2-Copper(I) chloride-Acetylene  
(c) C: fab

**36-23-10-2-1**

- $\text{CuCl}_2 \cdot 2\text{CH}_3\text{O}$  Copper(II) chloride-2-Methanol  
(c) C: fab

**36-23-14-2-1**

- $\text{Cu}(\text{C}_2\text{H}_5\text{SO}_4)_2$  Copper(II) ethyl sulfate  
(aq) C: fab

**36-23-18**

- $\text{CuCN}$  Copper(I) cyanide  
(c) C: eah  
(aq) C: fab
- $\text{Cu}_2\text{C}_2\text{N}_2$  Copper(I) dicyanide  
(c) E-V: eah fbf fbg

**36-23-18-1**

- $\text{CuCNO}$  Copper(I) fulminate  
(c) C: fab

**36-23-18-2-1**

- $\text{CuC}_2\text{H}_2\text{O}_4 \cdot 2\text{NH}_3$  Copper(II) formate-2-Ammonia  
(c) C: fab
- $\text{CuC}_2\text{H}_2\text{O}_4 \cdot 4\text{NH}_3$  Copper(II) formate-4-Ammonia  
(c) C: fab
- $\text{CuC}_2\text{H}_2\text{O}_4 \cdot 6\text{NH}_3$  Copper(II) formate-6-Ammonia  
(c) C: fab
- $\text{CuC}_2\text{H}_2\text{O}_4 \cdot 8\text{NH}_3$  Copper(II) formate-8-Ammonia  
(c) C: fab
- $\text{CuC}_4\text{H}_6\text{O}_4 \cdot 2\text{NH}_3$  Copper(II) acetate-2-Ammonia  
(c) C: eah fab
- $\text{CuC}_4\text{H}_6\text{O}_4 \cdot 4\text{NH}_3$  Copper(II) acetate-4-Ammonia  
(c) C: fab
- $\text{CuC}_4\text{H}_6\text{O}_4 \cdot 5\text{NH}_3$  Copper(II) acetate-5-Ammonia  
(c) C: fab
- $\text{CuC}_4\text{H}_6\text{O}_4 \cdot 8\text{NH}_3$  Copper(II) acetate-8-Ammonia  
(c) C: fab

- $\text{CuC}_4\text{H}_6\text{O}_8 \cdot 2\text{NH}_3$  Copper(II) glycollate-2-Ammonia  
(c) C: fab
- $\text{CuC}_4\text{H}_6\text{O}_8 \cdot 4\text{NH}_3$  Copper(II) glycollate-4-Ammonia  
(c) C: fab
- $\text{CuC}_4\text{H}_6\text{O}_8 \cdot 6\text{NH}_3$  Copper(II) glycollate-6-Ammonia  
(c) C: fab
- $\text{CuC}_4\text{H}_6\text{O}_8 \cdot 8\text{NH}_3$  Copper(II) glycollate-8-Ammonia  
(c) C: fab

**36-23-18-10-2**

- $\text{CuCl}_2 \cdot \text{C}_2\text{N}_2\text{H}_8$  Copper(II) chloride-Ethylenediamine  
(c) C: fab
- $\text{CuCl}_2 \cdot 2\text{C}_2\text{N}_2\text{H}_8$  Copper(II) chloride-2-Ethylenediamine  
(c) C: fab

**36-23-18-10-2-1**

- $\text{CuC}_4\text{Cl}_2\text{H}_4\text{O}_4 \cdot 2\text{NH}_3$  Copper(II) chloroacetate-2-Ammonia  
(c) C: eah
- $\text{CuC}_4\text{Cl}_6\text{O}_4 \cdot 5\text{NH}_3$  Copper(II) trichloroacetate-5-Ammonia  
(c) C: eah

**36-23-18-11-2**

- $\text{CuBr}_2 \cdot \text{C}_2\text{N}_2\text{H}_8$  Copper(II) bromide-Ethylenediamine  
(c) C: fab
- $\text{CuBr}_2 \cdot 2\text{C}_2\text{N}_2\text{H}_8$  Copper(II) bromide-2-Ethylenediamine  
(c) C: fab
- $\text{CuBr}_2 \cdot \text{C}_2\text{N}_2\text{H}_8 \cdot 2\text{HBr}$  Copper(II) bromide-Ethylenediamine-2-Hydrogen bromide  
(c) C: eah

**36-23-19-10-2-1**

- $\text{CuCl}_2 \cdot \text{C}_6\text{PH}_{15}\text{O}$  Copper(II) chloride-Triethylphosphine oxide  
(c) C: eah

**36-24**

- $\text{Cu}_3\text{Si}$  Tricopper silicide  
(c) C: fae  
E-XIII: fae(t)
- $\text{Cu}_5\text{Si}$  Pentacopper silicide  
(c) C: eah

**36-24-1**

- $\text{CuSiO}_3 \cdot \text{H}_2\text{O}$  Copper(II) metasilicate-Water  
(c) C: fae  
E-XIII: fae

**36-24-14**

- $4\text{CuS} \cdot \text{SiS}_2$  4-Copper(II) sulfide-Silicon disulfide  
(c) C: eah

**36-26**

- $\text{Cu-Sn}$  Copper-Tin  
(c) F: fcf(x)  
(liq) F: fcf(x)
- $\text{Cu}_3\text{Sn}$  Tricopper stannide  
(c) C: fab

**36-27**

- $\text{Cu-Pb}$  Copper-Lead  
(liq) F: fca(x) fcb(x) fcc(x) fcd(x) fcv(x) fcw(x)

**36-29**  
**Cu-Al** Copper-Aluminum  
 (c) F: fca(x) fcb(x) fcc(x) fcd(x) fcf(x) fcg(x)  
 fcl(x) fcm(x) fcn(x) fco(x) fcv(x) fcw(x)  
 (liq) F: fca(x) fcb(x) fcc(x) fcd(x) fcf(x) fcl(x)  
 fcm(x) fcn(x) fco(x) fcv(x) fcw(x)

**CuAl** Copper aluminide  
 (c) C: eah fab  
 E-XIII: fae(t) fai(t) fal(t)

**CuAl<sub>2</sub>** Copper dialuminide  
 (c) C: eah fab fae(t) fai(t) fal(t)

**Cu<sub>2</sub>Al** Diccopper aluminide  
 (c) C: fab

**Cu<sub>3</sub>Al** Triccopper aluminide  
 (c) C: eah  
 E-XIII: fae(t) fai(t) fal(t)

**36-29-10**  
**Cu<sub>2</sub>Cl<sub>2</sub>·Al<sub>2</sub>Cl<sub>6</sub>** Copper(I) dichloride-Aluminum hexachloride  
 (c) C: eah

**36-30**  
**Cu<sub>2</sub>Ga** Diccopper gallide  
 (c) C: eah

**36-31**  
**Cu-In** Copper-Indium  
 (c) F: fcf(x)

**36-33**  
**Cu-Zn** Copper-Zinc  
 (c) F: fca(x) fcb(x) fcc(x) fcd(x) fce(t) fcf(x)  
 fcg(x) fch(x,t) fcl(x) fcm(x) fcn(x)  
 fco(x) fcp(t) fcr(t) fct(t) fcv(x) fcw(x)  
 (liq) F: fca(x) fcb(x) fcc(x) fcd(x) fcf(x) fcg(x)  
 fcl(x) fcm(x) fcn(x) fco(x) fcv(x) fcw(x)

**Cu<sub>2</sub>Zn<sub>3</sub>** Diccopper trizincide  
 (c) C: fab

**36-34**  
**Cu-Cd** Copper-Cadmium  
 (c) F: fca(x) fcb(x) fcf(x) fcl(x) fcm(x)  
 (liq) F: fca(x) fcb(x) fcc(x) fcd(x) fcf(x) fcg(x)  
 fcl(x) fcm(x) fcn(x) fco(x) fcv(x) fcw(x)

**Cu<sub>2</sub>Cd<sub>3</sub>** Diccopper tricadmide  
 (c) C: eah fab fbf fbq fbh  
 E-XIII: fae(t) fai(t) fal(t)

**Cu<sub>5</sub>Cd<sub>6</sub>** Pentacopper octacadmide  
 (c) E-XIII: fae(t) fai(t) fal(t) fbf  
 (liq) E-XIII: fae fai(t) fal(t)

**37 - Silver - Ag**

**37**  
**Ag** Silver  
 (c) C: eah fac fae fbf fbq fbh  
 D: eah fac(t) fae(t) faf(t) fai(t) fbf  
 E-III: fhm(t) fhn(t)

E-IV: fam(t) fan(t)  
 E-V: eah fbf fbq  
 E-XI: fac fae(-t)  
 E-XIII: fae(t) fai(t) fal(t) fbf  
 F: eah eal(t) fac fae(-t,t) faf(t)  
 fai(t) fal(t) fbf fbq fhm(t) fhn(t)

(liq) C: eaq fbf fbk  
 D: eaq fac(t,+t) fae(t,+t) faf(t,+t)  
 fai(t,+t) fbf  
 E-III: eaq eal(t,+t) fbi(t) fbj(t)  
 fbk  
 E-XIII: fae fai(t,+t) fal(t,+t)  
 F: eal(t,+t) fae(t,+t) faf(t,+t)  
 fai(t,+t) fal(t,+t) fbi(t,+t)  
 fbj(t,+t) fbk  
 (g) C: faa fab fac fad fae  
 D: faa(t,+t) fab(t,+t) fac(t,+t)  
 fad(t,+t) fae(t,+t) faf(t,+t)  
 fai(t,+t)  
 E-III: fac  
 E-XI: fac  
 E-XIII: fae fai(t,+t) fal(t,+t)  
 F: fac fae(t,+t) faf(t,+t) fai(t,+t)  
 fal(t,+t)

**Ag<sup>+</sup>**  
 (g) C: fab  
 (aq) C: faa fab fac fad fae  
 E-IV: faa fam  
 E-XI: fac

**Ag<sup>2+</sup>**  
 (g) C: fab

**Ag<sup>3+</sup>**  
 (g) C: fab

**37-1**  
**AgO** Silver monoxide  
 (g) E-XIII: fae(t) fai(t) fal(t)

**Ag<sub>2</sub>O** Silver oxide  
 (c) C: faa fab fac fad fae  
 E-IV: faa(t) fab(t) fac fam(t) fan(t)  
 E-XI: fac fae(-t)  
 E-XII: faa(t) fab(t)  
 E-XIII: fae(t) fai(t) fal(t)

(aq) E-IV: eam

**Ag<sub>2</sub>O<sub>2</sub>** Disilver dioxide  
 (c) C: fab  
 E-XII: faa(t) fab(t)

**37-2**  
**AgH** Silver hydride  
 (g) C: faa fab fac fad fae  
 E-XI: fac  
 E-XIII: fae(t) fai(t) fal(t)

**Ag<sup>2</sup>H** Silver deuteride  
 (g) E-XI: fac

**37-9**  
**AgF** Silver fluoride  
 (c) C: eah faa fab fac fad  
 (g) E-XI: fac  
 (aq) C: faa fab(x) fac fad

## SILVER

37-9 AgF·H<sub>2</sub>OAgF·H<sub>2</sub>O Silver fluoride—Water

(c) C: fab

AgF·2H<sub>2</sub>O Silver fluoride—2-Water

(c) C: faa fab fac fad

E-XIII: fae

AgF·4H<sub>2</sub>O Silver fluoride—4-Water

(c) C: fab

E-XIII: fae

AgF<sub>2</sub> Monosilver difluoride

(c) C: fab

Ag<sub>2</sub>F Disilver monofluoride

(c) C: fab

## 37-9-2

AgHF<sub>2</sub> Hydrogen difluoroargentate

(aq) C: fab

## 37-10

AgCl Silver chloride

(c) C: eah faa fab fac fad fae

fbf fbq fbh

E-III: fbm(t) fbn(t)

E-V: eah fbf fbq

E-XI: fac fae(-t)

E-XIII: fae(t) fai(t) fal(t) fbf

(liq) C: eaq fbj fbk

E-III: eaq eal(t) fbi(+t) fbj(+t) fbk

E-XIII: fae fai(t) fal(t)

(g) C: faa fab fac fad fae

E-XI: fac

E-XIII: fae(t) fai(t) fal(t)

Ag<sub>2</sub>Cl<sub>2</sub> Disilver chloride

(c) C: fab

## 37-10-1

AgClO<sub>2</sub> Silver chlorite

(c) C: faa fab fac fad fae

E-XI: fac fae(-t)

E-XIII: fae

AgClO<sub>3</sub> Silver chlorate

(c) C: eah fab

(aq) C: fab

AgClO<sub>4</sub> Silver perchlorate

(c) C: fab

(aq) C: fab

## 37-11

AgBr Silver bromide

(c, II) C: eaj faa fab fac fad fae

E-XI: fac fae(-t)

(c, I) C: eah fbf fbq fbh

E-V: eah fbf fbq

E-XIII: fbf

(c) E-XIII: fae(t) fai(t) fal(t)

(liq) C: eaq fbj fbk

E-XIII: fae fai(t) fal(t)

(g) E-XI: fac

E-XIII: fae(t) fai(t) fal(t)

## 37-12

AgI Silver iodide

(c, II, α) C: eaj faa fab fac fad

fae fbb fbc

E-XI: fac fae(-t)

E-XIII: fae(t) fai(t) fal(t) fbb

(c, I, β) C: eah fbf fbq

E-V: eah fbf fbq

E-XIII: fae fai(t) fal(t)

(liq) C: eaq fbj fbk

E-III: eaq eal(t) fbi(t) fbj(t) fbk

E-XI: fac

E-XIII: fae(t) fai(t) fal(t)

## 37-12-1

AgIO<sub>3</sub> Silver iodate

(c) C: fac fae

E-XI: fac fae(-t)

E-XIII: fae

## 37-12-2

3AgI·HI·7H<sub>2</sub>O 3-Silver iodide—Hydrogen iodide—7-Water

(c) C: fab

## 37-12-2-1

Ag<sub>2</sub>H<sub>3</sub>IO<sub>8</sub> Silver trihydrogen orthoperiodate

(c, II) C: eaj fbb fbc

(c, I) C: fac fae

(c) E-XI: fac fae(-t)

E-XIII: fae

## 37-14

Ag<sub>2</sub>S Silver sulfide

(c, II, α) C: eaj faa fab fac fad

fbb fbc fbd

E-VII: faa(t) fab(t) fam(t) fan(t) fba(t)

fbb(t)

E-XI: fac

E-XIII: fae(t) fai(t) fal(t) fbb

(c, I, β) C: eah faa fab fac fad

fbf fbq

E-V: eah fbf fbq

E-VII: faa(t) fab(t) fam(t) fan(t)

E-XIII: fae fai(t) fal(t)

## 37-14-1

Ag<sub>2</sub>SO<sub>4</sub> Silver sulfate

(c, II) C: eaj faa fab fac fad fae

fbb fbc

E-XI: fae(-t)

(c, I) C: eah fbf fbq

E-V: eah fbf fbq

E-VII: faa(t) fab(t)

E-XIII: fae(t)

(aq) C: fab

Ag<sub>2</sub>S<sub>2</sub>O<sub>8</sub> Silver dithionate

(aq) C: fab

Ag<sub>2</sub>S<sub>2</sub>O<sub>8</sub>·2H<sub>2</sub>O Silver dithionate—2-Water

(c) C: fab

Ag(S<sub>2</sub>O<sub>3</sub>)<sub>2</sub><sup>3-</sup> Bis(thiosulfato)argentate ion

(aq) C: fab

**37-14-2-1**  
Ag<sub>2</sub>SO<sub>4</sub>•H<sub>2</sub>SO<sub>4</sub> Silver sulfate—Sulfuric acid  
(c, II) C: eaj

**37-14-10-2-1**  
Ag<sub>2</sub>SO<sub>4</sub>•2HCl Silver sulfate—2-Hydrogen chloride  
(c) C: fab

**37-15**  
Ag<sub>2</sub>Se Silver selenide  
(c, II, α) C: eaj fab fbb fbc fbd  
E-XIII: fae fai fal fbb  
(c, I, β) E-XIII: fae fai(t) fal(t)

**37-15-1**  
Ag<sub>2</sub>SeO<sub>4</sub> Silver selenate  
(c) C: faa fab fac fad

**37-16**  
AgTe Monosilver telluride  
(c, II) C: eaj

Ag<sub>2</sub>Te Silver telluride  
(c, II, α) C: eaj fae fai fal fbb  
(c, I, β) C: eah  
E-XIII: fae fai(t) fal(t)

Ag<sub>3</sub>Te<sub>2</sub> Trisilver ditelluride  
(c, III) C: eaj  
(c, II) C: eaj

**37-18**  
AgN<sub>3</sub> Silver azide  
(c) C: fab

**37-18-1**  
AgNO<sub>2</sub> Silver nitrite  
(c) C: faa fab fac fad fae  
E-XI: fac fae(-t)  
E-XIII: fae  
(aq) C: faa fab fac fad

AgNO<sub>3</sub> Silver nitrate  
(c, II, α) C: eaj faa fab fac fad  
fae fbb fbc fbd  
E-XI: fac fae(-t)  
E-XIII: fae(t) fai(t) fal(t) fbb  
(c, I, β) C: eah fbf fbq fbb  
E-V: eah fbf fbq  
E-XIII: fae fai(t) fal(t) fbf  
(liq) E-XIII: fae fai(t) fal(t)  
(aq) C: faa fab fac fad

Ag<sub>2</sub>N<sub>2</sub>O<sub>2</sub> Silver hyponitrite  
(c) C: fab

**37-18-2**  
Ag(NH<sub>3</sub>)<sub>2</sub><sup>+</sup> Diamminesilver ion  
(aq) C: fab  
E-XI: fac

**37-18-2-1**  
AgNO<sub>3</sub>•2NH<sub>3</sub> Silver nitrate—2-Ammonia  
(c) C: fab  
(aq) C: fab

AgNO<sub>3</sub>•3NH<sub>3</sub> Silver nitrate—3-Ammonia  
(c) C: fab  
(aq) C: fab

**37-18-10-2**  
AgCl•NH<sub>3</sub> Silver chloride—Ammonia  
(c) C: fab  
AgCl•1½NH<sub>3</sub> Silver chloride—1½-Ammonia  
(c) C: fab  
AgCl•3NH<sub>3</sub> Silver chloride—3-Ammonia  
(c) C: fab

**37-18-10-2-1**  
AgClO<sub>4</sub>•2NH<sub>3</sub> Silver perchlorate—2-Ammonia  
(c) C: fab  
(aq) C: fab  
AgClO<sub>4</sub>•3NH<sub>3</sub> Silver perchlorate—3-Ammonia  
(c) C: fab  
(aq) C: fab

**37-18-11-2**  
AgBr•NH<sub>3</sub> Silver bromide—Ammonia  
(c) C: fab  
AgBr•1½NH<sub>3</sub> Silver bromide—1½-Ammonia  
(c) C: fab  
AgBr•3NH<sub>3</sub> Silver bromide—3-Ammonia  
(c) C: fab

**37-18-12-2**  
AgI•½NH<sub>3</sub> Silver iodide—½-Ammonia  
(c) C: fab  
AgI•NH<sub>3</sub> Silver iodide—Ammonia  
(c) C: fab  
AgI•1½NH<sub>3</sub> Silver iodide—1½-Ammonia  
(c) C: fab  
AgI•2NH<sub>3</sub> Silver iodide—2-Ammonia  
(c) C: fab  
AgI•3NH<sub>3</sub> Silver iodide—3-Ammonia  
(c) C: fab

**37-19**  
AgP<sub>2</sub> Silver diphosphide  
(c) C: fab  
AgP<sub>3</sub> Silver triphosphide  
(c) C: fab

**37-19-1**  
AgPO<sub>3</sub> Silver metaphosphate  
(c) C: eah  
Ag<sub>3</sub>PO<sub>4</sub> Silver phosphate  
(c) C: eah  
E-XIII: fae  
Ag<sub>4</sub>P<sub>2</sub>O<sub>7</sub> Silver diphosphate  
(c) C: eah

**37-20-14**  
Ag<sub>2</sub>S•As<sub>2</sub>S<sub>3</sub> Silver sulfide—Arsenic(III) sulfide  
(c) C: eah  
3Ag<sub>2</sub>S•As<sub>2</sub>S<sub>3</sub> 3-Silver sulfide—Arsenic(III) sulfide  
(c) C: eah

**SILVER**  
37-21 Ag-Sb

<b>37-21</b>			
Ag-Sb	Silver-Antimony		
	(c) F: fcf fcg		
	(liq) F: fcf(x) fcg(x)		
Ag <sub>3</sub> Sb	Trisilver antimonide		
	(c) E-XIII: fae(t) fai(t) fal(t)		
<b>37-21-14</b>			
Ag <sub>2</sub> S·Sb <sub>2</sub> S <sub>3</sub>	Silver sulfide-Antimony(III) sulfide		
	(c) C: eah		
2Ag <sub>2</sub> S·Sb <sub>2</sub> S <sub>3</sub>	2-Silver sulfide-Antimony(III) sulfide		
	(c) C: eah		
3Ag <sub>2</sub> S·Sb <sub>2</sub> S <sub>3</sub>	3-Silver sulfide-Antimony(III) sulfide		
	(c) C: eah		
<b>37-22</b>			
Ag-Bi	Silver-Bismuth		
	(liq) F: fcc(x,t) fcd(x,t) fcf(x) fcg(x)		
	fcv(x,t) fcw(x,t)		
<b>37-23</b>			
Ag <sub>2</sub> C <sub>2</sub>	Silver acetylide		
	(c) C: fab		
<b>37-23-1</b>			
Ag <sub>2</sub> CO <sub>3</sub>	Silver carbonate		
	(c) C: faa fab fac fad fae		
	E-IV: faa fab fam(t) fan(t)		
	E-XI: fac fae(-t)		
	E-XIII: fae(t) fai(t) fal(t)		
	(aq) E-IV: eam fam fap		
Ag <sub>2</sub> C <sub>2</sub> O <sub>4</sub>	Silver oxalate		
	(c) C: fab		
<b>37-23-2-1</b>			
AgC <sub>2</sub> H <sub>3</sub> O <sub>2</sub>	Silver acetate		
	(c) C: fab		
	(aq) C: fab		
<b>37-23-10</b>			
Ag <sub>2</sub> C <sub>2</sub> ·AgCl	Silver acetylide-Silver chloride		
	(c) C: fab		
2Ag <sub>2</sub> C <sub>2</sub> ·AgCl	2-Silver acetylide-Silver chloride		
	(c) C: fab		
<b>37-23-12</b>			
Ag <sub>2</sub> C <sub>2</sub> ·AgI	Silver acetylide-Silver iodide		
	(c) C: fab		
Ag <sub>3</sub> C <sub>2</sub> ·2AgI	Silver acetylide-2-Silver iodide		
	(c) C: fab		
<b>37-23-14-1</b>			
Ag <sub>2</sub> C <sub>2</sub> ·Ag <sub>2</sub> SO <sub>4</sub>	Silver acetylide-Silver sulfate		
	(c) C: fab		
2Ag <sub>2</sub> C <sub>2</sub> ·Ag <sub>2</sub> SO <sub>4</sub>	2-Silver acetylide-Silver sulfate		
	(c) C: fab		
<b>37-23-18</b>			
AgCN	Silver cyanide		
	(c) C: eah faa fab fac fad fbf		
	fbg		
	E-V: eah fbf fbg		

AgC <sub>2</sub> N <sub>2</sub> <sup>-</sup>	Dicyanoargentate ion		
	(aq) C: faa fab fac fad		
Ag <sub>2</sub> CN <sub>2</sub>	Silver cyanamide		
	(c) C: fab		
<b>37-23-18-1</b>			
AgCNO	Silver cyanate		
	(c) C: fab		
	E-XIII: fae		
	Silver fulminate		
	(c) C: fab		
Ag <sub>3</sub> C <sub>3</sub> N <sub>3</sub> O <sub>3</sub>	Trisilver cyanate		
	(c) E-XIII: fae		
Ag <sub>2</sub> C <sub>2</sub> ·AgNO <sub>3</sub>	Silver acetylide-Silver nitrate		
	(c) C: fab		
<b>37-23-18-10-2</b>			
AgCl·CNH <sub>3</sub>	Silver chloride-Methylamine		
	(c) C: fab		
<b>37-23-18-11-2</b>			
AgBr·CNH <sub>3</sub>	Silver bromide-Methylamine		
	(c) C: fab		
<b>37-23-18-12-2</b>			
AgI·½CNH <sub>3</sub>	Silver iodide-½-Methylamine		
	(c) C: fab		
AgI·CNH <sub>3</sub>	Silver iodide-Methylamine		
	(c) C: fab		
<b>37-23-18-14</b>			
AgCNS	Silver thiocyanate		
	(c) C: fab		
	(aq) C: fab		
<b>37-24-1</b>			
Ag <sub>2</sub> SiO <sub>3</sub>	Silver metasilicate		
	(c) E-XI: fac fae(-t)		
	(c, amorph) E-XIII: fae		
<b>37-26</b>			
Ag-Sn	Silver-Tin		
	(c) F: fcg(x)		
	(liq) F: fcc(x) fcd(x) fcf(x) fcg(x) fcn(x) fco(x)		
	fcv(x) fcw(x)		
<b>37-27</b>			
Ag-Pb	Silver-Lead		
	(liq) F: fca(x) fcb(x) fcc(x) fcd(x) fcf(x) fcv(x)		
	fcw(x)		
<b>37-29</b>			
Ag-Al	Silver-Aluminum		
	(c) F: fca(x) fcb(x) fcc(x) fcd(x) fcf(x) fcg		
	fcl fcn fco fcv(x) fcw(x)		
	(liq) F: fca(x) fcb(x) fcc(x) fcd(x) fcv(x) fcw(x)		
AgAl <sub>12</sub>	Silver dodeca-aluminide		
	(c) E-XIII: fae(t) fai(t) fal(t)		
Ag <sub>3</sub> Al	Disilver aluminide		
	(c) C: eah		
	E-XIII: fae(t) fai(t) fal(t)		

**Ag<sub>3</sub>Al** Trisilver aluminide  
(c, α) E-XIII: fae(t) fai(t) fal(t) fbb  
(c, β) E-XII: fae fai fal  
(c) C: eah

**37-29-10**  
**AgCl·AlCl<sub>3</sub>** Silver chloride—Aluminum chloride  
(c) C: fab

**37-29-11**  
**2AgBr·Al<sub>2</sub>Br<sub>6</sub>** 2-Silver bromide—Aluminum hexabromide  
(c) C: eah

**37-31**  
**Ag-In** Silver-Indium  
(c) F: fcf(x) fcg fct  
(liq) F: fcf(x) fcg(x)

**37-32**  
**Ag-Tl** Silver-Thallium  
(liq) F: fcc(x,t) fcd(x,t) fcf fcg  
fcn fco fcv(x,t) fcw(x,t)

**37-33**  
**Ag-Zn** Silver-Zinc  
(c) F: fbf fbg fca(x) fcb(x) fcc(x) fcd(x)  
fcf(x) fcg(x) fcl(x) fcm(x) fcn(x) fco(x)  
fcv(x) fcw(x)  
(liq) F: fca(x) fcb(x) fcc(x) fcd(x) fcf(x) fcl(x)  
fcm(x) fcv(x) fcw(x)

**Ag<sub>2</sub>Zn<sub>3</sub>** Disilver trizincide  
(c) C: fab

**37-34**  
**Ag-Cd** Silver-Cadmium  
(c) F: fca(x) fcb(x) fcc(x) fcd(x) fcf(x) fcg(x)  
fcl(x) fcm(x) fcn(x) fco(x) fcv(x) fcw(x)  
(liq) F: fca(x) fcb(x) fcc(x) fcd(x) fcf(x) fcg(x)  
fcl(x) fcm(x) fcn(x) fco(x) fcv(x) fcw(x)

**37-35**  
**Ag-Hg** Silver-Mercury  
(liq) F: fcc fcd fcv fcw

**Ag<sub>3</sub>Hg<sub>4</sub>** Trisilver tetramercuride  
(c) C: fab

**37-35-12**  
**Ag<sub>2</sub>Hg<sub>4</sub>** Silver tetraiodomercurate(II)  
(c, II) C: eaj fae fbb fbc  
E-XIII: fae

**37-35-18-12-1**  
**AgNO<sub>3</sub>·Hg<sub>2</sub>** Silver nitrate—Mercury(II) iodide  
(c, II) C: eaj

**2AgNO<sub>3</sub>·Hg<sub>2</sub>** 2-Silver nitrate—Mercury(II) iodide  
(c) C: eah

**37-36**  
**Ag-Cu** Silver-Copper  
(c) F: fca(x) fcb(x) fcc(x) fcd(x) fcf(x) fcg(x)  
fcl(x) fcm(x) fcn(x) fco(x) fcv(x) fcw(x)

(liq) F: fca(x) fcb(x) fcc(x) fcd(x) fcf(x) fcg(x)  
fcl(x) fcm(x) fcn(x) fco(x) fcv(x) fcw(x)

**Ag<sub>3</sub>Cu<sub>2</sub>** Trisilver dicupride  
(c) C: eah

**38 — Gold — Au**

**38**  
**Au** Gold  
(c) C: eah fac fae fbf fbq fbh  
D: eah fac(t) fae(t) fai(t) fai(t) fbf  
E-III: fbn(+t) fbn(+t) fbo  
E-V: eah fbf fbq  
E-XI: fac fae(-t)  
E-XIII: fae(t) fai(t) fal(t) fbf  
F: eah eal(t) fac fae(-t,t) fai(t)  
fai(t) fal(t) fbf fbq fbn(t) fbn(t)

(liq) C: eaq fbj fbk fbl  
D: eaq fac(t,+t) fae(t,+t) fai(t,+t)  
fai(t,+t) fbj  
E-III: eaq eal(+t) fbi(+t) fbj(+t)  
fbk  
E-XIII: fae fai(t,+t) fal(t,+t)  
F: eal(t,+t) fae(t,+t) fai(t,+t)  
fai(t,+t) fal(t,+t) fbi(t,+t)  
fbj(t,+t) fbk

(g) C: faa fab fac fad fae  
D: faa(t,+t) fab(t,+t) fac(t,+t)  
fad(t,+t) fae(t,+t) fai(t,+t)  
fai(t,+t)  
E-III: fac  
E-XI: fac  
E-XIII: fae(t,+t) fai(t,+t) fal(t,+t)  
F: fac fae(t,+t) fai(t,+t) fai(t)  
fal(t,+t)

**Au<sup>+</sup>**  
(g) C: fab

**38-1**  
**AuO<sub>3</sub><sup>3-</sup>** Trioxoaurate(III) ion  
(aq) C: faa fad

**Au<sub>2</sub>O<sub>3</sub>** Gold(III) oxide  
(c) C: faa fab fac fad  
E-XII: faa(t) fab(t)

**38-2**  
**AuH** Gold(I) hydride  
(g) E-XI: fac  
E-XIII: fae(t) fai(t) fal(t)

**Au<sup>2</sup>H** Gold(I) deuteride  
(g) E-XI: fac  
E-XIII: fae(t) fai(t) fal(t)

**38-2-1**  
**HAuO<sub>3</sub><sup>2-</sup>** Hydrogen trioxoaurate(III) ion  
(aq) C: faa fad

**H<sub>2</sub>AuO<sub>3</sub><sup>-</sup>** Dihydrogen trioxoaurate(III) ion  
(aq) C: faa fad

**GOLD**  
38-2-1 Au(OH)<sub>3</sub>

**Au(OH)<sub>3</sub>** Gold(III) hydroxide  
(c) C: faa fab fac fad  
(aq) C: faa fad

**38-10**  
**AuCl** Gold(I) chloride  
(c) C: fab  
(g) E-XIII: fae(t) fai(t) fal(t)

**AuCl<sub>3</sub>** Gold(III) chloride  
(c) C: fab  
(aq) C: fab

**AuCl<sub>3</sub>·2H<sub>2</sub>O** Gold(III) chloride-2-Water  
(c) C: fab

**AuCl<sub>4</sub><sup>-</sup>** Tetrachloroaurate(III) ion  
(aq) C: faa fab fac fad

**38-10-2**  
**HAuCl<sub>4</sub>** Hydrogen tetrachloroaurate(III)  
(aq) C: faa fab fac fad  
**HAuCl<sub>4</sub>·3H<sub>2</sub>O** Hydrogen tetrachloroaurate(III)-3-Water  
(c) C: fab  
**HAuCl<sub>4</sub>·4H<sub>2</sub>O** Hydrogen tetrachloroaurate(III)-4-Water  
(c) C: fab

**38-11**  
**AuBr** Gold(I) bromide  
(c) C: fab  
**AuBr<sub>2</sub><sup>-</sup>** Dibromoaurate(I) ion  
(aq) C: faa fad  
**AuBr<sub>3</sub>** Gold(III) bromide  
(c) C: fab  
(aq) C: fab  
**AuBr<sub>4</sub><sup>-</sup>** Tetrabromoaurate(III) ion  
(aq) C: faa fab fac fad

**38-11-2**  
**HAuBr<sub>4</sub>** Hydrogen tetrabromoaurate(III)  
(aq) C: faa fab fac fad  
**HAuBr<sub>4</sub>·5H<sub>2</sub>O** Hydrogen tetrabromoaurate(III)-5-Water  
(c) C: fab

**38-12**  
**AuI** Gold(I) iodide  
(c) C: fab

**38-16**  
**AuTe<sub>2</sub>** Gold ditelluride  
(c) C: eah

**38-18-10-2**  
**AuCl·NH<sub>3</sub>** Gold(I) chloride-Ammonia  
(c) C: fab  
**AuCl·2NH<sub>3</sub>** Gold(I) chloride-2-Ammonia  
(c) C: fab  
**AuCl·6NH<sub>3</sub>** Gold(I) chloride-6-Ammonia  
(c) C: fab

**38-18-11-2**  
**AuBr·NH<sub>3</sub>** Gold(I) bromide-Ammonia  
(c) C: fab  
**AuBr·2NH<sub>3</sub>** Gold(I) bromide-2-Ammonia  
(c) C: fab

**AuBr·3NH<sub>3</sub>** Gold(I) bromide-3-Ammonia  
(c) C: fab  
**AuBr·4NH<sub>3</sub>** Gold(I) bromide-4-Ammonia  
(c) C: fab  
**AuBr·6NH<sub>3</sub>** Gold(I) bromide-6-Ammonia  
(c) C: fab

**38-18-12-2**  
**AuI·NH<sub>3</sub>** Gold(I) iodide-Ammonia  
(c) C: fab  
**AuI·2NH<sub>3</sub>** Gold(I) iodide-2-Ammonia  
(c) C: fab  
**AuI·3NH<sub>3</sub>** Gold(I) iodide-3-Ammonia  
(c) C: fab  
**AuI·6NH<sub>3</sub>** Gold(I) iodide-6-Ammonia  
(c) C: fab  
**AuI·8NH<sub>3</sub>** Gold(I) iodide-8-Ammonia  
(c) C: fab

**38-19**  
**Au<sub>2</sub>P<sub>3</sub>** Digold triphosphide  
(c) C: fab

**38-19-12-2**  
**AuI·PH<sub>3</sub>** Gold(I) iodide-Phosphine  
(c) C: fab

**38-21**  
**Au-Sb** Gold-Antimony  
(c) F: fca fcb fcf fcl fcm  
**AuSb<sub>2</sub>** Gold diantimonide  
(c, III, α) C: eaj fab fae fbb fbc fbd  
E-XIII: fae(t) fai(t) fal(t) fbb  
(c, II) C: eaj  
(c, β, γ) E-XIII: fae(t) fai(t) fal(t)

**38-22**  
**Au-Bi** Gold-Bismuth  
(liq) F: fca(x) fcb(x) fcc(x) fcd(x) fcf(x) fcl(x)  
fcm(x) fct fcv(x) fcw(x)  
**Au<sub>2</sub>Bi** Digold bismuthide  
(c) C: eah

**38-23-18**  
**Au(CN)<sub>2</sub><sup>-</sup>** Dicyanoaurate(I) ion  
(aq) C: faa fab fac fad

**38-26**  
**Au-Sn** Gold-Tin  
(c) F: fca(x) fcb(x) fcd(x) fcl(x) fcm(x)  
(liq) F: fca(x) fcb(x) fcc(x) fcd(x) fcf(x) fcg(x)  
fcl(x) fcm(x) fcn(x) fco(x) fcv(x) fcw(x)  
**AuSn** Gold stannide  
(c) C: eah fae fbf fbq fbh  
E-XIII: fae(t) fai(t) fal(t) fbf  
(liq) E-XIII: fae fai(t) fal(t)

**38-27**  
**Au-Pb** Gold-Lead  
(liq) F: fca(x) fcb(x) fcc(x) fcd(x) fcf(x) fcg(x)  
fcl(x) fcm(x) fcn(x) fco(x) fcv(x) fcw(x)

<b>AuPb<sub>2</sub></b>	Gold diplumbide (c) E-XIII: fæ(t) fai(t) fal(t) fbf (liq) E-XIII: fæ fai(t) fal(t)
	<b>38-29</b>
<b>AuAl<sub>2</sub></b>	Gold dialuminide (c) C: eah
<b>Au<sub>2</sub>Al</b>	Digold aluminide (c) C: eah
	<b>38-30</b>
<b>AuGa</b>	Gold gallide (c) C: eah
<b>AuGa<sub>2</sub></b>	Gold digallide (c) C: eah
	<b>38-31</b>
<b>AuIn</b>	Gold-Indium (liq) F: fcf(x) fcg(x)
	<b>38-32</b>
<b>AuTl</b>	Gold-Thallium (liq) F: fca(x) fcb(x) fcc(x) fcd(x) fcf(x) fcg(x) fcl(x) fcm(x) fcn(x) fco(x) fcv(x) fcw(x)
	<b>38-33</b>
<b>AuZn</b>	Gold-Zinc (c) F: fcf fch(t) fcp(t) fcr(t) fct(t) (liq) F: fcc(x) fcd(x) fch(t) fcp(t) fcr(t) fct(t) fcv(x) fcw(x)
<b>AuZn</b>	Gold zincide (c) C: eah fbf fbg fbh E-XIII: fæ(t) fai(t) fal(t) fbf (liq) E-XIII: fæ fai(t) fal(t)
	<b>38-34</b>
<b>AuCd</b>	Gold-Cadmium (c) F: eah fbf fbg fca(t,x) fcb(x) fcc(x) fcd(x) fcf(t,x) fcg(x) fch(t) fcl(t,x) fcm(x) fcn(x) fco(x) fcp(t) fcr(t) fct(t) fcv(x) fcw(x) (liq) F: fca(t) fcf(t) fcg(x) fch(t) fcl(t) fcp(t) fcr(t) fct(t)
<b>AuCd</b>	Gold cadmide (c) C: eah fbf fbg fbh E-XIII: fæ(t) fai(t) fal(t) fbf (liq) E-XIII: fæ fai(t) fal(t)
	<b>38-35</b>
<b>AuHg</b>	Gold-Mercury (c) F: fca(x) fcb(x) fcc(x) fcd(x) fcf fcg fcl fcm fcn fco fcv(x) fcw(x) (liq) F: fcc(x) fcd(x) fcg fcv(x) fcw(x)
	<b>38-36</b>
<b>AuCu</b>	Gold-Copper (c) F: fca(t,x) fcb(x) fcc(x) fcd(x) fcf(t,x) fcg(x) fch(t) fcl(t,x) fcm(x) fcn(x) fco(x) fcp(t) fcr(t) fct(t) fcv(x) fcw(x) (liq) F: fca(x) fcb(x) fcc(x) fcd(x) fcv(x) fcw(x)

	<b>38-37</b>
<b>Au-Ag</b>	Gold-Silver (c) F: fca(x) fcb(x) fcc(x) fcd(x) fcf(x) fcg(x) fcl(x) fcm(x) fcn(x) fco(x) fcr(t) fct(t) fcv(x) fcw(x) (liq) F: fca(x) fcb(x) fcc(x) fcd(x) fcf(x) fcg(x) fcl(x) fcm(x) fcn(x) fco(x) fcv(x) fcw(x)

**39 – Platinum – Pt**

<b>Pt</b>	<b>39</b> Platinum (c) C: eah fac fæ fbf fbg D: eah fac(t) fæ(t) fai(t) fal(t) fbf E-III: fbm(t) fbn(t) E-V: eah fbf fbg E-XI: fac fæ(-t) E-XIII: fæ(t) fai(t) fal(t) fbf F: eah eal(t,+) fac fæ(-t,t,+) fai(t,+) fai(t,+) fal(t,+) fbf fbg fbm(t,+) fbn(t,+) (liq) C: eaq D: eaq fac(+) fæ(+) fai(+) fbf fai(+) fbf E-III: eaq eal(+) fbi(+) fbj(+) fbk fbk E-XIII: fæ fai(+) fal(+) fbf F: eal(+) fæ(+) fai(+) fal(+) fbf fai(+) fbi(+) fbj(+) fbk (g) C: faa fab fac fad fæ D: faa(t,+) fab(t,+) fac(t,+) fad(t,+) fæ(t,+) fai(t,+) fai(t,+) E-III: fac E-XI: fac E-XIII: fæ(t,+) fai(t,+) fal(t,+) fbf F: fac fæ(t,+) fai(t,+) fal(t,+) fal(t,+) <b>Pt<sup>+</sup></b> (g) C: fab <b>39-2-1</b> <b>Pt(OH)<sub>2</sub></b> Platinum(II) hydroxide (c) C: faa fab fac fad <b>39-10</b> <b>PtCl</b> Platinum monochloride (c) C: fab <b>PtCl<sub>2</sub></b> Platinum(II) chloride (c) C: fab <b>PtCl<sub>3</sub></b> Platinum trichloride (c) C: fab <b>PtCl<sub>4</sub></b> Platinum(IV) chloride (c) C: fab (aq) C: fab <b>PtCl<sub>4</sub>·5H<sub>2</sub>O</b> Platinum(IV) chloride-5-Water (c) C: fab <b>PtCl<sub>4</sub><sup>2-</sup></b> Tetrachloroplatinate(II) ion (aq) C: faa fab fac fad
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**PLATINUM**  
39-10 PtCl<sub>6</sub><sup>2-</sup>

PtCl<sub>6</sub><sup>2-</sup> Hexachloroplatinate(IV) ion  
(aq) C: faa fab fac fad  
E-XI: fac

**39-10-2**

HPtCl<sub>5</sub>·2H<sub>2</sub>O Hydrogen pentachloroplatinate(IV)-2-Water  
(c) C: fab

H<sub>2</sub>PtCl<sub>6</sub> Hydrogen hexachloroplatinate(IV)  
(aq) C: fab

H<sub>2</sub>PtCl<sub>6</sub>·6H<sub>2</sub>O Hydrogen hexachloroplatinate(IV)-6-Water  
(c) C: fab

**39-11**

PtBr<sub>4</sub> Platinum(IV) bromide  
(c) C: fab

(aq) C: fab

PtBr<sub>4</sub><sup>2-</sup> Tetrabromoplatinate(II) ion  
(aq) C: fab

PtBr<sub>6</sub><sup>2-</sup> Hexabromoplatinate(IV) ion  
(aq) C: fab

**39-11-2**

H<sub>2</sub>PtBr<sub>6</sub> Hydrogen hexabromoplatinate(IV)  
(aq) C: fab

H<sub>2</sub>PtBr<sub>6</sub>·9H<sub>2</sub>O Hydrogen hexabromoplatinate(IV)-9-Water  
(c) C: fab

**39-12**

PtI<sub>4</sub> Platinum(IV) iodide  
(c) C: fab

PtI<sub>6</sub><sup>2-</sup> Hexaiodoplatinate(IV) ion  
(aq) C: fab

**39-14**

PtS Platinum(II) sulfide  
(c) C: fab

E-VII: faa(t) fab(t) fam(t) fan(t)

E-XI: fac

E-XIII: fae(t)

PtS<sub>2</sub> Platinum(IV) sulfide

(c) C: fab

E-VII: faa(t) fab(t) fam(t) fan(t)

E-XI: fac

E-XIII: fae(t)

**39-16**

PtTe<sub>2</sub> Platinum(IV) telluride  
(c) C: eah

**39-18-2-1**

Pt(OH)<sub>2</sub>·4NH<sub>3</sub> Platinum(II) hydroxide-4-Ammonia  
(c) C: fab

**39-18-10-2**

(NH<sub>4</sub>)<sub>2</sub>PtCl<sub>4</sub> Ammonium tetrachloroplatinate(II)  
(c) C: fab

(aq) C: fab

PtCl<sub>2</sub>·2NH<sub>3</sub> Platinum(II) chloride-2-Ammonia  
(c) C: fab

PtCl<sub>2</sub>·4NH<sub>3</sub> Platinum(II) chloride-4-Ammonia  
(c) C: fab  
(aq) C: fab

PtCl<sub>2</sub>·4NH<sub>3</sub>·H<sub>2</sub>O Platinum(II) chloride-4-Ammonia-Water  
(c) C: fab

PtCl<sub>2</sub>·5NH<sub>3</sub> Platinum(II) chloride-5-Ammonia  
(c) C: fab

**39-18-14-2-1**

PtSO<sub>4</sub>·4NH<sub>3</sub> Platinum(II) sulfate-4-Ammonia  
(c) C: fab

**39-21**

PtSb Platinum antimonide

(c, II) C: eaj

PtSb<sub>2</sub> Platinum diantimonide

(c, II) C: fae

(c) C: eah fae(t) fai(t) fal(t)

**39-23-10-1**

PtCl<sub>2</sub>·CO Platinum(II) chloride-Carbon monoxide  
(c) C: eah

PtCl<sub>2</sub>·2CO Platinum(II) chloride-2-Carbon monoxide  
(c) C: eah

2PtCl<sub>2</sub>·3CO 2-Platinum(II) chloride-3-Carbon monoxide  
(c) C: eah

**39-23-11-1**

PtBr<sub>2</sub>·CO Platinum(II) bromide-Carbon monoxide  
(c) C: eah

**39-23-12-1**

PtI<sub>2</sub>·CO Platinum(II) iodide-Carbon monoxide  
(c) C: eah

**39-24**

PtSi Platinum(IV) silicide

(c) C: eah

Pt<sub>2</sub>Si Platinum(II) silicide

(c, II) C: eaj

(c) C: eah

**39-26**

PtSn Platinum stannide

(c) C: fae

E-XIII: fae(t) fai(t) fal(t)

**39-36**

Pt-Cu Platinum-Copper

(c) F: fca(x) fcb(x) fcc(x) fcd(x) fcf(x) fcg(x)  
fcl(x) fcm(x) fcn(x) fco(x) fcv(x) fcw(x)

**39-37**

Pt-Ag Platinum-Silver

(c) F: fca(x) fcb(x) fcc(x) fcd(x) fcv(x) fcw(x)

**39-37-10**

Ag<sub>2</sub>PtCl<sub>6</sub> Silver hexachloroplatinate(IV)  
(c) C: fab

**39-37-11**

Ag<sub>2</sub>PtBr<sub>6</sub> Silver hexabromoplatinate(IV)  
(c) C: fab

## 40 – Iridium – Ir

<b>Ir</b>	<b>40</b> Iridium
	(c) C: eah fac fae D: eah fac(t,+t) fae(t,+t) faf(t,+t) fai(t,+t) fbf E-XI: fac fae E-XIII: fae(t,+t) fai(t,+t) fal(t,+t) fbf F: eah eal(t,+t) fac fae(-t,t,+t) faf(t,+t) fai(t,+t) fal(t,+t) fbn fbo
	(liq) C: eaq D: eaq fac(+t) fae(+t) faf(+t) fai(+t)fbj E-XIII: fae fai(+t) fal(+t) F: eal(+t) fae(+t) faf(+t) fai(+t) fal(+t)
	(g) C: faa fab fac fad fae D: faa(t,+t) fab(t,+t) fac(t,+t) fad(t,+t) fae(t,+t) faf(t,+t) fai(t,+t) E-XI: fac E-XIII: fae(t,+t) fai(t,+t) fal(t,+t) F: fac fae(t,+t) faf(t,+t) fai(t,+t) fal(t,+t)
<b>Ir<sup>+</sup></b>	(g) C: fab
<b>IrO<sub>2</sub></b>	<b>40-1</b> Iridium(IV) oxide (c) C: fab fae E-XII: faa(t) fab(t) E-XIII: fae(t) fai(t) fal(t)
<b>IrF<sub>6</sub></b>	<b>40-9</b> Iridium hexafluoride (liq) C: eaq fab fbj fbk
<b>IrCl</b>	<b>40-10</b> Iridium monochloride (c) C: fab
<b>IrCl<sub>2</sub></b>	Iridium dichloride (c) C: fab
<b>IrCl<sub>3</sub></b>	Iridium(III) chloride (c) C: fab
<b>IrCl<sub>6</sub><sup>2-</sup></b>	Hexachloroiridate(IV) ion (aq) C: fab
<b>IrCl<sub>6</sub><sup>3-</sup></b>	Hexachloroiridate(III) ion (aq) C: fab
<b>IrS<sub>2</sub></b>	<b>40-14</b> Iridium(IV) sulfide (c) C: fab
<b>Ir<sub>2</sub>S<sub>3</sub></b>	Iridium(III) sulfide (c) C: fab
<b>IrCl<sub>5</sub>·4C<sub>4</sub>SH<sub>10</sub></b>	<b>40-23-14-10-2</b> Iridium pentachloride-4-(3-Thiapentane) (c) C: eah

## 41 – Osmium – Os

<b>Os</b>	<b>41</b> Osmium
	(c) C: eah fac fae D: eah fac(t,+t) fae(t,+t) faf(t,+t) fai(t,+t) fbf E-XI: fac fae E-XIII: fae(t,+t) fai(t,+t) fal(t,+t) F: eah eal(t,+t) fae(-t,t,+t) faf(t,+t) fai(t,+t) fal(t,+t) fbn fbo
	(liq) C: eaq D: eaq fac fae faf fai fbj F: eal(+t)
	(g) C: faa fab fac fad fae D: faa(t,+t) fab(t,+t) fac(t,+t) fad(t,+t) fae(t,+t) faf(t,+t) fai(t,+t) E-XI: fac E-XIII: fae(t,+t) fai(t,+t) fal(t,+t) F: fac fae(t,+t) faf(t,+t) fai(t,+t) fal(t,+t)
<b>Os<sup>+</sup></b>	(g) C: fab
<b>OsO<sub>4</sub></b>	<b>41-1</b> Osmium(VIII) oxide (c, II, yellow) C: faa fab fac fad E-III: eai eal(-t,t) fbn(-t,t) fbn(-t,t) E-V: eah fbf fbq E-XI: fac E-XII: faa fab (c, I, white) C: eah faa fab fac fad fbf fbq E-III: eai eal(-t,t) fbn(-t,t) fbn(-t,t) E-V: eah fbf fbq E-XI: fac E-XII: faa fab (liq) C: eaq fbj fbk E-III: eaq eal(t) fbi(t) fbj(t) fbk E-XII: faa(t) fab(t) (g) C: faa fab fac fad E-XI: fac E-XII: faa(t) fab(t) E-XIII: fae(t) fai(t) fal(t) (aq) C: faa fad
<b>HO<sub>5</sub>O<sub>5</sub><sup>-</sup></b>	<b>41-2-1</b> Hydrogen pentoxo-osmate(VIII) ion (aq) C: faa fad
<b>H<sub>2</sub>O<sub>5</sub>O<sub>5</sub></b>	Hydrogen pentoxo-osmate(VIII) (aq) C: faa fad
<b>OsF<sub>6</sub></b>	<b>41-9</b> Osmium hexafluoride (liq) C: eaq

**OsF<sub>8</sub>** Osmium(VIII) fluoride  
(c) C: eah  
(liq) C: eaq fbj fbk  
E-III: eaq eal(t) fbi fbj fbk

**41-14**  
**OsS<sub>2</sub>** Osmium(IV) sulfide  
(c) C: fab

**41-19**  
**OsP<sub>2</sub>** Osmium diphosphide  
(c) C: fab

**41-23-10-1**  
**Os(CO)<sub>3</sub>Cl<sub>2</sub>** Tricarbonylosmium(II) chloride  
(c) C: eah

**42 - Palladium - Pd**

**42**  
**Pd** Palladium  
(c) C: eah fac fae fbf fbj  
D: eah fac(t) fae(t) faf(t) fai(t) fbi  
E-V: eah fbf fbj  
E-XI: fac fae(-)  
E-XIII: fae(t) fai(t) fal(t) fbf  
F: eah eal(t) fac fae(-,t) faf(t)  
fai(t) fal(t) fbf fbj fbm(t) fbn(t)  
(liq) C: eaq  
D: eaq fac(t,+) fae(t,+) faf(t,+)  
fai(t,+) fbj  
E-XIII: fae fai(t,+) fal(t,+)  
F: eal(t,+) fae(t,+) faf(t,+)  
fai(t,+) fal(t,+) fbi(t,+)  
fbj(t,+) fbk  
(g) C: faa fab fac fad fae  
D: faa(t,+) fab(t,+) fac(t,+) fad(t,+) fae(t,+) faf(t,+)  
fai(t,+)  
E-XI: fac  
E-XIII: fae(t,+) fai(t,+) fal(t,+)  
F: fac fae(t,+) fai(t,+) fai(t,+)  
fal(t,+)

**Pd<sup>+</sup>**  
(g) C: fab

**Pd<sup>2+</sup>**  
(g) C: fab

**42-1**  
**PdO** Palladium(II) oxide  
(c) C: fab fae  
E-XIII: fae(t)

**42-2**  
**Pd<sub>2</sub>H** Dipalladium hydride  
(c) C: fab

**42-2-1**  
**Pd(OH)<sub>2</sub>** Palladium(II) hydroxide  
(c) C: fab  
**Pd(OH)<sub>4</sub>** Palladium(IV) hydroxide  
(c) C: fab

**42-10**  
**PdCl<sub>2</sub>** Palladium(II) chloride  
(c) C: eah fab fbf fbj  
**PdCl<sub>4</sub><sup>2-</sup>** Tetrachloropalladate(II) ion  
(aq) C: faa fab fac fad  
**PdCl<sub>6</sub><sup>2-</sup>** Hexachloropalladate(IV) ion  
(aq) C: fab

**42-10-2**  
**H<sub>2</sub>PdCl<sub>4</sub>** Hydrogen tetrachloropalladate(II)  
(aq) C: fab  
**H<sub>2</sub>PdCl<sub>6</sub>** Hydrogen hexachloropalladate(IV)  
(aq) C: fab

**42-11**  
**PdBr<sub>2</sub>** Palladium(II) bromide  
(c) C: fab  
**PdBr<sub>4</sub><sup>2-</sup>** Tetrabromopalladate(II) ion  
(aq) C: fab

**42-12**  
**PdI<sub>2</sub>·H<sub>2</sub>O** Palladium(II) iodide-Water  
(c) C: fab

**42-14**  
**PdS** Palladium(II) sulfide  
(c) C: eah

**42-18-10-2**  
**PdCl<sub>2</sub>·2NH<sub>3</sub>** Palladium(II) chloride-2-Ammonia  
(c) C: eah  
**PdCl<sub>2</sub>·4NH<sub>3</sub>** Palladium(II) chloride-4-Ammonia  
(c) C: fab

**42-21**  
**PdSb** Palladium antimonide  
(c) C: eah fae  
E-XIII: fae(t) fai(t) fal(t)

**PdSb<sub>2</sub>** Palladium diantimonide  
(c) C: fae  
E-XIII: fae(t) fai(t) fal(t)

**PdSb<sub>3</sub>** Palladium triantimonide  
(c) C: fae

**Pd<sub>3</sub>Sb** Tripalladium antimonide  
(c, α) E-XIII: fae(t) fai(t) fal(t) fbb  
(c, β) E-XIII: fae fai(t) fal(t)  
(c, II) C: eaj fbb fbc  
(c) C: eah

**42-23-18**  
**PdC<sub>2</sub>N<sub>2</sub>** Palladium(II) cyanide  
(c) C: fab

**42-34**  
**Pd-Cd** Palladium-Cadmium  
(c) F: fcf(x) fch(t)  
(liq) F: fcf(x)

**42-36**  
PdCu Palladium cupride  
(c) C: fae  
E-XIII: fae(t) fai(t) fal(t)

**42-37**  
PdAg Palladium-Silver  
(c) F: fca(x) fcb(x) fcc(x) fcd(x) fci(x) fcl(x)  
fcm(x) fcr(x) fcv(x) fcw(x)

**42-38**  
PdAu Palladium-Gold  
(c) F: fcc fcd fcv fcw

**43 – Rhodium – Rh**

**43**  
Rh Rhodium

(c) C: eah fac fae  
D: eah fac(t,+t) fae(t,+t) faf(t,+t)  
fai(t,+t) fbf  
E-XI: fac fae  
E-XIII: fae(t,+t) fai(t,+t) fal(t,+t)  
fbf  
F: eah eal(t,+t) fac fae(-t,+t)  
fai fbn fbo

(liq) C: eaq  
D: eaq fac(t,+t) fae(t,+t) faf(t,+t)  
fai(t,+t) fbj  
E-XIII: fae fai(+t) fal(+t)  
F: eal(+t)

(g) C: faa fab fac fad fae  
D: faa(t,+t) fab(t,+t) fac(t,+t)  
fad(t,+t) fae(t,+t) faf(t,+t)  
fai(t,+t)  
E-XI: fac  
E-XIII: fae(t,+t) fai(t,+t) fal(t,+t)  
F: fac fae(t,+t) faf(t,+t) fai(t,+t)  
fal(t,+t)

Rh<sup>+</sup> (g) C: fab

**43-1**  
RhO Rhodium(II) oxide  
(c) C: fab fae  
E-XII: faa(t) fab(t)  
E-XIII: fae(t)

Rh<sub>2</sub>O Rhodium(I) oxide  
(c) C: fab fae  
E-XII: faa(t) fab(t)  
E-XIII: fae(t)

Rh<sub>2</sub>O<sub>3</sub> Rhodium(III) oxide  
(c) C: fab fae  
E-XII: faa(t) fab(t)  
E-XIII: fae(t)

**43-10**  
RhCl Rhodium(I) chloride  
(c) C: fab

RhCl<sub>2</sub> Rhodium(II) chloride  
(c) C: fab

RhCl<sub>3</sub> Rhodium(III) chloride  
(c) C: fab

RhCl<sub>6</sub><sup>3-</sup> Hexachlororhodate(III) ion  
(aq) C: fab

**44 – Ruthenium – Ru**

**44**  
Ru Ruthenium

(c, IV, α) C: eaj fac fae fbb fbc  
D: eaj fac(t) fae(t) faf(t) fai(t) fbb  
E-XIII: fae(t) fai(t) fal(t) fbb

(c, III, β) C: eaj  
D: eaj fac fae faf fai fbb  
E-XIII: fae fai(t) fal(t) fbb

(c, II, γ) C: eaj fbb fbc  
D: eaj fac(t) fae(t) faf(t) fai(t) fbb  
E-XIII: fae fai(t) fal(t) fbb  
F: eaj fae(-t,t) fai(t) fbb fbc

(c, I, δ) C: eah  
D: eah fac(t,+t) fae(t,+t) faf(t,+t)  
fai(t,+t) fbf  
E-XIII: fae fai(t,+t) fal(t,+t)  
fbf  
F: eah

(c) E-XI: fac fae

(liq) C: eaq  
D: eaq fac(+t) fae(+t) faf(+t)  
fai(+t) fbj  
E-XIII: fae fai(+t) fal(+t)  
F: fae(+t) fai(+t)

(g) C: faa fab fac fad  
D: faa(t,+t) fab(t,+t) fac(t,+t)  
fad(t,+t) fae(t,+t) faf(t,+t)  
fai(t,+t)  
E-XI: fac  
E-XIII: fae(t,+t) fai(t,+t) fal(t,+t)  
F: fac fae(t,+t) faf(t,+t) fai(t,+t)  
fal(t,+t)

**44-1**  
RuO<sub>2</sub> Ruthenium(IV) oxide  
(c) C: fab  
E-XII: faa(t) fab(t)

RuO<sub>4</sub> Ruthenium(VIII) oxide  
(c, II) C: eah  
(c, I) C: eah

**44-9**  
RuF<sub>5</sub> Ruthenium pentafluoride  
(c) C: eah  
(liq) C: eaq

**RUTHENIUM**  
44-10 RuCl<sub>3</sub>

**44-10**  
RuCl<sub>3</sub> Ruthenium(III) chloride  
(c) C: fab

**44-14**  
RuS<sub>2</sub> Ruthenium(IV) sulfide  
(c) C: fab  
E-VII: faa(t) fab(t) fam(t) fan(t)  
E-XI: fac

**44-23-1**  
RuC<sub>5</sub>O<sub>5</sub> Pentacarbonylruthenium  
(c) C: eah

**45 – Nickel – Ni**

**45**  
Ni Nickel

(c, II, α) C: eaj fac fae fbb fbc fbd  
D: eaj fac(t) fae(t) faf(t) fal(t) fbb  
E-III: fbn(t) fbn(t)  
E-XIII: fae(t) fai(t) fal(t) fbb

(c, I, β) C: eah fbf fbg fbh  
D: eah fac(t) fae(t) faf(t) fal(t) fbf  
E-III: fbn(t) fbn(t)  
E-V: eah fbf fbg  
E-XIII: fae(t) fal(t) fal(t) fbf

(c) E-XI: fac fae(-t)  
F: eah eaj(Curie) eal(t) fac fae(-t,t)  
faf(t) fai(t) fal(t) fbf fbg fbn(t)

(liq) C: eaq fbj fbk  
D: eaq fac(t,+t) fae(t,+t) faf(t,+t)  
fal(t,+t) fbj  
E-III: eaq eal(t,+t) fbi(+t)fbj(+t)  
fbk  
E-XIII: fae fai(t,+t) fal(t,+t)  
F: eal(t,+t) fae(t,+t) faf(t,+t)  
fai(t,+t) fal(t,+t) fbi(t,+t)  
fbj(t,+t) fbk

(g) C: faa fab fac fad fae  
D: faa(t,+t) fab(t,+t) fac(t,+t)  
fad(t,+t) fae(t,+t) faf(t,+t)  
fai(t,+t)  
E-III: fac  
E-XI: fac  
E-XIII: fae(t,+t) fai(t,+t) fal(t,+t)  
F: fac fae(t,+t) faf(t,+t) fai(t,+t)  
fal(t,+t)

Ni<sup>+</sup>

(g) C: fab

Ni<sup>2+</sup>

(g) C: fab  
(aq) C: faa fab fac fad  
E-IV: faa fam

**45-1**  
NiO Nickel(II) oxide  
(c, α) E-XIII: fae(t) fai(t) fal(t) fbb

(c, β) E-XIII: fae fai fal fbb  
(c, γ) E-XIII: fae(t) fai(t) fal(t)  
(c) C: eah eai faa fab fac fad  
fae fbn fbo  
E-VII: fam(t) fan(t)  
E-XI: fac fae(-t)  
E-XII: faa(t) fab(t)  
(g) C: faa fab fac fad  
E-XIII: fae(t) fai(t) fal(t)

**45-2**  
NiH Nickel monohydride  
(c) C: fab  
(g) C: fab  
NiH<sub>2</sub> Nickel(II) hydride  
(c) C: fab

**45-2-1**  
Ni(OH)<sub>2</sub> Nickel(II) hydroxide  
(c) C: faa fab fac fad  
(aq) E-IV: eam  
Ni(OH)<sub>3</sub> Nickel(III) hydroxide  
(c) C: fab

**45-9**  
NiF<sub>2</sub> Nickel(II) fluoride  
(c) C: fab  
E-XIII: fae  
(aq) C: fab  
NiF<sub>2</sub>·4H<sub>2</sub>O Nickel(II) fluoride-4-Water  
(c) C: faa fad

**45-10**  
NiCl Nickel monochloride  
(g) C: fab  
NiCl<sub>2</sub> Nickel(II) chloride  
(c) C: eah eai faa fab fac fad  
fae fbn fbo  
E-III: eal(t) fbn(t) fbn(t) fbo  
E-XI: fac fae(-t)  
E-XIII: fae(t) fai(t) fal(t) fbf  
(liq) E-XIII: fae fai(t) fal(t)  
(aq) C: fab(x)  
NiCl<sub>2</sub>·2H<sub>2</sub>O Nickel(II) chloride-2-Water  
(aq) C: fab  
(c) C: fab  
NiCl<sub>2</sub>·4H<sub>2</sub>O Nickel(II) chloride-4-Water  
(c) C: fab  
NiCl<sub>2</sub>·6H<sub>2</sub>O Nickel(II) chloride-6-Water  
(c) C: faa fab fac fad

**45-11**  
NiBr<sub>2</sub> Nickel(II) bromide  
(c) C: eah fab  
(aq) C: fab  
NiBr<sub>2</sub>·3H<sub>2</sub>O Nickel(II) bromide-3-Water  
(c) C: fab

**45-12**  
NiI<sub>2</sub> Nickel(II) iodide  
(c) C: eah fab  
(aq) C: fab

**45-12-1**  
**Ni(IO<sub>3</sub>)<sub>2</sub>** Nickel(II) iodate  
 (c) C: fab  
 (aq) C: fab  
**Ni(IO<sub>3</sub>)<sub>2</sub>·2H<sub>2</sub>O** Nickel(II) iodate-2-Water  
 (c, II) C: fab  
 (c, I) C: fab  
**Ni(IO<sub>3</sub>)<sub>2</sub>·4H<sub>2</sub>O** Nickel(II) iodate-4-Water  
 (c) C: fab

**45-14**  
**NiS** Nickel(II) sulfide  
 (c, II) C: fab  
 (c, I) C: fab  
 (c) C: eah  
 E-XIII: fae(t) fai(t) fal(t)  
**Ni<sub>2</sub>S** Dinickel sulfide  
 (c) C: eah fbf fbq  
 E-V: eah fbf fbq  
**Ni<sub>3</sub>S<sub>2</sub>** Trinickel disulfide  
 (c) C: eah fab fbf fbq  
 E-V: eah fbf fbq

**45-14-1**  
**NiSO<sub>4</sub>** Nickel(II) sulfate  
 (c) C: faa fab fac fad fae  
 E-VII: faa(t) fab(t) fam(t) fan(t)  
 E-XIII: fae(t)  
 (aq) C: faa fab(x) fac fad  
**NiSO<sub>4</sub>·6H<sub>2</sub>O** Nickel(II) sulfate-6-Water  
 (c, II, blue) C: eaj faa fab fac fad fae  
 (c, I, green) C: fab  
 (c) E-VII: fam(t) fan(t)  
 E-XIII: fae  
**NiSO<sub>4</sub>·7H<sub>2</sub>O** Nickel(II) sulfate-7-Water  
 (c) C: fab  
 E-VII: fam(t) fan(t)  
 (aq) C: fab  
**Ni<sub>2</sub>S<sub>2</sub>O<sub>6</sub>·6H<sub>2</sub>O** Nickel(I) dithionate-6-Water  
 (c) C: fab

**45-15**  
**NiSe** Nickel(II) selenide  
 (c) C: fab

**45-16**  
**Ni-Te** Nickel-Tellurium  
 (c) F: fcc(x) fcd(x) fcf fcg(x) fch(x) fcn(x)  
 fco(x) fcp(x) fcr(-t,t,x) fcv(x) fcw(x)  
 (liq) F: fcc fcd fcg fcn fco fcv  
 fcw  
**NiTe** Nickel(II) telluride  
 (c) C: fab fae  
 E-XIII: fae(t) fai(t) fal(t)

**45-18**  
**Ni(N<sub>3</sub>)<sub>2</sub>·H<sub>2</sub>O** Nickel(II) azide-Water  
 (c) C: fab

**45-18-1**  
**Ni(NO<sub>3</sub>)<sub>2</sub>** Nickel(II) nitrate  
 (c) C: fab  
 (aq) C: fab

**Ni(NO<sub>3</sub>)<sub>2</sub>·6H<sub>2</sub>O** Nickel(II) nitrate-6-Water  
 (c) C: eah fab  
 E-XIII: fae

**45-18-2**  
**Ni(NH<sub>3</sub>)<sub>4</sub><sup>2+</sup>** Tetramminenickel(II) ion  
 (aq) C: faa fad  
**Ni(NH<sub>3</sub>)<sub>6</sub><sup>2+</sup>** Hexamminenickel(II) ion  
 (aq) C: faa fad

**45-18-2-1**  
**Ni(NO<sub>3</sub>)<sub>2</sub>·6NH<sub>3</sub>** Nickel(II) nitrate-6-Ammonia  
 (c, II) C: eaj fbb fbc  
 (c, I) C: fae  
 E-XIII: fae

**45-18-10-2**  
**NiCl<sub>2</sub>·NH<sub>3</sub>** Nickel(II) chloride-Ammonia  
 (c) C: fab  
**NiCl<sub>2</sub>·2NH<sub>3</sub>** Nickel(II) chloride-2-Ammonia  
 (c) C: fab  
**NiCl<sub>2</sub>·6NH<sub>3</sub>** Nickel(II) chloride-6-Ammonia  
 (c) C: fab

**45-18-11-2**  
**NiBr<sub>2</sub>·NH<sub>3</sub>** Nickel(II) bromide-Ammonia  
 (c) C: fab  
**NiBr<sub>2</sub>·2NH<sub>3</sub>** Nickel(II) bromide-2-Ammonia  
 (c) C: fab  
**NiBr<sub>2</sub>·6NH<sub>3</sub>** Nickel(II) bromide-6-Ammonia  
 (c) C: fab

**45-18-12-2**  
**NiI<sub>2</sub>·2NH<sub>3</sub>** Nickel(II) iodide-2-Ammonia  
 (c) C: fab  
**NiI<sub>2</sub>·6NH<sub>3</sub>** Nickel(II) iodide-6-Ammonia  
 (c) C: fab

**45-18-14-2-1**  
**NiSO<sub>4</sub>·½NH<sub>3</sub>** Nickel(II) sulfate-½-Ammonia  
 (c) C: fab  
**NiSO<sub>4</sub>·2NH<sub>3</sub>** Nickel(II) sulfate-2-Ammonia  
 (c) C: fab  
**NiSO<sub>4</sub>·4NH<sub>3</sub>** Nickel(II) sulfate-4-Ammonia  
 (c) C: fab  
**NiSO<sub>4</sub>·6NH<sub>3</sub>** Nickel(II) sulfate-6-Ammonia  
 (c) C: fab

**45-19**  
**Ni<sub>2</sub>P** Dinickel phosphide  
 (c) C: eah fab  
**Ni<sub>3</sub>P** Trinickel phosphide  
 (c) C: fab  
**Ni<sub>5</sub>P<sub>2</sub>** Pentanickel diphosphide  
 (c) C: eah fab

**45-21**  
**Ni-Sb** Nickel-Antimony  
 (c) F: fcf(x)  
**NiSb** Nickel antimonide  
 (c) C: eah fab

**NICKEL**  
45-21 Ni<sub>5</sub>Sb<sub>2</sub>

Ni<sub>5</sub>Sb<sub>2</sub> Pentanickel diantimonide  
(c) C: eah fab

**45-23**

Ni<sub>3</sub>C Trinickel carbide  
(c) C: fab  
E-VIII: faa(t) fab(t)

**45-23-1**

NiCO<sub>3</sub> Nickel(II) carbonate  
(c) C: faa fad  
E-IV: faa fab fam fan  
(aq) E-IV: eam fam fap

NiC<sub>4</sub>O<sub>4</sub> Tetracarbonylnickel

(c) C: eah  
(liq) C: eaq fac fbj fbk  
E-III: eaq eal(t) fbi(-t,t) fbj  
fbk  
E-XIII: fae  
(g) C: fac  
E-XI: fac  
E-XIII: fae(t) fai(t) fal(t)

**45-23-11-2-1**

NiBr<sub>2</sub>·6CH<sub>4</sub>O Nickel(II) bromide-6-Methanol  
(c) C: fab

**45-23-18**

NiC<sub>2</sub>N<sub>2</sub> Nickel(II) cyanide  
(c) C: fab

NiC<sub>4</sub>N<sub>4</sub><sup>2-</sup> Tetracyanonickelate(II) ion  
(aq) C: fab

**45-23-18-14-2**

NiC<sub>4</sub>N<sub>4</sub>S<sub>4</sub>·C<sub>2</sub>N<sub>2</sub>H<sub>10</sub> Nickel tetrathiocyanate-Ethylenediamine  
(c) C: eah

**45-24**

NiSi Nickel monosilicide  
(c) C: eah fab fae  
E-XIII: fae(t)

Ni<sub>2</sub>Si Nickel(II) silicide  
(c) C: eah fab fae  
E-XIII: fae(t)

**45-25**

Ni-Ge Nickel-Germanium  
(liq) F: fcq(x)

**45-26**

Ni-Sn Nickel-Tin  
(c) F: fcf(x)  
(liq) F: fcf(x) fcq(x)

NiSn Nickel stannide  
(c) C: fab

Ni<sub>3</sub>Sn Trinickel stannide  
(c) C: fae  
E-XIII: fae(t) fai(t) fal(t)

Ni<sub>3</sub>Sn<sub>2</sub> Trinickel distannide  
(c) C: fab

**45-27-12**

2NiI<sub>2</sub>·PbI<sub>2</sub> 2-Nickel(II) iodide-Lead(II) iodide  
(c) C: fab

2NiI<sub>2</sub>·PbI<sub>2</sub>·3H<sub>2</sub>O 2-Nickel(II) iodide-Lead(II) iodide-3-Water  
(c) C: fab

**45-28**

Ni<sub>2</sub>B Dinickel boride  
(c) C: eah

Ni<sub>3</sub>B<sub>2</sub> Trinickel diboride  
(c, II) C: eaj  
(c, I) C: eah

**45-29**

Ni-Al Nickel-Aluminum  
(c) F: fca(x) fcb(x) fcf(x) fch fcl(x) fcm(x)  
fcr(t) fct(t)

NiAl Nickel aluminide  
(c) C: eah fab

NiAl<sub>2</sub> Nickel dialuminide  
(c) C: fab

NiAl<sub>3</sub> Nickel trialuminide  
(c) C: fab

Ni<sub>3</sub>Al Trinickel aluminide  
(c) C: fab

**45-29-1**

NiO·Al<sub>2</sub>O<sub>3</sub> Nickel(II) oxide-Aluminum oxide  
(c) C: eah

**45-33**

NiZn<sub>3</sub> Nickel trizincide  
(c) C: eah

**45-36**

Ni-Cu Nickel-Copper  
(c) F: fch fcp fcr(x,-t,t)  
(liq) F: fch(x)

**45-38**

Ni-Au Nickel-Gold  
(c) F: fca(x,t) fcb(x) fcc(x) fcd(x) fcf(x,t)  
fcg(x) fch(t) fcl(x,t) fcm(x) fcn(x)  
fca(x) fcr(-t,t) fct(-t,t) fcv(x)  
fcw(x)

**46 - Cobalt - Co**

**46**

Co Cobalt  
(c, III, a) C: eaj fac fae fbb fbc  
D: eaj fac(t) fae(t) faf(t) fai(t) fbb  
E-XIII: fae(t) fai(t) fal(t) fbb  
F: eaj eal(t) fac fae(-t,t) faf(t)  
fai(t) fal(t) fbb fbc fbn(t) fbn(t)  
(c, II, β) C: eaj fbb fbc  
D: eaj fac(t) fae(t) faf(t) fai(t) fbb  
E-XIII: fae(t) fai(t) fal(t)

(c, l, γ) C: eah fbf fbq  
 D: eah fac(t) fae(t) faf(t) fai(t) fbf  
 E-V: eah fbf fbq  
 E-XIII: fae(t) fai(t) fal(t) fbf  
 F: eah eaj(Curie) eal(t) fae(t) faf(t)  
 fai(t) fal(t) fbf fbq fbn(t) fbn(t)  
 (c) E-XI: fac fae(-t)  
 (liq) C: eaq  
 D: eaq fac(t,+t) fae(t,+t) faf(t,+t)  
 fai(t,+t) fbj  
 E-XIII: fae fai(t,+t) fal(t,+t)  
 F: eal(t,+t) fae(t,+t) faf(t,+t)  
 fai(t,+t) fal(t,+t) fbi(t,+t)  
 fbj(t,+t) fbk  
 (g) C: faa fab fac fad fae  
 D: faa(t,+t) fab(t,+t) fac(t,+t)  
 fad(t,+t) fae(t,+t) faf(t,+t)  
 fai(t,+t)  
 E-XI: fac  
 E-XIII: fae(t,+t) fai(t,+t) fal(t,+t)  
 F: fac fae(t,+t) faf(t,+t) fai(t,+t)  
 fal(t,+t)

Co<sup>+</sup>

(g) C: fab

Co<sup>2+</sup>

(g) C: fab

(aq) C: faa fab fac fad

Co<sup>3+</sup>

(aq) C: faa fad

46-1

CoO

Cobalt(II) oxide

(c) C: eah faa fab fac fad  
 E-IV: fam(t) fan(t)  
 E-VII: fam(t) fan(t)  
 E-XII: faa(t) fab(t)  
 E-XIII: fae(t) fai(t) fal(t)

Co<sub>3</sub>O<sub>4</sub>

Tricobalt tetraoxide

(c) C: fab  
 E-XII: faa(t) fab(t)  
 E-XIII: fae(t) fai(t) fal(t)

46-2

CoH

Cobalt monohydride

(c) C: fab  
 E-XIII: fae(t) fai(t) fal(t)

CoH<sub>2</sub>

Cobalt(II) hydride

(c) C: fab

46-2-1

Co(OH)<sub>2</sub>

Cobalt(II) hydroxide

(c) C: fab  
 (aq) E-IV: eam

Co(OH)<sub>3</sub>

Cobalt(III) hydroxide

(c) C: fab

46-9

CoF<sub>2</sub>

Cobalt(II) fluoride

(c) C: fab  
 E-XIII: fae  
 (aq) C: fab

CoF<sub>2</sub>·4H<sub>2</sub>O Cobalt(II) fluoride-4-Water

(c) C: faa fad

CoF<sub>3</sub>

Cobalt(III) fluoride

(c) C: fab

46-10

CoCl<sub>2</sub>

Cobalt(II) chloride

(c) C: eah faa fab fac fad fae  
 fbf fbq  
 E-V: eah fbf fbq  
 E-XI: fac fae(-t)  
 E-XIII: fae(t) fai(t) fal(t)  
 (liq) C: eaq fbj fbk  
 E-III: eaq eal(t) fbi(t) fbj(t) fbk  
 (aq) C: fab

CoCl<sub>2</sub>·2H<sub>2</sub>O Cobalt(II) chloride-2-Water

(c) C: fab

CoCl<sub>2</sub>·4H<sub>2</sub>O Cobalt(II)-4-Water

(c) C: fab

CoCl<sub>2</sub>·6H<sub>2</sub>O Cobalt(II) chloride-6-Water

(c) C: fab

46-11

CoBr<sub>2</sub>

Cobalt(II) bromide

(c) C: eah fab

(aq) C: fab

CoBr<sub>2</sub>·6H<sub>2</sub>O Cobalt(II) bromide-6-Water

(c) C: fab

46-12

CoI<sub>2</sub>

Cobalt(II) iodide

(c) C: eah fab

(aq) C: fab

46-12-1

Co(IO<sub>3</sub>)<sub>2</sub>

Cobalt(II) iodate

(c) C: fab

(aq) C: fab

Co(IO<sub>3</sub>)<sub>2</sub>·2H<sub>2</sub>O Cobalt(II) iodate-2-Water

(c) C: fab

Co(IO<sub>3</sub>)<sub>2</sub>·4H<sub>2</sub>O Cobalt(II) iodate-4-Water

(c) C: fab

46-14

CoS

Cobalt(II) sulfide

(c, II) C: fab

(c, I) C: fab fae

(c) C: eah

E-VII: faa(t) fab(t) fam(t) fan(t)

E-XIII: fae(t)

Co<sub>2</sub>S<sub>3</sub>

Cobalt(III) sulfide

(c) C: fab

46-14-1

CoSO<sub>4</sub>

Cobalt(II) sulfate

(c) C: faa fab fac fad  
 (aq) C: fab  
 E-VII: faa(t) fab(t) fam(t) fan(t)  
 E-XIII: fae(t)  
 CoSO<sub>4</sub>·6H<sub>2</sub>O Cobalt(II) sulfate-6-Water  
 (c) C: fab  
 E-VII: fam fan



**COBALT**

 46-14-1  $\text{CoSO}_4 \cdot 7\text{H}_2\text{O}$ 
 $\text{CoSO}_4 \cdot 7\text{H}_2\text{O}$  Cobalt(II) sulfate-7-Water

(c) C: fab fae  
 E-VII: fam fan  
 E-XIII: fae

**46-15**
 $\text{CoSe}$  Cobalt(II) selenide

(c) C: fab

**46-16**
 $\text{CoTe}$  Cobalt(II) telluride

(c) C: fab

**46-18-1**
 $\text{Co}(\text{NO}_3)_2$  Cobalt(II) nitrate

(c) C: fab  
 (aq) C: fab

 $\text{Co}(\text{NO}_3)_2 \cdot 3\text{H}_2\text{O}$  Cobalt(II) nitrate-3-Water

(c) C: eah

 $\text{Co}(\text{NO}_3)_2 \cdot 6\text{H}_2\text{O}$  Cobalt(II) nitrate-6-Water

(c) C: eah fab fbi fbq  
 E-XIII: fae

**46-18-2**
 $\text{Co}(\text{NH}_3)_6^{2+}$  Hexamminecobalt(II) ion

(aq) C: faa fad

 $\text{Co}(\text{NH}_3)_6^{3+}$  Hexamminecobalt(III) ion

(aq) C: faa fad

**46-18-2-1**
 $[\text{Co}(\text{NH}_3)_5\text{H}_2\text{O}]^{2+}$  Aquopentamminecobalt(III) ion

(aq) C: faa fab fac fad

 $[\text{Co}(\text{NH}_3)_5\text{H}_2\text{O}](\text{NO}_3)_3$  Aquopentamminecobalt(III) nitrate

(c) C: fab

(aq) C: fab

 $[\text{Co}(\text{NH}_3)_5\text{NO}_3]^{2+}$  Nitratopentamminecobalt(III) ion

(aq) C: fab

 $[\text{Co}(\text{NH}_3)_5\text{NO}_3](\text{NO}_3)_2$  Nitratopentamminecobalt(III) nitrate

(c) C: fab

(aq) C: fab

**46-18-9-2-1**
 $[\text{Co}(\text{NH}_3)_5\text{H}_2\text{O}]\text{F}_3$  Aquopentamminecobalt(III) fluoride

(c) C: fab

**46-18-10-2**
 $\text{CoCl}_2 \cdot \text{NH}_3$  Cobalt(II) chloride-Ammonia

(c) C: fab

 $\text{CoCl}_2 \cdot 2\text{NH}_3$  Cobalt(II) chloride-2-Ammonia

(c, l, rose) C: fab

 $\text{CoCl}_2 \cdot 6\text{NH}_3$  Cobalt(II) chloride-6-Ammonia

(c) C: fab

 $\text{CoCl}_2 \cdot 2\text{N}_2\text{H}_4$  Cobalt(II) chloride-2-Hydrazine

(c) C: fab

 $\text{CoCl}_3 \cdot 6\text{NH}_3$  Cobalt(III) chloride-6-Ammonia

(c) C: fae

 $[\text{Co}(\text{NH}_3)_4\text{Cl}_2]^+$  cis-Dichlorotetramminecobalt(III) ion

(aq) C: fab

trans-Dichlorotetramminecobalt(III) ion

(aq) C: fab

 $[\text{Co}(\text{NH}_3)_4\text{Cl}_2]\text{Cl}$  cis-Dichlorotetramminecobalt(III) chloride

(c) C: fab

(aq) C: fab

trans-Dichlorotetramminecobalt(III) chloride

(c) C: fab

(aq) C: fab

 $[\text{Co}(\text{NH}_3)_5\text{Cl}]^{2+}$  Chloropentamminecobalt(III) ion

(aq) C: faa fab fac fad

 $[\text{Co}(\text{NH}_3)_5\text{Cl}]\text{Cl}_2$  Chloropentamminecobalt(III) chloride

(c) C: fab

(aq) C: fab

 $\text{Co}(\text{NH}_3)_6\text{Cl}_3$  Hexamminecobalt(III) chloride

(c) E-XIII: fae

**46-18-10-2-1**
 $[\text{Co}(\text{NH}_3)_5\text{H}_2\text{O}]\text{Cl}_3$  Aquopentamminecobalt(III) chloride

(c) C: fab

(aq) C: fab

**46-18-11-2**
 $\text{CoBr}_2 \cdot \text{NH}_3$  Cobalt(II) bromide-Ammonia

(c) C: fab

 $\text{CoBr}_2 \cdot 2\text{NH}_3$  Cobalt(II) bromide-2-Ammonia

(c, l, rose) C: fab

 $\text{CoBr}_2 \cdot 6\text{NH}_3$  Cobalt(II) bromide-6-Ammonia

(c) C: fab

 $\text{CoBr}_2 \cdot 2\text{N}_2\text{H}_4$  Cobalt(II) bromide-2-Hydrazine

(c) C: fab

 $[\text{Co}(\text{NH}_3)_5\text{Br}]^{2+}$  Bromopentamminecobalt(III) ion

(aq) C: fab

 $[\text{Co}(\text{NH}_3)_5\text{Br}]\text{Br}_2$  Bromopentamminecobalt(III) bromide

(c) C: fab

(aq) C: fab

**46-18-11-2-1**
 $[\text{Co}(\text{NH}_3)_5\text{H}_2\text{O}]\text{Br}_3$  Aquopentamminecobalt(III) bromide

(c) C: fab

(aq) C: fab

**46-18-12-2**
 $\text{CoI}_2 \cdot 2\text{NH}_3$  Cobalt(II) iodide-2-Ammonia

(c, l, blue) C: fab

 $\text{CoI}_2 \cdot 6\text{NH}_3$  Cobalt(II) iodide-6-Ammonia

(c) C: fab fae

 $\text{CoI}_3 \cdot 6\text{NH}_3$  Cobalt(III) iodide-6-Ammonia

(c, II) C: eaj fbb fbc

(c) C: fae

 $\text{Co}(\text{NH}_3)_6\text{I}_2$  Hexamminecobalt(III) iodide

(c) E XIII: fae

 $\text{Co}(\text{NH}_3)_6\text{I}_3$  Hexamminecobalt(III) iodide

(c) E-XIII: fae

**46-18-14-2-1**
 $\text{CoSO}_4 \cdot \frac{1}{2}\text{NH}_3$  Cobalt(II) sulfate- $\frac{1}{2}$ -Ammonia

(c) C: fab

 $\text{CoSO}_4 \cdot 2\text{NH}_3$  Cobalt(II) sulfate-2-Ammonia

(c) C: fab

 $\text{CoSO}_4 \cdot 3\text{NH}_3$  Cobalt(II) sulfate-3-Ammonia

(c) C: fab

 $\text{CoSO}_4 \cdot 4\text{NH}_3$  Cobalt(II) sulfate-4-Ammonia

(c) C: fab

CoSO<sub>4</sub>·6NH<sub>3</sub> Cobalt(II) sulfate-6-Ammonia  
(c) C: fab  
[Co(NH<sub>3</sub>)<sub>5</sub>SO<sub>4</sub>]<sup>+</sup> Sulfatopentamminecobalt(III) ion  
(aq) C: faa fad

46-19

CoP Cobalt(III) phosphide  
(c) C: fab  
CoP<sub>3</sub> Cobalt triphosphide  
(c) C: fab  
Co<sub>2</sub>P Dicobalt phosphide  
(c) C: eah fab

46-20-14

CoAsS Cobalt arsenic monosulfide  
(c) E-XIII: fae  
CoAs<sub>2</sub>·CoS<sub>2</sub> Cobalt diarsenide-Cobalt disulfide  
(c) C: fae

46-21

Co-Sb Cobalt-Antimony  
(c) F: fci(x)  
CoSb Cobalt antimonide  
(c) C: eah fab fae  
E-XII: fae(t)  
CoSb<sub>2</sub> Cobalt diantimonide  
(c) C: fab

46-23

Co<sub>3</sub>C Tricobalt carbide  
(c) C: faa fab fac fad  
E-VIII: faa(t) fab(t) fam(t) fan(t)

46-23-1

CoCO<sub>3</sub> Cobalt(II) carbonate  
(c) C: fab  
E-IV: faa fab fam(t) fan(t)  
(aq) E-IV: eam fap

46-23-10-2-1

CoCl<sub>2</sub>·2C<sub>2</sub>H<sub>5</sub>O Cobalt(II) chloride-2-Ethanol  
(c) C: fab  
CoCl<sub>2</sub>·3C<sub>2</sub>H<sub>5</sub>O Cobalt(II) chloride-3-Ethanol  
(c) C: fab  
CoCl<sub>2</sub>·3C<sub>2</sub>H<sub>5</sub>O<sub>2</sub> Cobalt(II) chloride-3-Ethylene glycol  
(c) C: fab

46-23-11-2-1

CoBr<sub>2</sub>·2CH<sub>3</sub>O Cobalt(II) bromide-2-Methanol  
(c) C: fab  
CoBr<sub>2</sub>·2C<sub>2</sub>H<sub>5</sub>O Cobalt(II) bromide-2-Ethanol  
(c) C: fab  
CoBr<sub>2</sub>·3C<sub>2</sub>H<sub>5</sub>O Cobalt(II) bromide-3-Ethanol  
(c) C: fab  
CoBr<sub>2</sub>·2C<sub>2</sub>H<sub>5</sub>O<sub>2</sub> Cobalt(II) bromide-2-Ethylene glycol  
(c) C: fab  
CoBr<sub>2</sub>·3C<sub>2</sub>H<sub>5</sub>O<sub>2</sub> Cobalt(II) bromide-3-Ethylene glycol  
(c) C: fab

46-23-14-2-1

Co(C<sub>2</sub>H<sub>5</sub>SO<sub>4</sub>)<sub>2</sub> Cobalt(II) ethylsulfate  
(aq) C: fab

46-23-18-10-2

CoCl<sub>2</sub>·C<sub>2</sub>N<sub>2</sub>H<sub>8</sub> Cobalt(II) chloride-Ethylenediamine  
(c) C: fab  
CoCl<sub>2</sub>·3C<sub>2</sub>N<sub>2</sub>H<sub>8</sub> Cobalt(II) chloride-3-Ethylenediamine  
(c) C: fab  
[Co[C<sub>2</sub>H<sub>4</sub>(NH<sub>2</sub>)<sub>2</sub>]<sub>2</sub>Cl<sub>2</sub>]<sup>+</sup> cis-Dichlorobis(ethylenediamine)cobalt  
(III) ion  
(aq) C: fab  
trans-Dichlorobis(ethylenediamine)cobalt(III) ion  
(aq) C: fab  
[Co[C<sub>2</sub>H<sub>4</sub>(NH<sub>2</sub>)<sub>2</sub>]<sub>2</sub>Cl<sub>2</sub>]Cl<sub>1</sub> cis-Dichlorobis(ethylenediamine)  
cobalt(III) chloride  
(c) C: fab  
(aq) C: fab  
trans-Dichlorobis(ethylenediamine)cobalt(III)  
chloride  
(c) C: fab  
(aq) C: fab  
[Co[C<sub>2</sub>H<sub>4</sub>(NH<sub>2</sub>)<sub>2</sub>]<sub>2</sub>Cl<sub>2</sub>]Cl<sub>1</sub>·NH<sub>3</sub> cis-Dichlorobis(ethylenediamine)  
cobalt(III) chloride-Ammonia  
(c) C: fab  
trans-Dichlorobis(ethylenediamine)cobalt(III)  
chloride-Ammonia  
(c) C: fab  
[Co[C<sub>2</sub>H<sub>4</sub>(NH<sub>2</sub>)<sub>2</sub>]<sub>2</sub>Cl<sub>2</sub>]Cl<sub>1</sub>·2NH<sub>3</sub> cis-Dichlorobis(ethylenediamine)  
cobalt(III) chloride-  
2-Ammonia  
(c) C: fab  
trans-Dichlorobis(ethylenediamine)cobalt(III)  
chloride-2-Ammonia  
(c) C: fab  
[Co[C<sub>2</sub>H<sub>4</sub>(NH<sub>2</sub>)<sub>2</sub>]<sub>2</sub>Cl<sub>2</sub>]Cl<sub>1</sub>·4NH<sub>3</sub> cis-Dichlorobis(ethylene-  
diamine)cobalt(III) chloride-  
4-Ammonia

(c) C: fab  
trans-Dichlorobis(ethylenediamine)cobalt(III)  
chloride-4-Ammonia  
(c) C: fab  
[Co[C<sub>2</sub>H<sub>4</sub>(NH<sub>2</sub>)<sub>2</sub>]<sub>2</sub>Cl<sub>2</sub>]Cl<sub>1</sub>·6NH<sub>3</sub> cis-Dichlorobis(ethylene-  
diamine)cobalt(III) chloride-  
6-Ammonia  
(c) C: fab

46-23-18-11-2

CoBr<sub>2</sub>·1½C<sub>2</sub>N<sub>2</sub>H<sub>8</sub> Cobalt(II) bromide-1½-Ethylenediamine  
(c) C: fab  
CoBr<sub>2</sub>·3C<sub>2</sub>N<sub>2</sub>H<sub>8</sub> Cobalt(II) bromide-3-Ethylenediamine  
(c) C: fab

46-23-18-12-2

CoI<sub>2</sub>·3C<sub>2</sub>N<sub>2</sub>H<sub>8</sub> Cobalt(II) iodide-3-Ethylenediamine  
(c) C: fab

46-23-18-14-2

CoC<sub>4</sub>N<sub>4</sub>S<sub>4</sub>·C<sub>2</sub>N<sub>2</sub>H<sub>10</sub> Cobalt tetrathiocyanate-Ethylenediamine  
(c) C: eah

46-24

CoSi Cobalt monosilicide  
(c) C: eah fab  
CoSi<sub>2</sub> Cobalt disilicide  
(c) C: eah fab

**COBALT**  
46-24 CoSi<sub>3</sub>

CoSi <sub>3</sub>	Cobalt trisilicide (c) C: eah fab
Co <sub>2</sub> Si	Cobalt(II) silicide (c) C: eah fab
46-26	
Co-Sn	Cobalt-Tin (c) F: fcf (liq) F: fcf(x)
Co <sub>2</sub> Sn	Dicobalt stannide (c) C: eah fae E-XIII: fae(t) fal(t) fal(t)
46-29	
Co-Al	Cobalt-Aluminum (c) F: fcf(x) fcr(t) fct(t)
CoAl	Cobalt aluminide (c) C: eah fab
CoAl <sub>4</sub>	Cobalt tetra-aluminide (c) C: fab
Co <sub>2</sub> Al <sub>5</sub>	Dicobalt penta-aluminide (c) C: fab
46-29-1	
CoO·Al <sub>2</sub> O <sub>3</sub>	Cobalt(II) oxide-Aluminum oxide (c) C: eah
46-33	
Co-Zn	Cobalt-Zinc (c) F: fcf(x)
46-39	
Co-Pt	Cobalt-Platinum (c) F: fca(x) fcb(x) fcc(x) fcd(x) fcf(x) fcg(x) fcl(x) fcm(x) fcn(x) fco(x) fcv(x) fcw(x)

**47 - Iron - Fe**

47	
Iron	
Fe	
(c, α)	C: eaj fbb fbc fbd D: eaj fac(t) fae(t) fai(t) fai(t) fbb E-III: fbn(t) fbn(t) E-XI: fac fae(-t) E-XIII: fae(t) fai(t) fal(t) fbb
(c, β)	C: eaj fbb fbc fbd D: eaj fac(t) fae(t) fai(t) fai(t) fbb E-III: fbn(t) fbn(t) E-XIII: fae fai(t) fal(t) fbb F: eaj(Curie) eal(t) fac fae(-t,t) fai(t) fai(t) fal(t) fbb fbc fbn(t) fbn(t)
(c, γ)	C: eaj eaj fbb fbc fbd fbn fbo D: eaj fac(t) fae(t) fai(t) fai(t) fbb E-III: fbn(t) fbn(t) E-XIII: fae(t) fai(t) fal(t) fbb F: eaj eal(t) fae(t) fai(t) fai(t) fal(t) fbb fbc fbn(t) fbn(t)

(c, δ)	C: eah fbf fbq fbh D: eah fac(t) fae(t) fai(t) fai(t) fbf E-III: fbn(t) fbn(t) E-V: eah fbf fbq E-XIII: fae(t) fai(t) fal(t) fbf F: eah eal(t) fae(t) fai(t) fai(t) fal(t) fbf fbq fbn(t) fbn(t)
(c)	C: fac fae
(liq)	C: eaq D: eaq fac(t,+t) fae(t,+t) fai(t,+t) fai(t,+t) fbj E-III: eaq eal(t,+t) fbi(t,+t) fbj(t,+t) fbk E-XIII: fae(t,+t) fai(t,+t) fal(t,+t) F: eal(t,+t) fae(t,+t) fai(t,+t) fai(t,+t) fal(t,+t) fbi(t,+t) fbj(t,+t) fbk
(g)	C: faa fab fac fad fae D: faa(t,+t) fab(t,+t) fac(t,+t) fad(t,+t) fae(t,+t) fai(t,+t) fal(t,+t) E-III: fac E-XI: fac E-XIII: fae(t,+t) fai(t,+t) fal(t,+t) F: fac fae(t,+t) fai(t,+t) fai(t,+t) fal(t,+t)

Fe<sup>+</sup>

(g) C: fab

Fe<sup>2+</sup>

(g) C: fab  
(aq) C: faa fab fac fad  
E-IV: faa fam  
E-XI: fac

Fe<sup>3+</sup>

(g) C: fab  
(aq) C: faa fab fac fad  
E-XI: fac

**47-1**

Fe <sub>0.947</sub> O	Iron(II) oxide(5.3% iron-deficient) (c) E-XII: faa(t) fab(t) E-XIII: fae(t) fai(t) fal(t) fbf (liq) E-XII: faa(t) fab(t) E-XIII: fae fai(t) fal(t)
Fe <sub>0.95</sub> O	Iron(II) oxide(5% iron-deficient) (c) C: eah faa fab fac fad fbf fbq
FeO	Iron(II) oxide (c) E-IV: fam(t) fan(t) E-V: eah fbf fbq E-XI: fac fae(-t)
Fe <sub>2</sub> O <sub>3</sub>	Iron(III) oxide (c, α) E-XIII: fae(t) fai(t) fal(t) fbb (c, β) E-XII: faa(t) fab(t) E-XIII: fae fai(t) fal(t) fbb (c, γ) E-XII: faa(t) fab(t) E-XIII: fae(t) fai(t) fal(t) (c, II) C: eaj (c) C: faa fab fac fad fae E-XI: fac fae(-t) E-XII: faa(t) fab(t)

**Fe<sub>2</sub>O<sub>3</sub>·3H<sub>2</sub>O** Iron(III) oxide-3-Water  
(c) E-XIII: fae

**Fe<sub>3</sub>O<sub>4</sub>** Tri-iron tetraoxide  
(c, α) E-XIII: fae(t) fai(t) fal(t) fbb  
(c, β) E-XII: faa(t) fab(t)  
E-XIII: fae fai(t) fal(t)  
(c) C: eah faa fab fac fad fbf  
fbg  
E-XI: fac fae(-t)  
E-XII: faa(t) fab(t)  
(liq) E-XII: faa(t) fab(t)

47-2-1

**Fe(OH)<sup>2+</sup>** Hydroxiron(III) ion  
(aq) C: faa fab fac fad

**Fe(OH)<sub>2</sub>** Iron(II) hydroxide  
(c) C: faa fab fac fad  
(aq) E-IV: eam

**Fe(OH)<sub>2</sub><sup>+</sup>** Dihydroxiron(III) ion  
(aq) C: faa fad

**Fe(OH)<sub>3</sub>** Iron(III) hydroxide  
(c) C: fab

47-9

**FeF<sub>2</sub>** Iron(II) fluoride  
(c) C: eah  
E-XIII: fae  
(aq) C: fab

**FeF<sub>3</sub>** Iron(III) fluoride  
(aq) C: fab

47-10

**FeCl<sup>2+</sup>** Chloroiron(III) ion  
(aq) C: faa fab fac fad

**FeCl<sub>2</sub>** Iron(II) chloride  
(c) C: eah faa fab fac fad fae  
fbf fbq fbh  
E-V: eah fbf fbq  
E-XI: fac fae(-t)  
E-XIII: fae(t) fai(t) fal(t) fbf  
(liq) C: eaq fbj fbk  
E-III: eaq eal(t) fbi(t) fbj(t) fbk  
E-XIII: fae fai(t) fal(t)  
(aq) C: fab(x)

**FeCl<sub>2</sub>·2H<sub>2</sub>O** Iron(II) chloride-2-Water  
(c) C: fab

**FeCl<sub>2</sub>·4H<sub>2</sub>O** Iron(II) chloride-4-Water  
(c) C: fab

**FeCl<sub>3</sub>** Iron(III) chloride  
(c) C: eah eai fab fbf fbq fbh  
fbn fbo  
E-XIII: fae(t) fai(t) fal(t) fbf  
(liq) C: eaq fbj fbk  
E-XIII: fae fai(t) fal(t)  
(aq) C: fab

**FeCl<sub>3</sub>·2H<sub>2</sub>O** Iron(III) chloride-2-Water  
(c) C: eah

**FeCl<sub>3</sub>·2½H<sub>2</sub>O** Iron(III) chloride-2½-Water  
(c) C: eah

**FeCl<sub>3</sub>·3½H<sub>2</sub>O** Iron(III) chloride-3½-Water  
(c) C: eah

**FeCl<sub>3</sub>·6H<sub>2</sub>O** Iron(III) chloride-6-Water  
(c) C: eah fab

**Fe<sub>2</sub>Cl<sub>6</sub>** Iron(III) hexachloride (Ferric chloride)  
(c) E-III: eal(t) fbn(t) fbn(t)  
E-V: eah fbf fbq  
(liq) E-III: eaq eal fbi(t) fbj(t) fbk  
(g) E-XIII: fae fai(t) fal(t)

47-10-2

**FeCl<sub>3</sub>·HCl·2H<sub>2</sub>O** Iron(III) chloride-Hydrogen chloride-2-Water  
(c) C: eah

**FeCl<sub>3</sub>·HCl·4H<sub>2</sub>O** Iron(III) chloride-Hydrogen chloride-4-Water  
(c) C: eah

**FeCl<sub>3</sub>·HCl·6H<sub>2</sub>O** Iron(III) chloride-Hydrogen chloride-6-Water  
(c) C: eah

47-11

**FeBr<sub>2</sub>** Iron(II) bromide  
(c) C: eah fab  
E-XI: fac fae(-t)  
E-XIII: fae  
(aq) C: fab

**FeBr<sup>2+</sup>** Bromoiron(III) ion  
(aq) C: faa fab fac fad

**FeBr<sub>3</sub>** Iron(III) bromide  
(aq) C: fab

47-12

**FeI<sub>2</sub>** Iron(II) iodide  
(c) C: eah fab  
E-XI: fac fae(-t)  
E-XIII: fae  
(aq) C: fab

**FeI<sub>2</sub>·4H<sub>2</sub>O** Iron(II) iodide-4-Water  
(c) C: eah

**FeI<sub>2</sub>·9H<sub>2</sub>O** Iron(II) iodide-9-Water  
(c) C: eah

47-14

**FeS** Iron(II) sulfide  
(c, II, α) C: eaj faa fab fac fad  
fae fbb fbc fbd  
E-VII: faa(t) fab(t)  
E-XIII: fae(t) fai(t) fal(t) fbb  
(c, β) C: fab  
E-VII: faa(t) fab(t) fam(t) fan(t)  
E-XIII: fae fai(t) fal(t) fbb  
(c, γ) E-V: eah fbf fbq  
E-XIII: fae(t) fal(t) fal(t) fbf  
(c) E-XI: fac fae(-t)  
(liq) E-XIII: fae fai(t) fal(t)

**FeS<sub>2</sub>** Iron disulfide  
(c, pyrites) C: faa fab fac fad fae  
E-XI: fac fae(-t)  
(c, markasite) C: fab  
(c) E-VII: faa(t) fab(t) fam(t) fan(t)  
E-XIII: fae(t) fai(t) fal(t)

**IRON**

**47-14-1 FeSO<sub>4</sub>**

**47-14-1**  
**FeSO<sub>4</sub>** Iron(II) sulfate  
 (c) C: fab  
 E-XI: fac fae(-t)  
 E-XIII: fae  
 (aq) C: fab  
**FeSO<sub>4</sub>·H<sub>2</sub>O** Iron(II) sulfate—Water  
 (c) C: fab  
**FeSO<sub>4</sub>·4H<sub>2</sub>O** Iron(II) sulfate—4-Water  
 (c) C: fab  
 E-XIII: fae  
**FeSO<sub>4</sub>·7H<sub>2</sub>O** Iron(II) sulfate—7-Water  
 (c) C: eah fab  
 E-XIII: fae  
**Fe<sub>2</sub>(SO<sub>4</sub>)<sub>3</sub>** Iron(III) sulfate  
 (c) E-XIII: fae  
 (aq) C: fab(x)

**47-14-2-1**  
**Fe(HSO<sub>4</sub>)<sub>3</sub>** Iron(III) hydrogen sulfate  
 (aq) C: fab

**47-15**  
**FeSe** Iron(II) selenide  
 (c) C: fab  
 (amorph) C: fab

**47-16**  
**Fe-Te** Iron-Tellurium  
 (c) F: fca(x) fcb(x) fcl(x) fcl(x) fcm(x) fcr(t)  
 fct(t)  
**FeTe** Iron(II) telluride  
 (c) C: fab

**47-18**  
**Fe<sub>2</sub>N** Di-iron nitride  
 (c) C: faa fab fac fad fae  
 E-XIII: fae(t)  
**Fe<sub>4</sub>N** Tetrairon nitride  
 (c) C: faa fab fac fad fae  
 E-VIII: faa(t) fab(t) fam(t) fan(t)  
 E-XI: fac  
 E-XIII: fae(t)

**47-18-1**  
**Fe(NO<sub>3</sub>)<sub>2</sub>·6H<sub>2</sub>O** Iron(II) nitrate—6-Water  
 (c) C: eah  
 (aq) C: fab  
**Fe(NO<sub>3</sub>)<sub>3</sub>·9H<sub>2</sub>O** Iron(III) nitrate—9-Water  
 (c) C: eah fab

**47-18-10-1**  
**Fe(NO)Cl<sub>2</sub>** Nitrosyliron(II) chloride  
 (aq) C: fab

**47-18-10-2**  
**FeCl<sub>2</sub>·NH<sub>3</sub>** Iron(II) chloride—Ammonia  
 (c) C: fab  
**FeCl<sub>2</sub>·2NH<sub>3</sub>** Iron(II) chloride—2-Ammonia  
 (c) C: fab  
**FeCl<sub>2</sub>·6NH<sub>3</sub>** Iron(II) chloride—6-Ammonia  
 (c) C: fab

**FeCl<sub>2</sub>·10NH<sub>3</sub>** Iron(II) chloride—10-Ammonia  
 (c) C: fab  
**FeCl<sub>3</sub>·6NH<sub>3</sub>** Iron(III) chloride—6-Ammonia  
 (c) C: fab  
**FeCl<sub>3</sub>·NH<sub>4</sub>Cl** Iron(III) chloride—Ammonium chloride  
 (c) C: eah

**47-18-11-2**  
**FeBr<sub>2</sub>·NH<sub>3</sub>** Iron(II) bromide—Ammonia  
 (c) C: fab  
**FeBr<sub>2</sub>·2NH<sub>3</sub>** Iron(II) bromide—2-Ammonia  
 (c) C: fab  
**FeBr<sub>2</sub>·6NH<sub>3</sub>** Iron(II) bromide—6-Ammonia  
 (c) C: fab

**47-18-12-2**  
**FeI<sub>2</sub>·2NH<sub>3</sub>** Iron(II) iodide—2-Ammonia  
 (c) C: fab  
**FeI<sub>2</sub>·6NH<sub>3</sub>** Iron(II) iodide—6-Ammonia  
 (c) C: fab

**47-18-14-1**  
**Fe(NO)SO<sub>4</sub>** Nitrosyliron(II) sulfate  
 (aq) C: fab

**47-18-14-2-1**  
**FeSO<sub>4</sub>·NH<sub>3</sub>** Iron(II) sulfate—Ammonia  
 (c) C: fab  
**FeSO<sub>4</sub>·2NH<sub>3</sub>** Iron(II) sulfate—2-Ammonia  
 (c) C: fab  
**FeSO<sub>4</sub>·3NH<sub>3</sub>** Iron(II) sulfate—3-Ammonia  
 (c) C: fab  
**FeSO<sub>4</sub>·4NH<sub>3</sub>** Iron(II) sulfate—4-Ammonia  
 (c) C: fab  
**FeSO<sub>4</sub>·6NH<sub>3</sub>** Iron(II) sulfate—6-Ammonia  
 (c) C: fab  
**NH<sub>4</sub>Fe(SO<sub>4</sub>)<sub>2</sub>·12H<sub>2</sub>O** Ammonium iron(III) sulfate—12-Water  
 (c) C: eah

**47-19**  
**FeP** Iron(III) phosphide  
 (c) C: fab  
**FeP<sub>2</sub>** Iron diphosphide  
 (c) C: fab  
**Fe<sub>2</sub>P** Di-iron phosphide  
 (c) C: eah fab  
**Fe<sub>3</sub>P** Tri-iron phosphide  
 (c) C: fab

**47-19-1**  
**Fe<sub>2</sub>O<sub>3</sub>·P<sub>2</sub>O<sub>5</sub>** Iron(III) oxide—Diphosphorus pentoxide  
 (c) C: eah  
**FePO<sub>4</sub>** Iron(III) phosphate  
 (c) C: fab  
**FePO<sub>4</sub>·2H<sub>2</sub>O** Iron(III) phosphate—2-Water  
 (c) C: fab  
**FePO<sub>4</sub>·4H<sub>2</sub>O** Iron(III) phosphate—4-Water  
 (c) C: fab

**47-20**  
**FeAs** Iron(III) arsenide(III)  
 (c) C: eah

**FeAs<sub>2</sub>** Iron diarsenide  
(c) E-XIII: fae  
**Fe<sub>2</sub>As** Di-iron arsenide  
(c) C: eah

**47-20-14**  
**FeAsS** Iron arsenic monosulfide  
(c) E-XIII: fae

**47-21**  
**Fe-Sb** Iron-Antimony  
(c) F: fcf(x)

**FeSb** Iron antimonide  
(c) C: fab

**FeSb<sub>2</sub>** Iron diantimonide  
(c) C: fab

**Fe<sub>3</sub>Sb<sub>2</sub>** Tri-iron diantimonide  
(c) C: eah

**47-23**  
**Fe-C** Iron-Carbon  
(c) F: fca(x) fcb(x) fcc(x) fcd(x) fcf(x) fcg(x)  
fcl(x) fcm(x) fcn(x) fco(x) fcv(x) fcw(x)  
(liq) F: fca(x) fcb(x) fcc(x) fcd(x) fcf(x) fcg(x)  
fcl(x) fcm(x) fcn(x) fco(x) fcv(x) fcw(x)

**Fe<sub>3</sub>C** Tri-iron carbide  
(c, α) E-VIII: faa(t) fab(t)  
E-XIII: fae(t) fai(t) fal(t) fbb  
(c, β) E-VIII: faa(t) fab(t)  
E-XIII: fae(t) fai(t) fal(t)  
(c) C: faa fab fac fad fae  
E-XI: fac fae(-t)

**47-23-1**  
**FeCO<sub>3</sub>** Iron(II) carbonate  
(c) C: faa fab fac fad fae  
E-IV: faa(t) fab(t) fam(t) fan(t)  
E-XI: fac fae(-t)  
E-XIII: fae(t)  
(aq) E-IV: eam fam fap

**FeC<sub>5</sub>O<sub>5</sub>** Pentacarbonyliron  
(c) C: eah fbf fbq  
E-V: eah fbf fbq  
(liq) C: eaq fab fbj fbk  
E-III: eaq eal(t) fbi(t) fbj fbk

**Fe<sub>2</sub>C<sub>6</sub>O<sub>12</sub>** Iron(III) oxalate  
(aq) C: fab(x)

**47-23-2-1**  
**Fe(CO)<sub>4</sub>H<sub>2</sub>** Tetracarbonyliron(II) hydride  
(c) C: eah  
(liq) C: eaq fbj fbk

**FeC<sub>6</sub>H<sub>5</sub>O<sub>12</sub>** Iron(III) hydrogen oxalate  
(aq) C: fab

**FeC<sub>6</sub>H<sub>5</sub>O<sub>6</sub>** Iron(III) acetate  
(aq) C: fab(x)

**47-23-11-1**  
**Fe(CO)<sub>4</sub>Br<sub>2</sub>** Tetracarbonyliron(II) bromide  
(c) C: fab  
(aq) C: fab

**47-23-12-1**  
**Fe(CO)<sub>4</sub>I<sub>2</sub>** Tetracarbonyliron(II) iodide  
(c) C: fab

**47-23-18**  
**Fe(CN)<sub>6</sub><sup>4-</sup>** Hexacyanoferrate(II) ion  
(aq) C: fab  
**Fe<sub>4</sub>[Fe(CN)<sub>6</sub>]<sub>3</sub>** Iron(III) hexacyanoferrate(II)  
(c) C: fab

**47-23-18-1**  
**Fe(CO)<sub>2</sub>(NO)<sub>2</sub>** Dicarbonyldinitrosyliron  
(c) C: eah eai fbf fbq fbn fbo  
(liq) C: eaq fbj fbk  
**Fe<sub>2</sub>CO(CN)<sub>5</sub>** Pentacyanocarbonyliron  
(c) C: fab  
**FeCO(CN)<sub>5</sub><sup>3-</sup>** Pentacyanocarbonylferrate(II) ion  
(aq) C: fab

**47-23-18-2**  
**HFe(CN)<sub>6</sub><sup>3-</sup>** Hydrogen hexacyanoferrate(II) ion  
(aq) C: fab  
**H<sub>2</sub>Fe(CN)<sub>6</sub><sup>2-</sup>** Dihydrogen hexacyanoferrate(II) ion  
(aq) C: fab  
**H<sub>3</sub>Fe(CN)<sub>6</sub>** Hydrogen hexacyanoferrate(III)  
(aq) C: fab  
**H<sub>3</sub>Fe(CN)<sub>6</sub><sup>-</sup>** Trihydrogen hexacyanoferrate(II) ion  
(aq) C: fab  
**H<sub>4</sub>Fe(CN)<sub>6</sub>** Hydrogen hexacyanoferrate(II)  
(c) C: fab  
(aq) C: fab  
**(NH<sub>4</sub>)<sub>4</sub>Fe(CN)<sub>6</sub>** Ammonium hexacyanoferrate(II)  
(aq) C: fab  
**(NH<sub>4</sub>)<sub>4</sub>Fe(CN)<sub>6</sub>·6H<sub>2</sub>O** Ammonium hexacyanoferrate(II)-6-Water  
(c) C: fab

**47-23-18-2-1**  
**HFeCO(CN)<sub>5</sub><sup>2-</sup>** Hydrogen pentacyanocarbonylferrate(II) ion  
(aq) C: fab  
**H<sub>2</sub>FeCO(CN)<sub>5</sub><sup>-</sup>** Dihydrogen pentacyanocarbonylferrate(II) ion  
(aq) C: fab  
**H<sub>3</sub>FeCO(CN)<sub>5</sub>** Hydrogen pentacyanocarbonylferrate(II)  
(aq) C: fab  
**H<sub>3</sub>FeCO(CN)<sub>5</sub>·H<sub>2</sub>O** Hydrogen pentacyanocarbonylferrate(II)-Water  
(c) C: fab

**47-23-18-10-2**  
**FeCl<sub>3</sub>·CNC<sub>1</sub>H<sub>5</sub>** Iron(III) chloride-Methylammonium chloride  
(c) C: eah  
**FeCl<sub>3</sub>·C<sub>2</sub>NC<sub>1</sub>H<sub>5</sub>** Iron(III) chloride-Dimethylammonium chloride  
(c) C: eah  
Iron(III) chloride-Ethylammonium chloride  
(c) C: eah

**47-24**  
**FeSi** Iron monosilicide  
(c) C: eah fab fae  
E-XIII: fae(t) fai(t) fal(t)  
**Fe<sub>3</sub>Si** Tri-iron silicide  
(c) C: fab

**IRON**

**47-24-1 FeSiO<sub>3</sub>**

- 47-24-1**  
**FeSiO<sub>3</sub>** Iron(II) metasilicate  
 (c) C: fab
- Fe<sub>2</sub>SiO<sub>4</sub>** Iron(II) orthosilicate  
 (c) C: faa fab fac fad fae  
 E-XI: fac fae(-t)  
 E-XIII: fae(t) fai(t) fal(t) fbf  
 (liq) E-XIII: fae fai(t) fal(t)
- FeO·SiO<sub>2</sub>** Iron(II) oxide—Silicon oxide  
 (c) C: eah
- 2FeO·SiO<sub>2</sub>** 2-Iron(II) oxide—Silicon oxide  
 (c) C: eah
- 4FeO·3SiO<sub>2</sub>** 4-Iron(II) oxide—3-Silicon oxide  
 (c) C: eah

- 47-27-1**  
**Fe<sub>2</sub>O<sub>3</sub>·PbO** Iron(III) oxide—Lead(II) oxide  
 (c) C: eah

- 47-27-12**  
**2FeI<sub>2</sub>·PbI<sub>2</sub>** 2-Iron(II) iodide—Lead(II) iodide  
 (c) C: fab

- 47-28**  
**Fe<sub>2</sub>B** Di-iron boride  
 (c) C: eah

- 47-29**  
**Fe-Al** Iron-Aluminum  
 (c) F: fcf(x) fcg(x)  
 (liq) F: fca(x) fcb(x) fcc(x) fcd(x) fcv(x) fcw(x)

- FeAl** Iron aluminide  
 (c) C: fab

- FeAl<sub>2</sub>** Iron dialuminide  
 (c) C: fab

- FeAl<sub>3</sub>** Iron trialuminide  
 (c) C: eah fab

- 47-29-1**  
**FeAl<sub>2</sub>O<sub>4</sub>** Iron(II) dialuminum tetroxide  
 (c) E-XIII: fae(t)

- 47-30**  
**FeGa<sub>2</sub>** Iron digallide  
 (c) C: eah

- 47-32-10**  
**FeCl<sub>3</sub>·2TlCl** Iron(III) chloride—2-Thallium(I) chloride  
 (c) C: eah

- 47-32-14-1**  
**FeTl(SO<sub>4</sub>)<sub>2</sub>·12H<sub>2</sub>O** Iron(III) thallium(I) sulfate—12-Water  
 (c) C: eah

- 47-33-1**  
**ZnFe<sub>2</sub>O<sub>4</sub>** Di-iron(III) zinc tetroxide  
 (c) E-XIII: fae(t)
- Fe<sub>2</sub>O<sub>3</sub>·ZnO** Iron(III) oxide—Zinc oxide  
 (c) C: eah

- 47-33-23-18**  
**Zn<sub>3</sub>Fe(CN)<sub>6</sub>** Zinc hexacyanoferrate(II)  
 (c) C: fab

- 47-34-1**  
**Fe<sub>2</sub>O<sub>3</sub>·CdO** Iron(III) oxide—Cadmium oxide  
 (c) C: eah

- 47-36**  
**Fe-Cu** Iron-Copper  
 (liq) F: fca(x) fcb(x) fcc(x) fcd(x) fcv(x) fcw(x)

- 47-36-1**  
**Fe<sub>2</sub>O<sub>3</sub>·CuO** Iron(III) oxide—Copper(II) oxide  
 (c) C: eah

- 47-36-10**  
**2FeCl<sub>3</sub>·Cu<sub>2</sub>Cl<sub>2</sub>** 2-Iron(III) chloride—Copper(I) dichloride  
 (c) C: eah

- 47-36-14**  
**FeCuS<sub>2</sub>** Iron copper disulfide  
 (c) E-XIII: fae

- 47-38**  
**Fe-Au** Iron-Gold  
 (c) F: fca(x) fcb(x) fcc(x) fcd(x) fcf(x) fcg(x)  
 fcl(x) fcm(x) fcn(x) fco(x) fcv(x) fcw(x)

- 47-39**  
**Fe-Pt** Iron-Platinum  
 (c) F: fcc(x) fcd(x) fcv(x) fcw(x)

- 47-45**  
**Fe-Ni** Iron-Nickel  
 (c) F: fcc(x) fcd(x) fcr(-t) fcv(x) fcw(x)

- 47-45-1**  
**NiFe<sub>2</sub>O<sub>4</sub>** Di-iron nickel tetroxide  
 (c) E-XIII: fae
- Fe<sub>2</sub>O<sub>3</sub>·NiO** Iron(III) oxide—Nickel(II) oxide  
 (c) C: eah

- 47-45-14**  
**2FeS·Ni<sub>2</sub>S** 2-Iron(II) sulfide—Dinickel sulfide  
 (c) C: eah

- 47-46**  
**Fe-Co** Iron-Cobalt  
 (c) F: fca(x) fcb(x) fcc(x) fcd(x) fcf(x) fcg(x)  
 fch(t) fcl(x) fcm(x) fcn(x) fco(x) fcp(t)  
 fcr(t) fct(t) fcv(x) fcw(x)

- 47-46-1**  
**FeCo<sub>2</sub>O<sub>4</sub>** Iron dicobalt tetroxide  
 (c) E-XIII: fae
- Fe<sub>2</sub>O<sub>3</sub>·CoO** Iron(III) oxide—Cobalt(II) oxide  
 (c) C: eah

48 - Manganese - Mn

**Mn**

48  
Manganese

(c, IV, a) C: eaj fac fae fbb fbc  
D: eaj fac(t) fae(t) fai(t) fai(t) fbb  
E-XI: fac fae(-t)  
E-XIII: fae(t) fai(t) fai(t) fbb  
F: eal(t) fac fae(-t,t) fai(t) fai(t)  
fal(t) fbb fbc

(c, a) E-III: fbn(-t,t) fbn(-t,t)

(c, III, β) C: eaj fbb fbc  
D: eaj fac(t) fae(t) fai(t) fai(t) fbb  
E-III: fbb fbn(t) fbn(t)  
E-XIII: fae(t) fai(t) fai(t) fbb  
F: eal(t) fae(-t,t) fai(t) fai(t) fai(t)  
fbb fbc

(c, II, γ) C: eaj faa fab fac fad fae  
fbb fbc  
D: eaj fac fae fai fai fbb  
E-XI: fac fae(-t)  
E-XIII: fae(t) fai(t) fai(t) fbb  
F: eal(t) fac fae(-t,t) fai(t) fai(t)  
fal(t) fbb fbc

(c, γ) E-III: eal fbn(t) fbn(t)  
E-V: eah fbf fbg

(c, I, δ) C: eah fbf fbg  
D: eah fac fae fai fai fbf  
E-XIII: fae fai(t) fai(t) fbf  
F: eal(t) fae fai(t) fai(t) fai(t) fbf  
fbg

(liq) C: eaq fbj fbk  
D: eaq fac(t,+t) fae(t,+t) fai(t,+t)  
fai(t,+t) fbj  
E-III: eaq eal(t,+t) fbi(+t) fbj(+t)  
fbk  
E-XIII: fae fai(t,+t) fai(t,+t)  
F: eal(+t) fae(+t) fai(+t) fai(+t)  
fai(+t) fbi(+t) fbj(+t) fbk

(g) C: faa fab fac fad fae  
D: faa(t,+t) fab(t,+t) fac(t,+t)  
fad(t,+t) fae(t,+t) fai(t,+t)  
fai(t,+t)  
E-III: fac  
E-XI: fac  
E-XIII: fae fai(t,+t) fai(t,+t)  
F: fae(t,+t) fai(t,+t) fai(t,+t)  
fal(t,+t)

Mn<sup>+</sup>

(g) C: fab

Mn<sup>2+</sup>

(g) C: fab  
(aq) C: faa fab fac fad  
E-IV: faa fam  
E-XI: fac

Mn<sup>3+</sup>

(aq) C: fab

48-1

MnO Manganese(II) oxide  
(c, I) C: faa fab fac fad fae

(c) C: eah  
E-IV: fam(t) fan(t)  
E-XI: fac fae(-t)  
E-XII: faa(t) fab(t)  
E-XIII: fae(t) fai(t) fai(t)

(g) C: fab  
E-XI: fac  
E-XIII: fae(t) fai(t) fai(t)

MnO<sub>2</sub> Manganese(IV) oxide  
(c, I) C: faa fab fac fad fae  
(c) E-XI: fac fae(-t)  
E-XII: faa(t) fab(t)  
E-XIII: fae(t) fai(t) fai(t)

MnO<sub>4</sub><sup>-</sup> Permanganate ion  
(aq) C: faa fab fac fad  
E-XI: fac

Mn<sub>2</sub>O<sub>3</sub> Manganese(III) oxide  
(c, II) C: eaj fab fae  
(c) E-XI: fac  
E-XII: faa(t) fab(t)  
E-XIII: fae(t) fai(t) fai(t)

Mn<sub>2</sub>O<sub>3</sub>·H<sub>2</sub>O Manganese(III) oxide-Water  
(c) E-XIII: fae

Mn<sub>3</sub>O<sub>4</sub> Trimanganese tetroxide  
(c, II, a) C: eaj fbb fbc  
E-XII: faa(t) fab(t)  
E-XIII: fae(t) fai(t) fai(t) fbb  
(c, I, β) C: eah faa fab fac fad fae  
E-XII: faa(t) fab(t)  
E-XIII: fae fai(t) fai(t)  
(c) E-XI: fac fae(-t)

48-2-1

Mn(OH)<sub>2</sub> Manganese(II) hydroxide  
(amorph) C: faa fab fac fad  
(aq) E-IV: eam

Mn(OH)<sub>3</sub> Manganese(III) hydroxide  
(amorph) C: fab

48-9

MnF Manganese monofluoride  
(g) E-XIII: fae(t) fai(t) fai(t)

MnF<sub>2</sub> Manganese(II) fluoride  
(c, I) C: faa fab fac fad fae  
(c) C: eah  
E-XI: fac fae(-t)  
E-XIII: fae  
(aq) C: fab

MnF<sub>3</sub> Manganese(III) fluoride  
(aq) C: fab

48-10

MnCl Manganese monochloride  
(g) E-XIII: fae(t) fai(t) fai(t)

MnCl<sub>2</sub> Manganese(II) chloride  
(c) C: eah faa fab fac fad fae  
fbf fbg  
E-V: eah fbf fbg  
E-VII: fam(t) fan(t)  
E-XI: fac fae(-t)  
E-XIII: fae(t) fai(t) fai(t) fbf



**MANGANESE**

**48-10 MnCl<sub>2</sub>**

(liq) C: eaq fbj fbk  
 E-III: eaq eal(t) fbi(t) fbj(t) fbk  
 E-XIII: fae fai(t) fal(t)  
 (aq) C: fab  
**MnCl<sub>2</sub>·H<sub>2</sub>O** Manganese(II) chloride—Water  
 (c) C: fab  
**MnCl<sub>2</sub>·2H<sub>2</sub>O** Manganese(II) chloride—2-Water  
 (c) C: fab  
**MnCl<sub>2</sub>·4H<sub>2</sub>O** Manganese(II) chloride—4-Water  
 (c) C: fab

**48-10-2**

**H<sub>2</sub>MnCl<sub>6</sub>** Hydrogen hexachloromanganate(IV)  
 (aq) C: fab

**48-11**

**MnBr** Manganese monobromide  
 (g) E-XIII: fae(t) fai(t) fal(t)  
**MnBr<sub>2</sub>** Manganese(II) bromide  
 (c) C: eah fab  
 (aq) C: fab  
**MnBr<sub>2</sub>·H<sub>2</sub>O** Manganese(II) bromide—Water  
 (c) C: fab  
**MnBr<sub>2</sub>·4H<sub>2</sub>O** Manganese(II) bromide—4-Water  
 (c) C: fab  
**MnBr<sub>3</sub>** Manganese(III) bromide  
 (aq) C: fab

**48-12**

**MnI** Manganese monoiodide  
 (g) E-XIII: fae(t) fai(t) fal(t)  
**MnI<sub>2</sub>** Manganese(II) iodide  
 (c) C: eah fab  
 (aq) C: fab  
**MnI<sub>2</sub>·H<sub>2</sub>O** Manganese(II) iodide—Water  
 (c) C: fab  
**MnI<sub>2</sub>·2H<sub>2</sub>O** Manganese(II) iodide—2-Water  
 (c) C: fab  
**MnI<sub>2</sub>·4H<sub>2</sub>O** Manganese(II) iodide—4-Water  
 (c) C: fab  
**MnI<sub>2</sub>·6H<sub>2</sub>O** Manganese(II) iodide—6-Water  
 (c) C: fab

**48-14**

**MnS** Manganese(II) sulfide  
 (c, II, red) C: fab  
 (c, I, green) C: faa fab fac fad fae  
 (c) C: eah  
 E-VII: faa(t) fab(t) fam(t) fan(t)  
 E-XI: fac fae(-t)  
 E-XIII: fae(t) fai(t) fal(t) fbf  
 (liq) E-XIII: fae fai(t) fal(t)

**48-14-1**

**MnSO<sub>4</sub>** Manganese(II) sulfate  
 (c) C: eah faa fab fac fad fae  
 E-VII: faa(t) fab(t) fam fan  
 E-XI: fac fae(-t)  
 E-XIII: fae(t) fai(t) fal(t)  
 (aq) C: faa fab fac fad  
**MnSO<sub>4</sub>·H<sub>2</sub>O** Manganese(II) sulfate—Water  
 (c, II) C: fab

(c, I) C: fab  
 (c) E-VII: fam fan

**MnSO<sub>4</sub>·4H<sub>2</sub>O** Manganese(II) sulfate—4-Water  
 (c) C: fab  
**MnSO<sub>4</sub>·5H<sub>2</sub>O** Manganese(II) sulfate—5-Water  
 (c) C: fab fae  
 E-XIII: fae  
**MnSO<sub>4</sub>·7H<sub>2</sub>O** Manganese(II) sulfate—7-Water  
 (c) C: fab  
**MnS<sub>2</sub>O<sub>6</sub>** Manganese(II) dithionate  
 (c) E-XI: fac  
 (aq) C: fab  
**MnS<sub>2</sub>O<sub>6</sub>·2H<sub>2</sub>O** Manganese(II) dithionate—2-Water  
 (c) C: fac fae  
 E-XI: fac fae(-t)  
 E-XIII: fae  
**MnS<sub>2</sub>O<sub>6</sub>·6H<sub>2</sub>O** Manganese(II) dithionate—6-Water  
 (c) C: fab  
 E-XI: fac  
**Mn<sub>2</sub>(SO<sub>4</sub>)<sub>3</sub>** Manganese(III) sulfate  
 (c) C: fab  
 (aq) C: fab

**48-15**

**MnSe** Manganese(II) selenide  
 (c, I) C: faa fab fac fad fae  
 (c) E-XI: fac fae(-t)  
 E-XIII: fae

**48-16**

**MnTe** Manganese(II) telluride  
 (c, I) C: fac fae  
 (c) E-XI: fac fae(-t)  
 E-XIII: fae

**48-18**

**Mn(N<sub>3</sub>)<sub>2</sub>** Manganese(II) azide  
 (c) C: fab  
**Mn<sub>3</sub>N<sub>2</sub>** Manganese(II) nitride  
 (c, mixed) E-VIII: faa(t) fab(t)  
 (c) E-XIII: fae(t) fai(t) fal(t)  
 (amorph. solid soln.) E-VIII: faa(t) fab(t)  
 (liq) E-VIII: faa(t) fab(t)  
**Mn<sub>4</sub>N** Tetramanganese nitride  
 (c) E-XIII: fae(t) fai(t) fal(t)  
**Mn<sub>5</sub>N<sub>2</sub>** Pentamanganese dinitride  
 (c) C: fab fae  
 E-VIII: faa(t) fab(t)  
 E-XIII: fae(t) fai(t) fal(t)  
**Mn<sub>8</sub>N<sub>2</sub>** Octamanganese dinitride  
 (c) C: fab fae

**48-18-1**

**Mn(NO<sub>3</sub>)<sub>2</sub>** Manganese(II) nitrate  
 (c) C: fab  
 (aq) C: fab  
**Mn(NO<sub>3</sub>)<sub>2</sub>·3H<sub>2</sub>O** Manganese(II) nitrate—3-Water  
 (c) C: eah fab fbf fbg  
**Mn(NO<sub>3</sub>)<sub>2</sub>·4H<sub>2</sub>O** Manganese(II) nitrate—4-Water  
 (c) C: eah  
**Mn(NO<sub>3</sub>)<sub>2</sub>·6H<sub>2</sub>O** Manganese(II) nitrate—6-Water  
 (c) C: eah fab fbf fbg  
 (liq) C: fab fae

**48-18-10-2**  
**MnCl<sub>2</sub>·NH<sub>3</sub>** Manganese(II) chloride—Ammonia  
 (c) C: fab  
**MnCl<sub>2</sub>·2NH<sub>3</sub>** Manganese(II) chloride—2-Ammonia  
 (c) C: fab  
**MnCl<sub>2</sub>·6NH<sub>3</sub>** Manganese(II) chloride—6-Ammonia  
 (c) C: fab  
**MnCl<sub>2</sub>·NH<sub>4</sub>Cl·2H<sub>2</sub>O** Manganese(II) chloride—2-Ammonium  
 chloride—2-Water  
 (c) C: fab

**48-18-11-2**  
**MnBr<sub>2</sub>·NH<sub>3</sub>** Manganese(II) bromide—Ammonia  
 (c) C: fab  
**MnBr<sub>2</sub>·2NH<sub>3</sub>** Manganese(II) bromide—2-Ammonia  
 (c) C: fab  
**MnBr<sub>2</sub>·6NH<sub>3</sub>** Manganese(II) bromide—6-Ammonia  
 (c) C: fab

**48-18-14-2-1**  
**MnSO<sub>4</sub>·½NH<sub>3</sub>** Manganese(II) sulfate—½-Ammonia  
 (c) C: fab  
**MnSO<sub>4</sub>·NH<sub>3</sub>** Manganese(II) sulfate—Ammonia  
 (c) C: fab  
**MnSO<sub>4</sub>·2NH<sub>3</sub>** Manganese(II) sulfate—2-Ammonia  
 (c) C: fab  
**MnSO<sub>4</sub>·5NH<sub>3</sub>** Manganese(II) sulfate—5-Ammonia  
 (c) C: fab  
**MnSO<sub>4</sub>·6NH<sub>3</sub>** Manganese(II) sulfate—6-Ammonia  
 (c) C: fab  
**MnSO<sub>4</sub>·(NH<sub>4</sub>)<sub>2</sub>SO<sub>4</sub>·2H<sub>2</sub>O** Manganese(II) sulfate—Ammonium sulfate—  
 2-Water  
 (c) C: fab  
**MnSO<sub>4</sub>·(NH<sub>4</sub>)<sub>2</sub>SO<sub>4</sub>·6H<sub>2</sub>O** Manganese(II) sulfate—Ammonium sulfate—  
 6-Water  
 (c) C: fab

**48-19**  
**Mn<sub>5</sub>P<sub>2</sub>** Pentamanganese diphosphide  
 (c) C: eah

**48-19-1**  
**Mn<sub>2</sub>(PO<sub>4</sub>)<sub>3</sub>** Dimanganese triorthophosphate  
 (c) C: fab

**48-21**  
**Mn<sub>2</sub>Sb** Dimanganese antimonide  
 (c) C: eah

**48-23**  
**Mn<sub>3</sub>C** Trimanganese carbide  
 (c, II, α) C: eaj faa fab fac fad fae  
 fbb fbc  
 E-XIII: fae(t) fai(t) fal(t) fbb  
 (c, β) E-XIII: fae fai(t) fal(t)  
 (c) E-VIII: faa(t) fab(t)  
 E-XI: fac fae(-t)  
 (soln. in Mn (liq)) E-VIII: faa(t) fab(t)

**48-23-1**  
**MnCO<sub>3</sub>** Manganese(II) carbonate  
 (c) C: faa fab fac fad fae  
 E-IV: faa(t) fab(t) fam(t) fan(t)  
 E-XI: fac fae(-t)  
 E-XIII: fae(t) fai(t) fal(t)  
 (c, ppt'd) C: fab  
 E-IV: faa fab  
 (aq) C: faa fab fac fad  
 E-IV: eam fam fap

**MnC<sub>2</sub>O<sub>4</sub>** Manganese(II) oxalate  
 (c) C: fab  
**MnC<sub>2</sub>O<sub>4</sub>·2H<sub>2</sub>O** Manganese(II) oxalate—2-Water  
 (c) C: fab  
**MnC<sub>2</sub>O<sub>4</sub>·3H<sub>2</sub>O** Manganese(II) oxalate—3-Water  
 (c) C: fab

**48-23-2-1**  
**MnC<sub>2</sub>H<sub>2</sub>O<sub>4</sub>** Manganese(II) formate  
 (c) C: fab  
 (aq) C: fab  
**MnC<sub>2</sub>H<sub>2</sub>O<sub>4</sub>·2H<sub>2</sub>O** Manganese(II) formate—2-Water  
 (c) C: fab  
**MnC<sub>4</sub>H<sub>8</sub>O<sub>4</sub>** Manganese(II) acetate  
 (c) C: fab  
 (aq) C: fab  
**MnC<sub>4</sub>H<sub>8</sub>O<sub>4</sub>·4H<sub>2</sub>O** Manganese(II) acetate—4-Water  
 (c) C: fab

**48-23-18-14-2**  
**Mn(SCN)<sub>2</sub>·C<sub>2</sub>H<sub>4</sub>(NH<sub>2</sub>)<sub>2</sub>(SCN)<sub>2</sub>** Manganese(II) thiocyanate—  
 Ethylenediamonium thiocyanate  
 (c) C: eah

**48-24-1**  
**MnSiO<sub>3</sub>** Manganese(II) metasilicate  
 (c, III) C: eaj  
 (c, II) C: eaj  
 (c, I) C: eah fbf fbg  
 E-V: eah fbf fbg  
 (gls) C: fab  
 (c) C: faa fab fac fad fae  
 E-XI: fac fae(-t)  
 E-XIII: fae(t) fai(t) fal(t)

**Mn<sub>2</sub>SiO<sub>4</sub>** Manganese(II) orthosilicate  
 (c) C: eah

**48-27-12**  
**MnI<sub>2</sub>·PbI<sub>2</sub>** Manganese(II) iodide—Lead(II) iodide  
 (c) C: fab  
**MnI<sub>2</sub>·PbI<sub>2</sub>·3H<sub>2</sub>O** Manganese(II) iodide—Lead(II) iodide—3-Water  
 (c) C: fab

**48-28-1**  
**MnO·B<sub>2</sub>O<sub>3</sub>** Manganese(II) oxide—Diboron trioxide  
 (c) C: eah  
**MnO·2B<sub>2</sub>O<sub>3</sub>** Manganese(II) oxide—2-Diboron trioxide  
 (c) C: eah  
**MnO·3B<sub>2</sub>O<sub>3</sub>** Manganese(II) oxide—3-Diboron trioxide  
 (c) C: eah

	<b>48-29</b>
Mn-Al	Manganese-Aluminum (c) F: fcf(x)
	<b>48-29-1</b>
MnAl <sub>2</sub> O <sub>4</sub>	Manganese(II) dialuminum tetroxide (c) E-XIII: fae(t)
	<b>48-33-1</b>
ZnMnO <sub>4</sub>	Zinc permanganate (aq) C: fae
	<b>48-36</b>
Mn-Cu	Manganese-Copper (c) F: fcc(x) fcd(x) fch(t) fcp(t) fcr(t) fct(t) fcv(x) fcw(x)
	<b>48-37</b>
Mn-Ag	Manganese-Silver (c) F: fcr(t) fct(t)
	<b>48-38</b>
MnAu	Manganese auride (c) C: eah
	<b>48-43</b>
MnPd	Manganese palladide (c) C: eah
	<b>48-45</b>
Mn-Ni	Manganese-Nickel (c) F: fch(t) fcp(t) fcr(t) fct(t)
	<b>48-47</b>
Mn-Fe	Manganese-Iron (c) F: fch fcl fcm fcp fcr(-) (liq) F: fca(x) fcb(x) fcc(x) fcd(x) fcv(x) fcw(x)
	<b>48-47-1</b>
MnFe <sub>2</sub> O <sub>4</sub>	Manganese di-iron tetroxide (c) C: eah E-XIII: fae(t)

**49 – Technetium – Tc**

	<b>49</b>
Tc	Technetium (c) C: fac D: eah fac(t,+t) fae(t,+t) faf(t,+t) fal(t,+t) fbf E-XIII: fae(t,+t) fai(t,+t) fal(t,+t) fbf (liq) D: eaq fac(+t) fae(+t) faf(+t) fal(+t) fbj E-XIII: fae fai(+t) fal(+t) (g) D: faa(t,+t) fab(t,+t) fac(t,+t) fad(t,+t) fae(t,+t) faf(t,+t) fai(t,+t) E-XIII: fae(t,+t) fai(t,+t) fal(t,+t)

	<b>49-1</b>
TcO <sub>2</sub>	Technetium dioxide (c) E-XII: faa(t) fab(t)
TcO <sub>3</sub>	Technetium(VI) oxide (c) E-XII: faa(t) fab(t)
Tc <sub>2</sub> O <sub>7</sub>	Technetium(VII) oxide (c) E-XII: faa(t) fab(t) (liq) E-XII: faa(t) fab(t)

**50 – Rhenium – Re**

	<b>50</b>
Re	Rhenium (c) C: eah fac fae D: eah fac(t,+t) fae(t,+t) faf(t,+t) fal(t,+t) fbf E-XIII: fae(t,+t) fai(t,+t) fal(t,+t) F: eah eal(t) fac fae(-,t,+t) faf(t,+t) fal(t,+t) fal(t,+t) fbn fbo (liq) D: eaq fbj F: eal(+t) (g) C: faa fab fac fad fae D: faa(t,+t) fab(t,+t) fac(t,+t) fad(t,+t) fae(t,+t) faf(t,+t) fal(t,+t) E-XI: fac E-XIII: fae(t,+t) fai(t,+t) fal(t,+t) F: fac fae(t,+t) faf(t,+t) fal(t,+t) fal(t,+t)
	<b>50-1</b>
ReO <sub>3</sub>	Rhenium(VI) oxide (c) C: eah fab E-XII: faa(t) fab(t) (liq) E-XII: faa(t) fab(t)
ReO <sub>4</sub>	Rhenium(VIII) oxide (c) C: eah
ReO <sub>4</sub> <sup>-</sup>	Perhenate ion (aq) C: fab
Re <sub>2</sub> O <sub>7</sub>	Rhenium(VII) oxide (c) C: eah fab fbf fbq E-III: eal(t) fbm(t) fbn E-V: eah fbf fbq E-XII: faa(t) fab(t) E-XIII: fae (liq) C: eaq fbj fbk E-III: eaq eal(t) fbi(t) fbj fbk E-XII: faa(t) fab(t) (g) E-XII: faa(t) fab(t)
Re <sub>2</sub> O <sub>8</sub>	Rhenium(VIII) octaoxide (c) C: fab E-V: eah fbf fbq E-XII: faa(t) fab(t) (liq) E-XII: faa(t) fab(t)
	<b>50-2-1</b>
HReO <sub>4</sub>	Perhenic acid (aq) C: fab(x)

**50-9**  
**ReF<sub>4</sub>** Rhenium(IV) fluoride  
 (c) C: eah

**ReF<sub>6</sub>** Rhenium(VI) fluoride  
 (c) C: eah fbf fbg  
 (liq) C: eaq fbj fbk  
 (g) C: fab  
 E-XIII: fae(t) fai(t) fal(t)

**50-9-1**  
**ReOF<sub>4</sub>** Rhenium(VI) oxide tetrafluoride  
 (c) C: eah eai fbn fbo

**50-10-1**  
**ReO<sub>3</sub>Cl** Rhenium(VII) trioxide chloride  
 (c) C: eah  
 (liq) C: eaq

**ReO<sub>2</sub>Cl<sub>3</sub>** Rhenium(VII) dioxide trichloride  
 (c) C: eah

**ReOCl<sub>4</sub>** Rhenium(VI) oxide tetrachloride  
 (c) C: eah

**50-14**  
**ReS<sub>2</sub>** Rhenium(IV) sulfide  
 (c) C: fab

**50-20**  
**ReAs<sub>2</sub>** Rhenium diarsenide  
 (c) C: fab

**50-32-1**  
**TlReO<sub>4</sub>** Thallium(I) perrhenate  
 (c) C: eah

**50-37-1**  
**AgReO<sub>4</sub>** Silver perrhenate  
 (c) C: eah

**51 – Chromium – Cr**

**51**  
**Cr** Chromium

(c, II) D: eaj fac(t,+t) fae(t,+t) fai(t,+t)  
 fai(t,+t) fbb

(c, I) D: eah fbf

(c) C: eah fac fae fbf fbg  
 E-III: eal(t) fbn(t) fbn(t)  
 E-V: eah fbf fbg  
 E-XI: fac fae(-t)  
 E-XIII: fae(t,+t) fai(t,+t) fal(t,+t)  
 fbf  
 F: fac fae(-t,+t) fai(t,+t) fai(t,+t)  
 fal(t,+t) fbf fbg fbn fbl(t,+t)  
 fbn(t,+t) fbn(t,+t)  
 (liq) D: eaq fac(+t) fae(+t) fai(+t)  
 fai(+t) fbj  
 E-III: eaq eal(t,+t) fbi(+t) fbj(+t)  
 fbk

E-XIII: fae fai(+t) fal(+t)  
 F: eal(+t) fae(+t) fai(+t) fai(+t)  
 fal(+t) fbi(+t) fbj(+t) fbk

(g) C: faa fab fac fad fae  
 D: faa(t,+t) fab(t,+t) fac(t,+t)  
 fae(t,+t) fai(t,+t) fai(t,+t)

E-III: fac  
 E-XI: fac  
 E-XIII: fae(t,+t) fai(t,+t) fal(t,+t)  
 F: fac fae(t,+t) fai(t,+t) fai(t,+t)  
 fal(t,+t)

**Cr<sup>+</sup>**  
 (g) C: fab

**Cr<sup>2+</sup>**  
 (g) C: fab  
 (aq) C: fab

**Cr<sup>3+</sup>**  
 (g) C: fab

**Cr<sup>4+</sup>**  
 (g) C: fab

**Cr<sup>6+</sup>**  
 (g) C: fab

**Cr<sup>6+</sup>**  
 (g) C: fab

**Cr<sup>7+</sup>**  
 (g) C: fab

**51-1**  
**CrO** Chromium(II) oxide  
 (g) C: fab  
 E-XII: faa(t) fab(t)

**CrO<sub>3</sub>** Chromium(VI) oxide  
 (c) C: fab  
 E-XII: faa(t) fab(t)  
 (liq) E-XII: faa(t) fab(t)  
 (aq) C: fab(x)

**CrO<sub>4</sub><sup>2-</sup>** Chromate ion  
 (aq) C: faa fab fac fad  
 E-XI: fac

**Cr<sub>2</sub>O<sub>3</sub>** Chromium(III) oxide  
 (c, II) C: eaj  
 (c, I, β) C: fbh  
 E-XII: faa(+t) fab(+t)  
 E-XIII: fae(t) fai(t) fal(t)  
 (c) C: faa fab fac fad fae  
 E-XI: fac fae(-t)

**Cr<sub>2</sub>O<sub>3</sub>·H<sub>2</sub>O** Chromium(III) oxide–Water  
 (c) C: fab

**Cr<sub>2</sub>O<sub>3</sub>·2H<sub>2</sub>O** Chromium(III) oxide–2–Water  
 (c) C: fab

**Cr<sub>2</sub>O<sub>3</sub>·3H<sub>2</sub>O** Chromium(III) oxide–3–Water  
 (c) C: fab

**Cr<sub>2</sub>O<sub>7</sub><sup>2-</sup>** Dichromate ion  
 (aq) C: faa fab fac fad

**Cr<sub>2</sub>O<sub>8</sub><sup>2-</sup>** Nonaoxidichromate(2-) ion  
 (aq) C: fab

**51-2**  
**Cr<sub>7</sub>H<sub>2</sub>** Heptachromium dihydride  
 (c) C: fab

**CHROMIUM**  
51-2-1  $\text{HCrO}_4^-$

**51-2-1**  
 $\text{HCrO}_4^-$  Hydrogen chromate ion  
 (aq) C: faa fab fac fad  
 $\text{H}_2\text{CrO}_4$  Chromic acid  
 (aq) C: faa fab(x) fac fad  
 $\text{Cr}(\text{OH})_3$  Chromium(III) hydroxide  
 (c) C: fab  
 $[\text{Cr}(\text{H}_2\text{O})_6]^{3+}$  Hexaquo chromium(III) ion  
 (aq) C: fab  
 $[\text{Cr}(\text{H}_2\text{O})_5(\text{OH})]^{2+}$  Hydroxopentaquo chromium(III) ion  
 (aq) C: fab  
 $[\text{Cr}(\text{H}_2\text{O})_4(\text{OH})_2]^+$  Dihydroxotetraquo chromium(III) ion  
 (aq) C: fab  
 $[\text{Cr}(\text{H}_2\text{O})_4(\text{OH})_2]\text{OH}$  Dihydroxotetraquo chromium(III) hydroxide  
 (c) C: fab  
 $[\text{Cr}(\text{H}_2\text{O})_3(\text{OH})_3]$  Hydroxopentaquo chromium(III) hydroxide  
 (c) C: fab  
 $\text{HCr}_2\text{O}_6^-$  Hydrogen nonaoxodichromate(2-) ion  
 (aq) C: fab

**51-9**  
 $\text{CrF}_2$  Chromium(II) fluoride  
 (c) C: fab  
 $\text{CrF}_3$  Chromium(III) fluoride  
 (c) C: fab

**51-9-2-1**  
 $[\text{Cr}(\text{H}_2\text{O})_6]\text{F}_3$  Hexaquo chromium(III) fluoride  
 (aq) C: fab  
 $\text{H}_3[\text{Cr}(\text{H}_2\text{O})_6]\text{F}_6$  Trihydrogen hexaquo chromium(III) fluoride  
 (aq) C: fab

**51-10**  
 $\text{CrCl}_2$  Chromium(II) chloride  
 (c) C: eah eai faa fab fac fad  
 fae fbf fbq fbn fbo  
 E-XI: fac fae(-t)  
 E-XIII: fae(t)  
 (aq) C: fab  
 $\text{CrCl}_2 \cdot 2\text{H}_2\text{O}$  Chromium(II) chloride-2-Water  
 (c) C: fab  
 $\text{CrCl}_2 \cdot 3\text{H}_2\text{O}$  Chromium(II) chloride-3-Water  
 (c) C: fab  
 $\text{CrCl}_2 \cdot 4\text{H}_2\text{O}$  Chromium(II) chloride-4-Water  
 (c) C: fab  
 $\text{CrCl}_3$  Chromium(III) chloride  
 (c) C: faa fab fac fad fae  
 E-XI: fac fae(-t)  
 (g) C: fab  
 E-XIII: fae(t)

**51-10-1**  
 $\text{CrO}_2\text{Cl}_2$  Chromyl chloride (Chromium oxychloride)  
 (liq) C: eaq fab fbj fbk  
 E-III: eaq eal(-t,t) fbi(t) fbj(t)  
 fbk

**51-10-2-1**  
 $[\text{Cr}(\text{H}_2\text{O})_5\text{Cl}]^{2+}$  Chloropentaquo chromium(III) ion  
 (aq) C: fab  
 $[\text{Cr}(\text{H}_2\text{O})_4(\text{OH})_2]\text{Cl}$  Dihydroxotetraquo chromium(III) chloride  
 (aq) C: fab

$[\text{Cr}(\text{H}_2\text{O})_4\text{Cl}_2]^+$  Dichlorotetraquo chromium(III) ion  
 (aq) C: fab  
 $[\text{Cr}(\text{H}_2\text{O})_5\text{OH}]\text{Cl}_2$  Hydroxopentaquo chromium(III) chloride  
 (aq) C: fab  
 $[\text{Cr}(\text{H}_2\text{O})_4\text{Cl}_2]\text{Cl}$  Dichlorotetraquo chromium(III) chloride  
 (c) C: fab  
 (aq) C: fab  
 $[\text{Cr}(\text{H}_2\text{O})_4\text{Cl}_2]\text{Cl} \cdot 2\text{H}_2\text{O}$  Dichlorotetraquo chromium(III) chloride-2-Water  
 (c) C: fab  
 $[\text{Cr}(\text{H}_2\text{O})_4\text{Cl}_2]\text{Cl} \cdot 6\text{H}_2\text{O}$  Dichlorotetraquo chromium(III) chloride-6-Water  
 (c) C: fab  
 $[\text{Cr}(\text{H}_2\text{O})_5\text{Cl}]\text{Cl}_2$  Chloropentaquo chromium(III) chloride  
 (aq) C: fab  
 $[\text{Cr}(\text{H}_2\text{O})_6]\text{Cl}_3$  Hexaquo chromium(III) chloride  
 (c) C: fab  
 (aq) C: fab

**51-11**  
 $\text{CrBr}_2$  Chromium(II) bromide  
 (c) C: eah

**51-11-2-1**  
 $[\text{Cr}(\text{H}_2\text{O})_4\text{Br}_2]\text{Br}$  Dibromotetraquo chromium(III) bromide  
 (aq) C: fab  
 $[\text{Cr}(\text{H}_2\text{O})_4\text{Br}_2]\text{Br} \cdot 2\text{H}_2\text{O}$  Dibromotetraquo chromium(III) bromide-2-Water  
 (c) C: fab  
 $[\text{Cr}(\text{H}_2\text{O})_6]\text{Br}_3$  Hexaquo chromium(III) bromide  
 (c) C: fab  
 (aq) C: fab

**51-12**  
 $\text{CrI}_2$  Chromium(II) iodide  
 (c) C: eah fab  
 (aq) C: fab

**51-14-1**  
 $\text{Cr}_2(\text{SO}_4)_3$  Chromium(III) sulfate  
 (c) E-XIII: fae  
 $\text{Cu}(\text{SO}_4)_6 \cdot 18\text{H}_2\text{O}$  Chromium(VI) sulfate-18-Water  
 (c) E-XIII: fae

**51-14-2-1**  
 $[\text{Cr}_2(\text{H}_2\text{O})_8(\text{SO}_4)_3]$  Tris(sulfato)hexaquadichromium(III)  
 (aq) C: fab  
 $[\text{Cr}_2(\text{H}_2\text{O})_8(\text{SO}_4)_3] \cdot 2\text{H}_2\text{O}$  Tris(sulfato)hexaquadichromium(III)-2-Water  
 (c) C: fab  
 $[\text{Cr}_2(\text{H}_2\text{O})_8(\text{SO}_4)_2]\text{SO}_4$  Bis(sulfato)octaquadichromium(III) Sulfate  
 (aq) C: fab  
 $[\text{Cr}_2(\text{H}_2\text{O})_{10}(\text{SO}_4)](\text{SO}_4)_2$  Sulfatodeca-aquadichromium(III) sulfate  
 (c) C: fab  
 $[\text{Cr}_2(\text{H}_2\text{O})_{12}](\text{SO}_4)_3$  Dodeca-aquadichromium(III) sulfate  
 (aq) C: fab  
 $[\text{Cr}_2(\text{H}_2\text{O})_{12}](\text{SO}_4)_3 \cdot 2\text{H}_2\text{O}$  Dodeca-aquadichromium(III) sulfate-2-Water  
 (c) C: fab

$[\text{Cr}_2(\text{H}_2\text{O})_{12}](\text{SO}_4)_3 \cdot 3\text{H}_2\text{O}$  Dodeca-aquodichromium(III) sulfate—  
3-Water  
(c) C: fab

$[\text{Cr}_2(\text{H}_2\text{O})_{12}](\text{SO}_4)_3 \cdot 4\text{H}_2\text{O}$  Dodeca-aquodichromium(III) sulfate—  
4-Water  
(c) C: fab

$[\text{Cr}_2(\text{H}_2\text{O})_{12}](\text{SO}_4)_3 \cdot 5\text{H}_2\text{O}$  Dodeca-aquodichromium(III) sulfate—  
5-Water  
(c) C: fab

$[\text{Cr}_2(\text{H}_2\text{O})_{12}](\text{SO}_4)_3 \cdot 6\text{H}_2\text{O}$  Dodeca-aquodichromium(III) sulfate—  
6-Water  
(c) C: fab

51-18

CrN Chromium(III) nitride  
(c) C: fab  
E-VIII: faa(t) fab(t)  
E-XIII: fae

Cr<sub>2</sub>N Dichromium nitride  
(c) C: fab  
E-XIII: fae(t)

51-18-1

Cr(NO<sub>3</sub>)<sub>3</sub>·9H<sub>2</sub>O Chromium(III) nitrate—9-Water  
(c) E-XIII: fae

51-18-2-1

(NH<sub>4</sub>)<sub>2</sub>CrO<sub>4</sub> Ammonium chromate  
(c) C: fab  
(aq) C: fab

(NH<sub>4</sub>)<sub>2</sub>Cr<sub>2</sub>O<sub>7</sub> Ammonium dichromate  
(c) C: fab  
(aq) C: fab

51-18-14-2-1

NH<sub>4</sub>Cr(SO<sub>4</sub>)<sub>2</sub>·12H<sub>2</sub>O Ammonium chromium(III) sulfate—12-Water  
(Chrome alum)  
(c) C: eah fab

51-21

CrSb Chromium antimonide  
(c) C: eah fae  
E-XIII: fae(t)

CrSb<sub>2</sub> Chromium diantimonide  
(c) C: fae  
E-XIII: fae(t)

51-23

Cr<sub>3</sub>C<sub>2</sub> Trichromium dicarbide  
(c) C: faa fab fac fad fae  
E-VIII: faa(t) fab(t) fam(t) fan(t)  
E-XI: fac fae(-t)  
E-XIII: fae(t) fai(t) fal(t)

Cr<sub>4</sub>C Tetrachromium carbide  
(c) C: faa fab fac fad fae  
E-XI: fac fae(-t)

Cr<sub>5</sub>C<sub>2</sub> Pentachromium dicarbide  
(c) E-VIII: faa(t) fab(t) fam(t) fan(t)

Cr<sub>7</sub>C<sub>6</sub> Heptachromium tricarbide  
(c) C: faa fab fac fad fae  
E-XI: fac fae(-t)  
E-XIII: fae(t) fai(t) fal(t)

Cr<sub>23</sub>C<sub>6</sub> 23-Chromium hexacarbide  
(c) E-XIII: fae(t) fai(t) fal(t)

51-23-1

Cr(CO)<sub>6</sub> Hexacarbonylchromium  
(c) C: eai fbn fbo  
E-XIII: fae

51-24

CrSi Chromium monosilicide  
(c) C: eah

CrSi<sub>2</sub> Chromium disilicide  
(c) C: eah

51-27-1

PbCrO<sub>4</sub> Lead(II) chromate  
(c, III) C: eaj  
(c, II) C: eaj  
(c) C: fab  
E-XIII: fae

PbCrO<sub>4</sub>·PbO Lead(II) chromate—Lead(II) oxide  
(c) C: eah

51-27-12

2CrI<sub>2</sub>·PbI<sub>2</sub> 2-Chromium(II) iodide—Lead(II) iodide  
(c) C: fab

2CrI<sub>2</sub>·PbI<sub>2</sub>·3H<sub>2</sub>O 2-Chromium(II) iodide—Lead(II) iodide—3-Water  
(c) C: fab

51-29

Cr-Al Chromium-Aluminum  
(c) F: fcf(x)

51-32-14-1

TlCr(SO<sub>4</sub>)<sub>2</sub>·12H<sub>2</sub>O Thallium(I) chromium(III) sulfate—12-Water  
(c) C: eah

51-33-1

ZnCr<sub>2</sub>O<sub>4</sub> Zinc dichromium(III) tetroxide  
(c) E-XIII: fae(t)

51-37-1

Ag<sub>2</sub>CrO<sub>4</sub> Silver chromate  
(c) C: faa fab fac fad fae  
E-XI: fac fae(-t)  
E-XIII: fae

51-43

Cr<sub>3</sub>Pd<sub>2</sub> Trichromium dipalladide  
(c) C: eah

51-45

Cr-Ni Chromium-Nickel  
(c) F: fcb(x) fcc(x) fcd(x) fcf(x) fch(t) fcp(t)  
fcr(t) fct(t) fcv(x) fcw(x)

51-47

Cr-Fe Chromium-Iron  
(c) F: fca(x) fcb(x) fcc(x) fcd(x) fcf(x) fcg(x)  
fch(t) fcl(x) fcm(x) fcn(x) fco(x) fcp(t)  
fcr(t) fct(t) fcv(x) fcw(x)  
(liq) F: fca(x) fcb(x) fcc(x) fcd(x) fcv(x) fcw(x)

**51-47-1**  
FeCr<sub>2</sub>O<sub>4</sub> Iron(II) dichromium(III) tetroxide  
(c) C: faa fab fac fad fae  
E-XI: fac fae(-t)  
E-XIII: fae(t) fai(t) fal(t)

**51-48-1**  
MnCr<sub>2</sub>O<sub>4</sub> Manganese dichromium tetroxide  
(c) E-XIII: fae(t)

## 52 – Molybdenum – Mo

**52**  
Mo Molybdenum  
(c) C: eah fac fae  
D: eah fac(+t) fae(+t) faf(+t)  
fai(+t) fbf  
E-III: fbm(+t) fbn(+t)  
E-V: eah fbf fbq  
E-XI: fac fae(-t)  
E-XIII: fae(+t) fai(+t) fal(+t)  
fbf  
F: eah eal(+t) fac fae(-t,t,+t)  
faf(+t) fai(+t) fal(+t)  
fbf fbq fbm(+t) fbn(+t)  
(liq) D: eaq fac(+t) fae(+t) faf(+t)  
fai(+t)fbj  
E-III: eaq eal(+t) fbi(+t)fbj(+t)  
fbk  
E-XIII: fae fai(+t) fal(+t)  
F: eal(+t) fae(+t) faf(+t) fai(+t)  
fal(+t) fbi(+t) fbj(+t) fbk  
(g) C: faa fab fac fad fae  
D: faa(+t) fab(+t) fac(+t)  
fad(+t) fae(+t) faf(+t)  
fai(+t)  
E-III: fac  
E-XI: fac  
E-XIII: fae(+t) fai(+t) fal(+t)  
F: fac fae(+t) faf(+t) fai(+t)  
fal(+t)

Mo<sup>+</sup>  
(g) C: fab

**52-1**  
MoO<sub>2</sub> Molybdenum(IV) oxide  
(c) C: fab  
E-XII: faa(t) fab(t)  
MoO<sub>3</sub> Molybdenum(VI) oxide  
(c) C: eah eal faa fab fac fad  
fae fbn fbo  
E-III: eal(t)  
E-V: eah fbf fbq  
E-XI: fac fae(-t)  
E-XII: faa(t) fab(t)  
E-XIII: fae(t) fai(t) fal(t) fbf

(liq) C: eaq fbj fbk  
E-III: eaq eal(t)  
E-XII: faa(t) fab(t)  
E-XIII: fae fai(t) fal(t)

(aq) C: fab  
MoO<sub>4</sub><sup>2-</sup> Tetroxomolybdate(VI) ion

(aq) C: fab  
MoO<sub>5</sub> Molybdenum pentoxide  
(aq) C: fab

**52-2-1**  
H<sub>2</sub>MoO<sub>4</sub> Tetroxomolybdic(VI) acid  
(c) C: fab  
(aq) C: fab  
H<sub>2</sub>MoO<sub>4</sub>·H<sub>2</sub>O Tetroxomolybdic(VI) acid–Water  
(c) C: fab

**52-9**  
MoF<sub>6</sub> Molybdenum(VI) fluoride  
(c) C: eah eai fbf fbq fbn fbo  
E-III: eal(-t,t) fbm(-t,t) fbn  
E-V: eah fbf fbq  
(liq) C: eaq fbj fbk  
E-III: eaq eal(t) fbi(-t,t) fbj  
fbk  
(g) E-XIII: fae(t) fai(t) fal(t)

**52-9-1**  
MoOF<sub>4</sub> Molybdenum(VI) oxide tetrafluoride  
(c) C: eah

**52-10**  
MoCl<sub>2</sub> Molybdenum(II) chloride  
(c) C: fab  
MoCl<sub>3</sub> Molybdenum(III) chloride  
(c) C: fab  
MoCl<sub>4</sub> Molybdenum(IV) chloride  
(c) C: fab  
MoCl<sub>5</sub> Molybdenum(V) chloride  
(c) C: eah fab  
(liq) C: eaq  
MoCl<sub>6</sub> Molybdenum(VI) chloride  
(c) C: fab

**52-11**  
MoBr<sub>2</sub> Molybdenum(II) bromide  
(c) C: fab  
MoBr<sub>3</sub> Molybdenum(III) bromide  
(c) C: fab  
MoBr<sub>4</sub> Molybdenum(IV) bromide  
(c) C: fab  
MoBr<sub>5</sub> Molybdenum(V) bromide  
(c) C: fab

**52-12**  
MoI<sub>2</sub> Molybdenum(II) iodide  
(c) C: fab  
MoI<sub>3</sub> Molybdenum(III) iodide  
(c) C: fab  
MoI<sub>4</sub> Molybdenum(IV) iodide  
(c) C: fab

<b>MoI<sub>5</sub></b>	Molybdenum(V) iodide (c) C: fab
<b>52-14</b>	
<b>MoS<sub>2</sub></b>	Molybdenum(IV) sulfide (c, molybdenite) E-XI: fac fae(-t) (c) C: faa fab fac fad fae E-VII: faa(t) fab(t) fam(t) fan(t) E-XIII: fae(t)
<b>MoS<sub>2</sub></b>	Molybdenum(VI) sulfide (c) C: fab E-VII: faa(t) fab(t) fam(t) fan(t) E-XI: fac
<b>52-18</b>	
<b>Mo<sub>2</sub>N</b>	Dimolybdenum nitride (c) E-XIII: fae(t) fai(t) fal(t)
<b>52-22-1</b>	
<b>Bi<sub>2</sub>(MoO<sub>4</sub>)<sub>3</sub></b>	Bismuth(III) tetroxomolybdate(VI) (c) C: eah
<b>52-23</b>	
<b>MoC</b>	Molybdenum(IV) carbide (c) C: eah
<b>Mo<sub>2</sub>C</b>	Molybdenum(III) carbide (c) C: eah faa fab fac fad E-VIII: faa(t) fab(t) fam(t) fan(t)
<b>52-23-1</b>	
<b>Mo(CO)<sub>6</sub></b>	Hexacarbonylmolybdenum (c) C: eai fbn fbo E-XIII: fae
<b>52-24</b>	
<b>MoSi<sub>2</sub></b>	Molybdenum disilicide (c) E-XIII: fae(t) fai(t) fal(t)
<b>Mo<sub>3</sub>Si</b>	Trimolybdenum silicide (c) E-XIII: fae(t) fai(t) fal(t)
<b>52-27-1</b>	
<b>PbMoO<sub>4</sub></b>	Lead(II) tetroxomolybdate(VI) (c) C: eah fab E-V: eah fbf fbq E-XIII: fae
<b>PbMoO<sub>4</sub>·PbO</b>	Lead(II) tetroxomolybdate(VI)—Lead(II) oxide (c) C: eah
<b>52-36-1</b>	
<b>CuMoO<sub>4</sub></b>	Cooper(II) tetroxomolybdate(VI) (c) C: fab
<b>52-47-1</b>	
<b>FeMoO<sub>4</sub></b>	Iron(II) tetroxomolybdate(VI) (c) C: fab
<b>Fe<sub>2</sub>(MoO<sub>4</sub>)<sub>3</sub></b>	Iron(III) tetroxomolybdate(VI) (c) C: fab

**53 – Tungsten – W**

<b>53</b>	
<b>W</b>	Tungsten (c) C: eah fac fae D: eah fac(t,+t) fae(t,+t) fai(t,+t) fbf E-III: fbn(t,+t) fbn(t,+t) E-V: eah fbf fbq E-XI: fac fae(-t) E-XIII: fae(t,+t) fai(t,+t) fal(t,+t) F: eah eal(t,+t) fac fae(-t,t,+t) fbf fbq fbn(t,+t) fbn(t,+t)
(liq)	D: eaq fbj E-III: eaq eal(+t) fbi(+t) fbi(+t) fbk F: eal(+t) fae(+t) fai(+t) fal(+t)
(g)	C: faa fab fac fad fae D: faa(t,+t) fab(t,+t) fac(t,+t) fad(t,+t) fae(t,+t) fai(t,+t) E-III: fac E-XI: fac E-XIII: fae(t,+t) fai(t,+t) fal(t,+t) F: fac fae(t,+t) fai(t,+t) fal(t,+t)
<b>W<sup>+</sup></b>	(g) C: fab
<b>53-1</b>	
<b>WO<sub>2</sub></b>	Tungsten(IV) oxide (c) C: fab E-XII: faa(t) fab(t)
<b>WO<sub>3</sub></b>	Tungsten(VI) oxide (c) C: eah eai faa fab fac fad fae fbn fbo E-XI: fac fae(-t) E-XII: faa(t) fab(t) E-XIII: fae(t) (liq) E-XII: faa(t) fab(t)
<b>WO<sub>4</sub><sup>2-</sup></b>	Tetroxotungstate(VI) ion (aq) C: fab
<b>W<sub>2</sub>O<sub>5</sub></b>	Tungsten(V) oxide (c) C: fab
<b>W<sub>4</sub>O<sub>11</sub></b>	Tetratungsten undecaoxide (c) E-XII: faa(t) fab(t)
<b>53-2-1</b>	
<b>H<sub>2</sub>WO<sub>4</sub></b>	Tetroxotungstic(VI) acid (c) C: fab
<b>53-9</b>	
<b>WF<sub>6</sub></b>	Tungsten(VI) fluoride (c, II) C: eaj fbb fbc (c, I) C: eah fbf fbq E-III: eal(-t) fbn(-t,t) fbn(-t,t) E-V: eah fbf fbq



**TUNGSTEN**  
53-9 WFs

	(liq) E-III:	eag	eal(t)	fbi(-t,t)	fbj(-t,t)				
		fbk							
	(g) E-XIII:	fae(t)	fai(t)	fal(t)					
	<b>53-9-1</b>								
WOF <sub>4</sub>	Tungsten(VI) oxide tetrafluoride								
	(c) C:	eah							
	(liq) C:	eag							
	<b>53-10</b>								
WCl <sub>2</sub>	Tungsten(II) chloride								
	(c) C:	fab							
WCl <sub>4</sub>	Tungsten(IV) chloride								
	(c) C:	fab							
WCl <sub>5</sub>	Tungsten(V) chloride								
	(c) C:	eah	fab						
	(liq) C:	eag							
WCl <sub>6</sub>	Tungsten(VI) chloride								
	(c, III) C:	ej							
	(c, II) C:	eai	ej	fbf	fbg	fbi	fbo		
	(c, I) C:	eah	eai	fbf	fbg	fbi	fbo		
	(c) C:	fab							
	(liq) C:	eag	fbj	fbk					
	<b>53-10-1</b>								
WOCl <sub>4</sub>	Tungsten(VI) oxide tetrachloride								
	(c) C:	eah	eai	fbf	fbg	fbi	fbo		
	(liq) C:	eag	fbj	fbk					
	<b>53-11</b>								
WBBr <sub>2</sub>	Tungsten(II) bromide								
	(c) C:	fab							
WBBr <sub>4</sub>	Tungsten(IV) bromide								
	(c) C:	fab							
WBBr <sub>5</sub>	Tungsten(V) bromide								
	(c) C:	eah	fab						
	(liq) C:	eag							
WBBr <sub>6</sub>	Tungsten(VI) bromide								
	(c) C:	fab							
	<b>53-11-1</b>								
WOBBr <sub>4</sub>	Tungsten(VI) oxide tetrabromide								
	(c) C:	eah							
	(liq) C:	eag							
	<b>53-11-10</b>								
3WBBr <sub>5</sub> ·WCl <sub>6</sub>	3-Tungsten(VI) bromide—Tungsten(VI) chloride								
	(c) C:	eah							
	<b>53-12</b>								
WI <sub>2</sub>	Tungsten(II) iodide								
	(c) C:	fab							
WI <sub>4</sub>	Tungsten(IV) iodide								
	(c) C:	fab							
WI <sub>5</sub>	Tungsten(V) iodide								
	(c) C:	fab							
	<b>53-14</b>								
WS <sub>2</sub>	Tungsten(IV) sulfide								
	(c) C:	faa	fab	fac	fad				
	E-VII:	faa(t)	fab(t)	fam(t)	fan(t)				

	<b>53-22-1</b>								
Bi <sub>2</sub> (WO <sub>4</sub> ) <sub>3</sub>	Bismuth(III) tetroxotungstate(VI)								
	(c) C:	eah							
	<b>53-23</b>								
WC	Tungsten(IV) carbide								
	(c) C:	eah	fab						
W <sub>2</sub> C	Tungsten(II) carbide								
	(c) C:	eah							
	<b>53-23-1</b>								
W(CO) <sub>6</sub>	Hexacarbonyltungsten								
	(c) C:	eai	fbi	fbo					
	E-XIII:	fae							
	<b>53-27-1</b>								
PbWO <sub>4</sub>	Lead(II) tetroxotungstate(VI)								
	(c, II) C:	ej							
	(c, I) C:	eah							
	E-V:	eah	fbf	fbg					
	E-XIII:	fae(t)	fai(t)	fal(t)					
PbWO <sub>4</sub> ·PbO	Lead(II) tetroxotungstate(VI)—Lead(II) oxide								
	(c) C:	eah							
	<b>53-34-1</b>								
CdWO <sub>4</sub>	Cadmium tetroxotungstate(VI)								
	(c) E-XIII:	fae(t)	fai(t)	fal(t)					
	<b>53-36-1</b>								
CuWO <sub>4</sub>	Copper(II) tetroxotungstate(VI)								
	(c) C:	fab							
CuWO <sub>4</sub> ·2H <sub>2</sub> O	Copper(II) tetroxotungstate(VI)—2-Water								
	(c) C:	fab							
	<b>53-47-1</b>								
FeWO <sub>4</sub>	Iron(II) tetroxotungstate(VI)								
	(c) C:	fab							
FeWO <sub>4</sub> ·3H <sub>2</sub> O	Iron(II) tetroxotungstate(VI)—3-Water								
	(c) C:	fab							
Fe <sub>2</sub> (WO <sub>4</sub> ) <sub>3</sub> ·8H <sub>2</sub> O	Iron(III) tetroxotungstate(VI)—8-Water								
	(c) C:	fab							
	<b>53-50</b>								
W <sub>2</sub> Re <sub>3</sub>	Ditungsten trirhenide								
	(c) C:	eah							

**54 - Vanadium - V**

	<b>54</b>								
	Vanadium								
	(c) C:	eah	fac	fae					
	D:	eah	fac(t,+)	fae(t,+)	faf(t,+)				
		fai(t,+)	fbf						
	E-XI:	fac	fae(-)						
	E-XIII:	fae(t,+)	fai(t,+)	fal(t,+)					
		fbf							
	F:	eah	eal(t,+)	fac	fae(-t,+)				
		faf(t,+)	fai(t,+)	fal(t,+)					
		fbi	fbo						

(liq) D: eaq fac(+) fae(+) faf(+)  
 fai(+t)fbj  
 E-XIII: fae fai(+t)fal(+t)  
 F: eal(+t) fae(+t) faf(+t)fai(+t)  
 fal(+t)  
 (g) C: faa fab fac fad fae  
 D: faa(t,+t) fab(t,+t) fac(t,+t)  
 fad(t,+t) fae(t,+t) faf(t,+t)  
 fai(t,+t)  
 E-XI: fac  
 E-XIII: fae(t,+t) fai(t,+t) fal(t,+t)  
 F: fac fae(t,+t) faf(t,+t) fai(t,+t)  
 fal(t,+t)

V<sup>+</sup>

(g) C: fab

V<sup>2+</sup>

(g) C: fab

V<sup>3+</sup>

(g) C: fab

V<sup>4+</sup>

(g) C: fab

V<sup>5+</sup>

(g) C: fab

V<sup>6+</sup>

(g) C: fab

V<sup>7+</sup>

(g) C: fab

V<sup>8+</sup>

(g) C: fab

54-1

VO

Vanadium(II) oxide

(c) E-XII: faa(t) fab(t)  
 E-XIII: fae(t) fai(t) fal(t)  
 (g) C: fab  
 E-XI: fac  
 E-XII: faa(t) fab(t)  
 E-XIII: fae(t) fai(t) fal(t)

VO<sub>4</sub><sup>-</sup>

Tetroxovanadate(1-) ion

(aq) C: fab

VO<sub>5</sub><sup>-</sup>

Pentoxovanadate(1-) ion

(aq) C: fab

V<sub>2</sub>O<sub>2</sub>

Vanadium(II) dioxide

(c) C: fab

V<sub>2</sub>O<sub>3</sub>

Vanadium(III) oxide

(c) C: eah faa fab fac fad fae  
 E-XI: fac fae(-t)  
 E-XII: faa(t) fab(t)  
 E-XIII: fae(t) fai(t) fal(t)

V<sub>2</sub>O<sub>4</sub>

Divanadium tetraoxide

(c, II, α) C: eaj faa fab fac fad  
 fae fbb fbc fbd  
 E-XI: fac fae(-t)  
 E-XII: faa(t) fab(t)  
 E-XIII: fae fai fal fbb  
 (c, I, β) C: eah fbf fbq fbh  
 E-XII: faa(t) fab(t)  
 E-XIII: fae(t) fai(t) fal(t) fbf  
 (liq) E-XII: faa(t) fab(t)  
 E-XIII: fae fai(t) fal(t)

V<sub>2</sub>O<sub>5</sub>

Vanadium(V) oxide

(c) C: eah faa fab fac fad fae  
 fbf fbq fbh  
 E-VII: fam(t) fan(t)  
 E-XI: fac fae(-t)  
 E-XII: faa(t) fab(t)  
 E-XIII: fae(t) fai(t) fal(t) fbf  
 (liq) E-XII: faa(t) fab(t)  
 E-XIII: fae fai(t) fal(t)

V<sub>3</sub>O<sub>9</sub><sup>3-</sup>

Nonaoxovanadate(V) ion

(aq) C: fab

V<sub>6</sub>O<sub>13</sub>

Hexavanadium tridecaoxide

(c) E-XII: faa(t) fab(t)

54-2-1

HV<sub>6</sub>O<sub>17</sub><sup>3-</sup> Hydrogen heptadeca-oxovanadate(V) ion

(aq) C: faa fad

H<sub>2</sub>V<sub>6</sub>O<sub>17</sub><sup>4-</sup> Dihydrogen heptadeca-oxovanadate(V) ion

(aq) C: faa fad

54-9

VF<sub>5</sub>

Vanadium(V) fluoride

(c) C: eal

54-10

VCl<sub>2</sub>

Vanadium(II) chloride

(c) C: faa fab fac fad fae  
 E-XI: fac fae(-t)  
 E-XIII: fae(t) fai(t) fal(t)

VCl<sub>3</sub>

Vanadium(III) chloride

(c) C: faa fab fac fad fae  
 E-XI: fac fae(-t)  
 E-XIII: fae(t) fai(t) fal(t)

VCl<sub>4</sub>

Vanadium(IV) chloride

(c) C: eah  
 (liq) C: eaq fab fbj fbk

54-10-1

VOCl<sub>3</sub>

Vanadyl(V) chloride

(c) C: eah fab  
 (liq) C: eaq fbj fbk  
 (g) E-XIII: fae(t) fai(t) fal(t)

54-14-1

VOSO<sub>4</sub>

Vanadyl(IV) sulfate

(c) C: fab  
 E-VII: faa fab fam(t) fan(t)

54-18

VN

Vanadium(III) nitride

(c) C: eah faa fab fac fad fae  
 E-VIII: faa(t) fab(t)  
 E-XI: fac fae(-t)  
 E-XIII: fae(t) fai(t) fal(t)

54-18-2-1

NH<sub>4</sub>VO<sub>3</sub>

Ammonium trioxovanadate(V)

(c) C: faa fab fac fad fae  
 E-XI: fac fae(-t)  
 E-XIII: fae(t) fai(t) fal(t)

**VANADIUM**

54-18-14-2-1  $\text{NH}_4\text{V}(\text{SO}_4)_2 \cdot 12\text{H}_2\text{O}$

54-18-14-2-1  
 $\text{NH}_4\text{V}(\text{SO}_4)_2 \cdot 12\text{H}_2\text{O}$  Ammonium vanadium(III) sulfate-12-Water  
 (c) C: eah

54-23  
 VC Vanadium(IV) carbide  
 (c) C: eah fac fae  
 E-XI: fac fae(-t)  
 E-XIII: fae(t) fai(t) fal(t)

54-24  
 $\text{VSi}_2$  Vanadium disilicide  
 (c) C: eah

54-27-1  
 $\text{V}_2\text{O}_5 \cdot 2\text{PbO}$  Vanadium(V) oxide-2-Lead(II) oxide  
 (c) C: eah  
 $\text{V}_2\text{O}_5 \cdot 3\text{PbO}$  Vanadium(V) oxide-3-Lead(II) oxide  
 (c) C: eah  
 $\text{V}_2\text{O}_5 \cdot 8\text{PbO}$  Vanadium(V) oxide-8-Lead(II) oxide  
 (c) C: eah

54-27-9-1  
 $3\text{Pb}_3(\text{VO}_4)_2 \cdot \text{PbF}_2$  3-Lead(II) tetroxovanadate(V)-Lead(II) fluoride  
 (c) C: eah

54-27-10-1  
 $3\text{Pb}_3(\text{VO}_4)_2 \cdot \text{PbCl}_2$  3-Lead(II) tetroxovanadate(V)-Lead(II) chloride  
 (c, II) C: eaq  
 (c, I) C: eah

54-32-14-1  
 $\text{TlV}(\text{SO}_4)_2 \cdot 12\text{H}_2\text{O}$  Thallium(I) vanadium(III) sulfate-12-Water  
 (c) C: eah

**55 - Niobium - Nb**

55  
 Nb Niobium (Columbium)  
 (c) C: eah eai fac fbn fbo  
 D: eah fac(t,+t) fae(t,+t) faf(t,+t)  
 fai(t,+t) fbf  
 E-XIII: fae(t,+t) fai(t,+t) fal(t,+t)  
 fbf  
 (liq) D: eaq fac(+t) fae(+t) faf(+t)  
 fai(+t)fbj  
 E-XIII: fae fai(+t) fal(+t)  
 (g) C: faa fab fac fad fae  
 D: faa(t,+t) fab(t,+t) fac(t,+t)  
 fad(t,+t) fae(t,+t) faf(t,+t)  
 fai(t,+t)  
 E-XI: fac  
 E-XIII: fae(t,+t) fai(t,+t) fal(t,+t)

55-1  
 $\text{NbO}_2$  Niobium dioxide (Columbium dioxide)  
 (c) E-XIII: fae(t)

$\text{Nb}_2\text{O}_3$  Niobium(III) oxide (Columbium(III) oxide)  
 (c) C: eah

$\text{Nb}_2\text{O}_4$  Diniohium tetroxide (Dicolumbium tetroxide)  
 (c) C: fab  
 E-XII: faa(t) fab(t)

$\text{Nb}_2\text{O}_5$  Niobium(V) oxide (Columbium(V) oxide)  
 (c) C: eah fab fae  
 E-XII: faa(t) fab(t)  
 E-XIII: fae(t) fai(t) fal(t) fbf  
 (liq) E-XII: faa(t) fab(t)  
 E-XIII: fae fai(t) fal(t)

55-9  
 $\text{NbF}_5$  Niobium(V) fluoride (Columbium(V) fluoride)  
 (c) C: eah  
 E-XIII: fae  
 (liq) C: eaq fbj fbk  
 E-III: eaq fbi(t) fbj fbk

55-10  
 $\text{NbCl}_5$  Niobium(V) chloride (Columbium(V) chloride)  
 (c) C: eah eai fbf fbg fbn fbo  
 (liq) C: eaq fbj fbk

55-18  
 $\text{NbN}$  Niobium(III) nitride (Columbium(III) nitride)  
 (c) C: eah  
 E-XIII: fae(t) fai(t) fal(t)

55-23  
 $\text{NbC}$  Niobium monocarbide (Columbium monocarbide)  
 (c) C: eah

55-47  
 $\text{Nb}_2\text{Fe}_3$  Diniohium triferride (Dicolumbium triferride)  
 (c) C: eah

**56 - Tantalum - Ta**

56  
 Ta Tantalum  
 (c) C: eah eai fac fae fbn fbo  
 D: eah fac(t,+t) fae(t,+t) faf(t,+t)  
 fai(t,+t) fbf  
 E-XI: fac fae(-t)  
 E-XIII: fae(t,+t) fai(t,+t) fal(t,+t)  
 F: eah eal(t,+t) fac fae(-t,t,t)  
 faf(t,+t) fai(t,+t) fal(t,+t)  
 fbn(t,+t) fbn(t,+t)  
 (liq) D: eaq fbj  
 (g) C: faa fab fac fad fae  
 D: faa(t,+t) fab(t,+t) fac(t,+t)  
 fad(t,+t) fae(t,+t) faf(t,+t)  
 fai(t,+t)  
 E-XI: fac  
 E-XIII: fae(t,+t) fai(t,+t) fal(t,+t)  
 F: fac fae(t,+t) faf(t,+t) fai(t,+t)  
 fal(t,+t)

**56-1**  
Ta<sub>2</sub>O<sub>5</sub> Tantalum(V) oxide  
(c) C: eah faa fab fac fad fae  
E-XI: fac fae(-t)  
E-XII: faa(t) fab(t)  
E-XIII: fae(t) fai(t) fal(t)

**56-9**  
TaF<sub>5</sub> Tantalum(V) fluoride  
(c) C: eah  
(liq) C: eaq fbj fbk  
E-III: eaq eal(t)

**56-10**  
TaCl<sub>5</sub> Tantalum(V) chloride  
(c) C: eah eai fbf fbq fbn fbo  
(liq) C: eaq fbj fbk

**56-11**  
TaBr<sub>5</sub> Tantalum(V) bromide  
(c) C: eah eai fbf fbq fbn fbo  
(liq) C: eaq fbj fbk

**56-12**  
TaI<sub>5</sub> Tantalum(V) iodide  
(c) C: eah

**56-18**  
Ta<sub>3</sub>N Tantalum(III) nitride  
(c) C: eah fab fae  
E-VIII: faa(t) fab(t)  
E-XIII: fae(t) fai(t) fal(t)

**56-23**  
TaC Tantalum monocarbide  
(c) C: eah fac fae  
E-XI: fac fae(-t)  
E-XIII: fae

**56-47**  
TaFe Tantalum ferride  
(c) C: eah

**57 - Titanium - Ti**

**57**  
Ti Titanium  
(c, II, α) C: eaj fac fae  
D: eaj fac(t) fae(t) faf(t) fai(t) fbb  
E-XIII: fae(t) fai(t) fal(t) fbb  
F: eaj eal(t) fac fae(-t,t) faf(t)  
fai(t) fal(t) fbb fbc fbn(t) fbn(t)  
(c, I, β) C: eah eai fbn fbo  
D: eah fac(t) fae(t) faf(t) fai(t) fbf  
E-XIII: fae fai(t) fal(t) fbf  
F: eah eal(t) fae(t) faf(t) fai(t) fal(t)  
fbf fbq fbn(t) fbn(t)  
(c) E-XI: fac fae(-t)

(liq) D: eaq fac(+) fae(+) faf(+)  
fai(+)fbj  
E-XIII: fae fai(t,+) fal(t,+)  
F: eal(+) fae(+) faf(+)fai(+)  
fal(+)fbj(+)fbj(+)fbk  
(g) C: faa fab fac fad fae  
D: faa(t,+) fab(t,+) fac(t,+) fad(t,+) fae(t,+) faf(t,+) fai(t,+)  
E-XI: fac  
E-XIII: fae(t,+) fai(t,+) fal(t,+)  
F: fac fae(t,+) faf(t,+) fai(t,+)  
fal(t,+)

Ti<sup>+</sup>  
(g) C: fab  
Ti<sup>2+</sup>  
(g) C: fab  
Ti<sup>3+</sup>  
(g) C: fab  
Ti<sup>4+</sup>  
(g) C: fab  
Ti<sup>5+</sup>  
(g) C: fab  
Ti<sup>6+</sup>  
(g) C: fab  
Ti<sup>7+</sup>  
(g) C: fab

**57-1**  
TiO Titanium(II) oxide  
(c, II, α) C: eaj fac fae fbb fbc  
E-XII: faa(t) fab(t)  
E-XIII: fae(t) fai(t) fal(t) fbb  
(c, β) E-XII: faa(t) fab(t)  
E-XIII: fae(t) fai(t) fal(t)  
(c) E-XI: fac fae(-t)  
(g) C: fab  
E-XI: fac  
E-XII: faa(t) fab(t)  
E-XIII: fae(t,+) fai(t,+) fal(t,+)

TiO<sub>2</sub> Titanium(IV) oxide  
(c, III, rutile) C: faa fab fac fad  
fae  
(c, I, rutile) C: eah  
E-V: eah fbf fbq  
(c, rutile) E-XI: fac fae(-t)  
E-XII: faa(t) fab(t)  
E-XIII: fae(t) fai(t) fal(t)  
(c, III, β anatase) C: eaj fac fae fbb  
fbc  
E-XI: fac fae(-t)

(c, anatase) E-XIII: fae(t) fai(t) fal(t)  
(c) E-VIII: fam(t) fam(t)  
(amorph, hydrated precipitate) C: fab

Ti<sub>2</sub>O<sub>3</sub> Titanium(III) oxide  
(c, II, α) C: eaj faa fab fac fad  
fae fbb fbc  
E-XII: faa(t) fab(t)  
E-XIII: fae(t) fai(t) fal(t) fbb  
(c, β) E-XII: faa(t) fab(t)  
E-XIII: fae(t) fai(t) fal(t)  
(c) E-XI: fac fae(-t)

**TITANIUM**  
57-1 Ti<sub>3</sub>O<sub>5</sub>

Ti<sub>3</sub>O<sub>5</sub> Trititanium pentoxide  
(c, II, α) C: eaj faa fab fac fad  
fae fbb fbc  
E-XII: faa(t) fab(t)  
E-XIII: fae(t) fai(t) fal(t) fbb  
(c, β) E-XIII: fae(t) fai(t) fal(t)  
(c) E-XI: fac fae(-t)

**57-9**  
TiF<sub>2</sub> Titanium(II) fluoride  
(c) C: fab  
TiF<sub>3</sub> Titanium(III) fluoride  
(c) C: fab  
TiF<sub>4</sub> Titanium(IV) fluoride  
(c) C: fab  
(liq) C: eaq

**57-9-2**  
H<sub>2</sub>TiF<sub>6</sub> Hydrogen hexafluorotitanate(IV)  
(aq) C: fab

**57-10**  
TiCl Titanium monochloride  
(g) C: fab  
E-XIII: fae(t) fai(t) fal(t)  
TiCl<sub>2</sub> Titanium(II) chloride  
(c) C: fab  
E-XIII: fae(t) fai(t) fal(t)  
TiCl<sub>3</sub> Titanium(III) chloride  
(c) C: fab  
E-XIII: fae(t) fai(t) fal(t)  
TiCl<sub>4</sub> Titanium(IV) chloride  
(c) C: eah fbf fbq  
E-V: eah fbf fbq  
E-XI: eah fae(-t) fbf  
(liq) C: eaq faa fab fac fad fae  
fbj fbk  
E-III: eaq eal(-t,t) fbi(t) fbj(t)  
fbk  
E-XI: fac fae(-t)  
E-XIII: fae fai(t) fal(t)  
(g) C: fac fae  
E-XI: fac  
E-XIII: fae(t) fai(t) fal(t)  
(aq; hydrolyzed) C: fab

**57-11**  
TiBr<sub>2</sub> Titanium(II) bromide  
(c) C: fab  
E-XIII: fae(t) fai(t) fal(t)  
TiBr<sub>3</sub> Titanium(III) bromide  
(c) C: fab  
E-XIII: fae(t) fai(t) fal(t)  
TiBr<sub>4</sub> Titanium(IV) bromide  
(c, II) C: eaj  
(c, I) C: eah fbf fbq  
E-V: eah fbf fbq  
E-XIII: fae fai fal fbf  
(c) C: fab  
(liq) C: eaq  
E-XIII: fae fai(t) fal(t)  
(g) E-XIII: fae(t) fai(t) fal(t)

**57-12**  
TiI<sub>2</sub> Titanium(II) iodide  
(c) C: fab  
E-XIII: fae(t) fai(t) fal(t)  
TiI<sub>3</sub> Titanium(III) iodide  
(c) C: fab  
E-XIII: fae(t) fai(t) fal(t)  
TiI<sub>4</sub> Titanium(IV) iodide  
(c) C: eah fab  
E-XIII: fae fai fal fbf  
(liq) C: eaq fbj fbk  
E-XIII: fae fai(t) fal(t)  
(g) E-XIII: fae fai(t) fal(t)

**57-14**  
TiS<sub>2</sub> Titanium(IV) sulfide  
(c, α) E-XIII: fae(t) fai(t) fal(t) fbb  
(c, β) E-XIII: fae(t) fai(t) fal(t)  
(c) E-XI: fac fae(-t)

**57-14-10**  
TiCl<sub>4</sub>·SCl<sub>4</sub> Titanium(IV) chloride–Sulfur tetrachloride  
(c) C: eah

**57-14-10-2**  
TiCl<sub>4</sub>·H<sub>2</sub>S Titanium(IV) chloride–Hydrogen sulfide  
(c) C: fab  
TiCl<sub>4</sub>·2H<sub>2</sub>S Titanium(IV) chloride–2-Hydrogen sulfide  
(c) C: fab

**57-14-11-2**  
TiBr<sub>4</sub>·H<sub>2</sub>S Titanium(IV) bromide–Hydrogen sulfide  
(c) C: fab  
TiBr<sub>4</sub>·2H<sub>2</sub>S Titanium(IV) bromide–2-Hydrogen sulfide  
(c) C: fab

**57-18**  
TiN Titanium(III) nitride  
(c) C: eah faa fab fac fad fae  
E-VIII: faa(t) fab(t)  
E-XI: fac fae(-t)  
E-XIII: fae(t,+t) fai(t,+t) fal(t,+t)

**57-19-10-1**  
TiCl<sub>4</sub>·POCl<sub>3</sub> Titanium(IV) chloride–Phosphoryl trichloride  
(c) C: eah  
(liq) C: eaq

**57-19-10-2**  
TiCl<sub>4</sub>·PH<sub>3</sub> Titanium(IV) chloride–Phosphine  
(c) C: fab  
TiCl<sub>4</sub>·2PH<sub>3</sub> Titanium(IV) chloride–2-Phosphine  
(c) C: fab

**57-19-11-2**  
TiBr<sub>4</sub>·PH<sub>3</sub> Titanium(IV) bromide–Phosphine  
(c) C: fab  
TiBr<sub>4</sub>·2PH<sub>3</sub> Titanium(IV) bromide–2-Phosphine  
(c) C: fab

**57-23**  
TiC Titanium(IV) carbide  
(c) C: eah faa fab fac fad fae  
E-VIII: faa(t) fab(t) fam(t) fan(t)  
E-XI: fac fae(-t)  
E-XIII: fae(t) fai(t) fal(t)

**57-28**  
TiB<sub>2</sub> Titanium diboride  
(c) E-XIII: fae(t) fai(t) fal(t)

**57-29**  
Ti-Al Titanium-Aluminum  
(c) F: fcf(x)

TiAl<sub>3</sub> Titanium trialuminide  
(c) C: eah

TiAl<sub>4</sub> Titanium tetra-aluminide  
(c) C: eah

**57-29-1**  
TiO<sub>2</sub>·Al<sub>2</sub>O<sub>3</sub> Titanium(IV) oxide-Aluminum oxide  
(c) C: eah

2TiO<sub>2</sub>·Al<sub>2</sub>O<sub>3</sub> 2-Titanium(IV) oxide-Aluminum oxide  
(c) C: eah

TiAl<sub>2</sub>O<sub>5</sub> Titanium(IV) aluminum pentoxide  
(c) E-XIII: fae(t) fai(t) fal(t)

**57-33-1**  
TiZn<sub>2</sub>O<sub>4</sub> Titanium(IV) zinc tetroxide  
(c) E-XIII: fae(t) fai(t) fal(t)

**57-45**  
Ti-Ni Titanium-Nickel  
(c) F: fcf(x)

**57-47**  
Ti-Fe Titanium-Iron  
(c) F: fcf(x)

TiFe<sub>2</sub> Titanium diferride  
(c) C: eah

**57-47-1**  
TiFeO<sub>3</sub> Titanium iron trioxide  
(c, *ilmenite*) E-XI: fac fae(-t)  
(c) C: eah faa fab fac fad fae  
fbf fbq  
E-XIII: fae(t) fai(t) fal(t) fbf  
(*liq*) E-XIII: fae fai(t) fal(t)

TiFe<sub>2</sub>O<sub>4</sub> Titanium di-iron tetroxide  
(c) C: eah  
E-XIII: fae(t) fai(t) fal(t)

TiFe<sub>2</sub>O<sub>5</sub> Titanium(IV) iron(III) pentoxide  
(c) E-XIII: fae(t) fai(t) fal(t)

**57-48-1**  
TiMnO<sub>3</sub> Titanium manganese trioxide  
(c) C: eah  
E-V: eah fbf fbq

**58 - Zirconium - Zr**

**58**  
Zr Zirconium  
(c, *II, α*) C: eaj fac fbb fbc  
D: eaj fac(t) fae(t) faf(t) fai(t) fbb  
E-XIII: fae(t) fai(t) fal(t) fbb  
F: eaj eal(t) fae(-t,t) fai(t) fal(t)  
fal(t) fbm(t) fbn(t)  
(c, *I, β*) C: eah  
D: eah fac(t,+t) fae(t,+t) fai(t,+t)  
fai(t,+t) fbf  
E-XIII: fae fai(t,+t) fal(t,+t)  
fbf  
F: eah eal(t,+t) fae(t,+t) fai(t,+t)  
fai(t,+t) fal(t,+t) fbf fbq  
fbm(t,+t) fbn(t,+t)  
(c) E-XI: fac fae(-t)  
(*liq*) D: eaj fac(+t) fae(+t) fai(+t)  
fal(+t) fbf  
E-XIII: fae fai(+t) fal(+t)  
F: eal(+t) fae(+t) fai(+t) fal(+t)  
fal(+t) fbi(+t) fbj(+t) fbk  
(g) C: faa fab fac fad fae  
D: faa(t,+t) fab(t,+t) fac(t,+t)  
fad(t,+t) fae(t,+t) fai(t,+t)  
fai(t,+t)  
E-XI: fac  
E-XIII: fae(t,+t) fai(t,+t) fal(t,+t)  
F: fae(t,+t) fai(t,+t) fai(t,+t)  
fal(t,+t)

Zr<sup>+</sup> (g) C: fab

Zr<sup>2+</sup> (g) C: fab

Zr<sup>3+</sup> (g) C: fab

Zr<sup>4+</sup> (g) C: fab

**58-1**  
ZrO Zirconium monoxide  
(c, *II*) C: eaj  
(g) E-XI: fac

ZrO<sup>2+</sup> Oxozirconium ion  
(aq) C: fab

ZrO<sub>2</sub> Zirconium oxide  
(c, *III*) C: eaj faa fab fac fad  
(c, *α*) E-XII: faa(t) fab(t)  
E-XIII: fae(t) fai(t) fal(t) fbb  
(c, *β*) E-XII: faa(t) fab(t)  
E-XIII: fae fai(t) fal(t)  
(c, *II*) C: eaj  
(c, *I*) C: eah fbf fbq  
E-V: eah fbf fbq  
E-VIII: fam(t) fan(t)  
E-XI: fac fae(-t)

ZrO<sub>2</sub>·5H<sub>2</sub>O Zirconium oxide-5-Water  
(*amorph*) C: fab

**ZIRCONIUM**  
58-2 ZrH

	<b>58-2</b>	
ZrH	Zirconium monohydride	
	(c) E-XIII:	fae(t) fai(t) fal(t)
	<b>58-2-1</b>	
ZrO(OH) <sub>2</sub>	Zirconium oxide hydroxide	
	(c) C:	fab
Zr(OH) <sub>4</sub>	Zirconium hydroxide	
	(c) C:	fab
Zr(OH) <sub>4</sub> ·H <sub>2</sub> O	Zirconium hydroxide—Water	
	(c) C:	fab
Zr(OH) <sub>4</sub> ·2H <sub>2</sub> O	Zirconium hydroxide—2-Water	
	(c) C:	fab
	<b>58-9</b>	
ZrF <sub>2</sub>	Zirconium difluoride	
	(c) C:	fab
ZrF <sub>3</sub>	Zirconium trifluoride	
	(c) C:	fab
ZrF <sub>4</sub>	Zirconium fluoride	
	(c) C:	fab
	<b>58-10</b>	
ZrCl <sub>2</sub>	Zirconium dichloride	
	(c) C:	fab
ZrCl <sub>3</sub>	Zirconium trichloride	
	(c) C:	fab
ZrCl <sub>4</sub>	Zirconium chloride	
	(c) C:	eah eai faa fab fac fad fbn fbo
	E-III:	eai eal(t) fbn(t) fbn(t) fbo
	E-XI:	fac fae(-t)
	E-XIII:	fae(t) fai(t) fal(t)
	(g) E-XI:	fac
	E-XIII:	fae(t) fai(t) fal(t)
	<b>58-10-1</b>	
ZrOCl <sub>2</sub>	Zirconium oxide dichloride	
	(aq) C:	fab
ZrOCl <sub>2</sub> ·2H <sub>2</sub> O	Zirconium oxide dichloride—2-Water	
	(c) C:	fab
ZrOCl <sub>2</sub> ·3½H <sub>2</sub> O	Zirconium oxide dichloride—3½-Water	
	(c) C:	fab
ZrOCl <sub>2</sub> ·6H <sub>2</sub> O	Zirconium oxide dichloride—6-Water	
	(c) C:	fab
ZrOCl <sub>2</sub> ·8H <sub>2</sub> O	Zirconium oxide dichloride—8-Water	
	(c) C:	fab
	<b>58-11</b>	
ZrBr <sub>2</sub>	Zirconium dibromide	
	(c) C:	fab
ZrBr <sub>3</sub>	Zirconium tribromide	
	(c) C:	fab
ZrBr <sub>4</sub>	Zirconium bromide	
	(c) C:	eah eai fab fbn fbo
	E-III:	eai eal(t) fbn(t) fbn(t) fbo
	<b>58-11-1</b>	
ZrOBr <sub>2</sub>	Zirconium oxide dibromide	
	(aq) C:	fab
ZrOBr <sub>2</sub> ·3½H <sub>2</sub> O	Zirconium oxide dibromide—3½-Water	
	(c) C:	fab

ZrOBr<sub>2</sub>·8H<sub>2</sub>O Zirconium oxide dibromide—8-Water  
(c) C: fab

	<b>58-12</b>	
ZrI <sub>2</sub>	Zirconium di-iodide	
	(c) C:	fab
ZrI <sub>3</sub>	Zirconium tri-iodide	
	(c) C:	fab
ZrI <sub>4</sub>	Zirconium iodide	
	(c) C:	eah eai fab fbn fbo
	E-III:	eai eal(t) fbn(t) fbn(t) fbo

	<b>58-14-1</b>	
ZrOSO <sub>4</sub>	Zirconium oxide sulfate	
	(aq) C:	fab
Zr(SO <sub>4</sub> ) <sub>2</sub>	Zirconium sulfate	
	(c) C:	fab fae
Zr(SO <sub>4</sub> ) <sub>2</sub> ·H <sub>2</sub> O	Zirconium sulfate—Water	
	(c) C:	fab
Zr(SO <sub>4</sub> ) <sub>2</sub> ·4H <sub>2</sub> O	Zirconium sulfate—4-Water	
	(c) C:	fab

	<b>58-18</b>	
ZrN	Zirconium mononitride	
	(c) C:	eah faa fab fac fad
	E-VIII:	faa(t) fab(t)
	E-XI:	fac fae(-t)
	E-XIII:	fae(t) fai(t) fal(t)
Zr <sub>3</sub> N <sub>2</sub>	Trizirconium dinitride	
	(c) E-XIII:	fae(t) fai(t) fal(t)

	<b>58-18-1</b>	
Zr(NO <sub>3</sub> ) <sub>2</sub> ·6H <sub>2</sub> O	Zirconium dinitrate—6-Water	
	(c) C:	eah
ZrO(NO <sub>3</sub> ) <sub>2</sub>	Zirconium oxide dinitrate	
	(aq) C:	fab
ZrO(NO <sub>3</sub> ) <sub>2</sub> ·2H <sub>2</sub> O	Zirconium oxide dinitrate—2-Water	
	(c) C:	fab
ZrO(NO <sub>3</sub> ) <sub>2</sub> ·3H <sub>2</sub> O	Zirconium oxide dinitrate—3-Water	
	(c) C:	fab
ZrO(NO <sub>3</sub> ) <sub>2</sub> ·3½H <sub>2</sub> O	Zirconium oxide dinitrate—3½-Water	
	(c) C:	fab
ZrO(NO <sub>3</sub> ) <sub>2</sub> ·6H <sub>2</sub> O	Zirconium oxide dinitrate—6-Water	
	(c) C:	fab

	<b>58-19-10</b>	
2ZrCl <sub>4</sub> ·PCl <sub>5</sub>	2-Zirconium chloride—Phosphorus pentachloride	
	(c) C:	eah
	(liq) C:	eag

	<b>58-19-10-1</b>	
2ZrCl <sub>4</sub> ·POCl <sub>3</sub>	2-Zirconium chloride—Phosphoryl trichloride	
	(liq) C:	eag

	<b>58-23</b>	
ZrC	Zirconium carbide	
	(c) C:	eah fab
	E-VIII:	faa(t) fab(t) fam(t) fam(t)

	<b>58-24-1</b>				
ZrSiO <sub>4</sub>	Zirconium orthosilicate				
	(c) C: eah fac fæ				
	E-XI: fac fæ(-t)				
	E-XIII: fæ(t) fal(t) fal(t)				
	<b>58-28</b>				
ZrB	Zirconium monoboride				
	(c) C: eah				
	<b>58-28-2</b>				
Zr(BH <sub>4</sub> ) <sub>4</sub>	Zirconium borohydride				
	(c) C: eah eai fbf fbq fbn fbo				
	(liq) C: eaq fbj fbk				
	<b>58-36</b>				
ZrCo <sub>3</sub>	Zirconium tricupride				
	(c) C: eah				
	<b>58-37</b>				
Zr-Ag	Zirconium-Silver				
	(c) F: fch(t) fcp(t) fcr(t) fct(t)				
	<b>58-38</b>				
ZrAu <sub>3</sub>	Zirconium triauride				
	(c) C: eah				
	<b>58-47</b>				
Z <sub>2</sub> Fe <sub>3</sub>	Dizirconium triferride				
	(c) C: eah				
	<b>58-57</b>				
Zr-Ti	Zirconium-Titanium				
	(c) F: eaj fbb fbc fch(t) fcp(t) fcr(t) fct(t)				

**59 – Hafnium – Hf**

	<b>59</b>				
Hf	Hafnium				
	(c, II) C: eaj				
	(c, I) C: eah				
	E-XIII: fæ(t, +t) fal(t, +t) fal(t, +t)				
	fbf				
	(c) C: fac fæ				
	D: eah fac(t, +t) fæ(t, +t) fal(t, +t)				
	fai(t, +t) fbf				
	E-XI: fac fæ(-t)				
	(liq) D: eaq fac(+t) fæ(+t) fal(+t)				
	fai(+t) fbj				
	E-XIII: fæ fai(+t) fal(+t)				
	(g) C: fac				
	D: faa(t, +t) fab(t, +t) fac(t, +t)				
	fad(t, +t) fæ(t, +t) fal(t, +t)				
	fai(t, +t)				
	E-XI: fac				
	E-XIII: fæ(t, +t) fal(t, +t) fal(t, +t)				

	<b>59-1</b>				
HfO <sub>2</sub>	Hafnium oxide				
	(c, mon.) E-XII: faa(t) fab(t)				
	(c) C: eah fab				
	E-XIII: fæ(t) fal(t) fal(t)				
	<b>59-9</b>				
HfF <sub>4</sub>	Hafnium fluoride				
	(c) E-XIII: fæ(t) fal(t) fal(t)				
	(g) E-XIII: fæ(t) fal(t) fal(t)				
	<b>59-10</b>				
HfCl <sub>4</sub>	Hafnium chloride				
	(c) C: eah eai fbn fbo				
	E-XIII: fæ(t) fal(t) fal(t)				
	(g) E-XIII: fæ(t) fal(t) fal(t)				
	<b>59-11</b>				
HfBr <sub>4</sub>	Hafnium bromide				
	(c) C: eah eai fbn fbo				
	E-XIII: fæ(t) fal(t) fal(t)				
	(g) E-XIII: fæ(t) fal(t) fal(t)				
	<b>59-12</b>				
HfI <sub>4</sub>	Hafnium iodide				
	(c) E-XIII: fæ(t) fal(t) fal(t)				
	(g) E-XIII: fæ fal(t) fal(t)				
	<b>59-18</b>				
HfN	Hafnium mononitride				
	(c) E-XIII: fæ(t) fal(t) fal(t)				
	<b>59-23</b>				
HfC	Hafnium carbide				
	(c) C: eah fæ(t) fal(t) fal(t)				
	<b>59-28</b>				
HfB	Hafnium monoboride				
	(c) C: eah				
	<b>59-28-2</b>				
Hf(BH <sub>4</sub> ) <sub>4</sub>	Hafnium borohydride				
	(c) C: eah eai fbf fbq fbn fbo				
	(liq) C: eaq fbj fbk				

**60 – Scandium – Sc**

	<b>60</b>				
Sc	Scandium				
	(c) C: eah				
	D: eah fac(t) fæ(t) fal(t) fal(t) fbf				
	E-XIII: fæ(t) fal(t) fal(t) fbf				
	(liq) C: eaq				
	D: eaq fac(t, +t) fæ(t, +t) fal(t, +t)				
	fai(t, +t) fbj				
	E-XIII: fæ fal(t, +t) fal(t, +t)				



(g) C: fab fac fae  
D: faa(t,+t) fab(t,+t) fac(t,+t)  
fad(t,+t) fae(t,+t) faf(t,+t)  
fai(t,+t)  
E-XI: fac  
E-XIII: fae(t,+t) fai(t,+t) fal(t,+t)

Sc<sup>+</sup>

(g) C: fab

Sc<sup>2+</sup>

(g) C: fab

Sc<sup>3+</sup>

(g) C: fab

(aq) C: faa fab fad

Sc<sup>4+</sup>

(g) C: fab

Sc<sup>5+</sup>

(g) C: fab

Sc<sup>6+</sup>

(g) C: fab

60-1

ScO Scandium monoxide

(g) E-XIII: fae(t) fai(t) fal(t)

Sc<sub>2</sub>O<sub>3</sub>

Scandium oxide

(c) C: fae

E-XII: faa(t) fab(t)

E-XIII: fae

60-10

ScCl<sub>3</sub> Scandium chloride

(c) C: eah ead fab fbn fbo

(aq) C: faa fab fad

60-11

ScBr<sub>3</sub> Scandium bromide

(c) C: eah ead fab fbn fbo

(aq) C: faa fab fad

60-12

ScI<sub>3</sub> Scandium iodide

(c) C: eah ead fbn fbo

60-14-1

Sc<sub>2</sub>(SO<sub>4</sub>)<sub>3</sub> Scandium sulfate

(c) C: fae

E-XIII: fae

60-18

ScN Scandium nitride

(c) C: eah

60-18-9-2

ScF<sub>3</sub>·3NH<sub>4</sub>F Scandium fluoride-3-Ammonium fluoride

(c) C: fae

Sc(NH<sub>4</sub>)<sub>3</sub>F<sub>6</sub> Triammonium scandium fluoride

(c) E-XIII: fae

60-23-1

Sc<sub>2</sub>C<sub>6</sub>O<sub>12</sub> Scandium oxalate

(c) C: fae

60-23-2-1

Sc<sub>2</sub>C<sub>6</sub>H<sub>6</sub>O<sub>6</sub> Scandium formate

(c) C: fae

61 - Yttrium - Y

61

Y Yttrium

(c) C: eah faa fab fad

D: eah faa(t) fae(t) faf(t) fai(t) fbf

E-XIII: fae(t) fai(t) fal(t) fbf

(liq) C: eaq

D: eaq faa(t,+t) fae(t,+t) faf(t,+t)

fai(t,+t) fbf

E-XIII: fae fai(t,+t) fal(t,+t)

(g) C: fab fac fae

D: faa(t,+t) fab(t,+t) fac(t,+t)

fad(t,+t) fae(t,+t) faf(t,+t)

fai(t,+t)

E-XI: fac

E-XIII: fae(t,+t) fai(t,+t) fal(t,+t)

Y<sup>+</sup>

(g) C: fab

Y<sup>2+</sup>

(g) C: fab

Y<sup>3+</sup>

(g) C: fab

(aq) C: faa fab fad

61-1

YO Yttrium monoxide

(g) E-XIII: fae(t) fai(t) fal(t)

Y<sub>2</sub>O<sub>3</sub>

Yttrium oxide

(c) C: fae

E-XII: faa(t) fab(t)

E-XIII: fae

61-2-1

Y(OH)<sub>3</sub> Yttrium hydroxide

(c) C: faa fab fad

61-10

YCl<sub>3</sub> Yttrium chloride

(c, δ) C: eah fab

(aq) C: faa fab fad

61-11

YBr<sub>3</sub> Yttrium bromide

(c) C: eah

61-12

YI<sub>3</sub> Yttrium iodide

(c) C: eah fab

(aq) C: faa fab fad

61-14-1

Y<sub>2</sub>(SO<sub>4</sub>)<sub>3</sub> Yttrium sulfate

(c) C: fae

E-XIII: fae

(aq) C: faa fab fad

$Y_2(SO_4)_3 \cdot 8H_2O$  Yttrium sulfate-8-Water  
(c) C: faa fab fad fae  
E-XIII: fae

**61-18-1**  
 $Y(NO_3)_3$  Yttrium nitrate  
(c) C: fae  
E-XIII: fae

**61-52-1**  
 $Y_2(MoO_4)_3$  Yttrium tetroxomolybdate(VI)  
(c) C: eah fae  
E-XIII: fae

### 62 - Lutetium - Lu

**62**  
Lu Lutetium  
(c) D: eah fac(t) fae(t) faf(t) fai(t) fbf  
E-XIII: fae(t) fai(t) fal(t) fbf  
F: eah fbf  
(liq) D: eaq fac(+t) fae(+t) faf(+t)  
fai(+t) fbf  
E-XIII: fae fai(+t) fal(+t)  
F: eaq fbf  
(g) C: fab fac fae  
D: faa(t,+t) fab(t,+t) fac(t,+t)  
fad(t,+t) fae(t,+t) faf(t,+t)  
fai(t,+t)  
E-XIII: fae(t,+t) fai(t,+t) fal(t,+t)  
F: fac fae(t,+t) faf(t,+t) fai(t,+t)  
fal(t,+t)

Lu<sup>+</sup>  
(g) C: fab

Lu<sup>3+</sup>  
(aq) C: faa fab fad

**62-10**  
LuCl<sub>3</sub> Lutetium(III) chloride  
(c, γ) C: eah fab  
(aq) C: faa fab fad

**62-12**  
LuI<sub>3</sub> Lutetium(III) iodide  
(c) C: eah fab  
(aq) C: faa fab fad

**62-14-1**  
Lu<sub>2</sub>(SO<sub>4</sub>)<sub>3</sub> Lutetium(III) sulfate  
(aq) C: faa fab fad  
Lu<sub>2</sub>(SO<sub>4</sub>)<sub>3</sub>·8H<sub>2</sub>O Lutetium(III) sulfate-8-Water  
(c) C: faa fad

### 63 - Ytterbium - Yb

**63**  
Yb Ytterbium  
(c, α) D: eaj fac(t) fae(t) faf(t) fai(t) fbb  
E-XIII: fae(t) fai(t) fal(t) fbb  
F: eaj  
(c, β) D: eah fbf  
E-XIII: fae fai(t) fal(t) fbf  
F: eah  
(liq) D: eaq fac(t,+t) fae(t,+t) faf(t,+t)  
fai(t,+t) fbf  
E-XIII: fae fai(t) fal(t)  
F: eaq fbf  
(g) C: fab fac fae  
D: faa(t,+t) fab(t,+t) fac(t,+t)  
fad(t,+t) fae(t,+t) faf(t,+t)  
fai(t,+t)  
E-XI: fac  
E-XIII: fae fai(t,+t) fal(t,+t)  
F: fac fae(t) faq(t) fai(t) fal(t)

Yb<sup>+</sup>  
(g) C: fab

Yb<sup>3+</sup>  
(g) C: fab  
(aq) C: faa fad

Yb<sup>3+</sup>  
(aq) C: faa fab fad

**63-1**  
Yb<sub>2</sub>O<sub>3</sub> Ytterbium(III) oxide  
(c) E-XIII: fae

**63-10**  
YbCl Ytterbium monochloride  
(g) E-XIII: fae(t) fai(t) fal(t)

YbCl<sub>3</sub> Ytterbium(III) chloride  
(c, γ) C: eah fab  
(aq) C: faa fab fad

**63-11**  
YbBr<sub>3</sub> Ytterbium(III) bromide  
(c) C: eah

**63-14-1**  
Yb<sub>2</sub>(SO<sub>4</sub>)<sub>3</sub> Ytterbium(III) sulfate  
(c) E-XIII: fae  
(aq) C: faa fab fad  
Yb<sub>2</sub>(SO<sub>4</sub>)<sub>3</sub>·8H<sub>2</sub>O Ytterbium(III) sulfate-8-Water  
(c) C: faa fad  
E-XIII: fae

### 64 - Thulium - Tm

**64**  
Tm Thulium  
(c) D: eah fac(t) fae(t) faf(t) fai(t) fbf  
E-XIII: fae(t) fai(t) fal(t) fbf  
F: eah eal(t) fbm(t)

**THULIUM**  
64 Tm

(liq) C: eaq  
D: eaq fac(t,+t) fae(t,+t) faf(t,+t)  
fa(t,+t) fbj  
E-XIII: fae fai(t,+t) fal(t,+t)  
F: eal(t) fbi(t) fbj fbk

(g) C: fac  
D: fac(+t) fae(+t) faf(+t) fai(+t)  
F: fac fai

**Tm<sup>3+</sup>**  
(aq) C: faa fab fad

**64-10**  
**TmCl<sub>3</sub>** Thulium(III) chloride  
(c, γ) C: eah fab  
(aq) C: faa fab fad

**64-12**  
**TmI<sub>3</sub>** Thulium(III) iodide  
(c) C: eah fab  
(aq) C: faa fab fad

**65 – Erbium – Er**

**65**  
**Er** Erbium  
(c) D: eah fac(t) fae(t) faf(t) fai(t) fbf  
E-XIII: fae(t) fai(t) fal(t) fbf  
F: eah eal fac fae(-t,t) fai  
(liq) D: eaq fac(t,+t) fae(t,+t) faf(t,+t)  
fa(t,+t) fbj  
E-XIII: fae fai(t,+t) fal(t,+t)  
F: eaq fbj  
(g) D: fac(+t) fae(+t) faf(+t) fai(+t)

**Er<sup>3+</sup>**  
(aq) C: faa fab fad

**65-1**  
**Er<sub>2</sub>O<sub>3</sub>** Erbium(III) oxide  
(c) C: fae  
E-XIII: fae

**65-2-1**  
**Er(OH)<sub>3</sub>** Erbium(III) hydroxide  
(c) C: fab

**65-10**  
**ErCl<sub>3</sub>** Erbium(III) chloride  
(c, γ) C: eah fab  
(aq) C: faa fab fad

**65-11**  
**ErBr<sub>3</sub>** Erbium(III) bromide  
(c) C: eah

**65-12**  
**ErI<sub>3</sub>** Erbium(III) iodide  
(c) C: eah fab  
(aq) C: faa fab fad

**65-14-1**  
**Er<sub>2</sub>(SO<sub>4</sub>)<sub>3</sub>** Erbium(III) sulfate  
(c) C: fae  
E-XIII: fae  
(aq) C: faa fab fad

**Er<sub>2</sub>(SO<sub>4</sub>)<sub>3</sub>·8H<sub>2</sub>O** Erbium(III) sulfate-8-Water  
(c) C: faa fad fae  
E-XIII: fae

**65-23-2-1**  
**Er<sub>2</sub>C<sub>8</sub>H<sub>8</sub>O<sub>8</sub>** Erbium(III) acetate  
(aq) C: fab

**Er<sub>2</sub>C<sub>8</sub>H<sub>8</sub>O<sub>8</sub>·4H<sub>2</sub>O** Erbium(III) acetate-4-Water  
(c) C: fab

**66 – Holmium – Ho**

**66**  
**Ho** Holmium  
(c) D: eah fac(t) fae(t) faf(t) fai(t) fbf  
E-XIII: fae(t) fai(t) fal(t) fbf  
F: eah eaj(Curie, Néel) eal fac  
fae(-t,t) fai  
(liq) D: eaq fac(t,+t) fae(t,+t) faf(t,+t)  
fa(t,+t) fbj  
E-XIII: fae fai(t,+t) fal(t,+t)  
F: eaq fbj

**Ho<sup>3+</sup>**  
(aq) C: faa fab fad

**66-10**  
**HoCl<sub>3</sub>** Holmium(III) chloride  
(c, γ) C: eah fab  
(aq) C: faa fab fad

**66-11**  
**HoBr<sub>3</sub>** Holmium(III) bromide  
(c) C: eah

**66-12**  
**HoI<sub>3</sub>** Holmium(III) iodide  
(c) C: eah fab  
(aq) C: faa fab fad

**66-14-1**  
**Ho<sub>2</sub>(SO<sub>4</sub>)<sub>3</sub>** Holmium(III) sulfate  
(aq) C: faa fab fad

**Ho<sub>2</sub>(SO<sub>4</sub>)<sub>3</sub>·8H<sub>2</sub>O** Holmium(III) sulfate-8-Water  
(c) C: faa fad

67 – Dysprosium – Dy

**67**  
Dysprosium

Dy (c) D: eah fac(t) fae(t) faf(t) fai(t) fbf  
E-XIII: fae(t) fai(t) fal(t) fbf  
F: eah eal(t,+) fac fae(-t) fai  
fbm(t,+)

(liq) D: eaq fac(t,+) fae(t,+) faf(t,+) fai(t,+) fbj  
E-XIII: fae fai(t,+) fal(t,+) fbf  
F: eal(+) fbi(+) fbk

(g) C: fab  
D: fac(+) fae(+) faf(+) fai(+)

Dy<sup>+</sup> (g) C: fab

Dy<sup>3+</sup> (aq) C: faa fab fad

**67-2-1**  
Dy(OH)<sub>3</sub> Dysprosium(III) hydroxide  
(c) C: faa fad

**67-10**  
DyCl<sub>3</sub> Dysprosium(III) chloride  
(c, β) C: eah fab  
(c, γ) C: fab  
(aq) C: faa fab fad

**67-11**  
DyBr<sub>3</sub> Dysprosium(III) bromide  
(c) C: eah

**67-12**  
DyI<sub>3</sub> Dysprosium(III) iodide  
(c) C: eah fab  
(aq) C: faa fab fad

**67-14-1**  
Dy<sub>2</sub>(SO<sub>4</sub>)<sub>3</sub> Dysprosium(III) sulfate  
(aq) C: faa fab fad  
Dy<sub>2</sub>(SO<sub>4</sub>)<sub>3</sub>·8H<sub>2</sub>O Dysprosium(III) sulfate-8-Water  
(c) C: faa fad

68 – Terbium – Tb

**68**  
Terbium

Tb (c) D: eah fac(t) fae(t) faf(t) fai(t) fbf  
E-XIII: fae(t) fai(t) fal(t) fbf  
F: eah eaj(Curie, Néel) fac fae(-t, t) fai(t) fal(t)

(liq) D: eaq fac(t,+) fae(t,+) faf(t,+) fai(t,+) fbj  
E-XIII: fae fai(t,+) fal(t,+) fbf  
F: eaq eal fbj

(g) C: fab  
D: fac(+) fae(+) faf(+) fai(+)

Tb<sup>+</sup> (g) C: fab

Tb<sup>3+</sup> (aq) C: faa fab fad

**68-10**  
TbCl<sub>3</sub> Terbium(III) chloride  
(c, β) C: eah fab  
(aq) C: faa fab fad

**68-14-1**  
Tb<sub>2</sub>(SO<sub>4</sub>)<sub>3</sub> Terbium(III) sulfate  
(aq) C: faa fab fad  
Tb<sub>2</sub>(SO<sub>4</sub>)<sub>3</sub>·8H<sub>2</sub>O Terbium(III) sulfate-8-Water  
(c) C: faa fad

69 – Gadolinium – Gd

**69**  
Gadolinium

Gd (c) C: fac  
D: eah fac(t) fae(t) faf(t) fai(t) fbf  
E-XIII: fae(t) fai(t) fal(t) fbf  
F: eah eaj(Curie) fac fae(-t) fai  
fal fal

(liq) D: eaq fac(t,+) fae(t,+) faf(t,+) fai(t,+) fbj  
E-XIII: fae fai(+t) fal(+t) fbf  
F: eah eaj(Curie) fac fae(-t) fai  
fal fal

(g) C: faa fab fac fad fae  
D: faa(+t) fab(+t) fac(+t) fad(+t) fae(+t) fai(+t) fal(+t)

E-XIII: fae(+t) fai(+t) fal(+t) fbf  
F: fac fae(+t) fai(+t) fal(+t) fbf  
fal(+t)

Gd<sup>+</sup> (g) C: fab

Gd<sup>3+</sup> (aq) C: faa fab fac fad  
E-XI: fac

**69-2-1**  
Gd(OH)<sub>3</sub> Gadolinium(III) hydroxide  
(c) C: faa fad

**69-10**  
GdCl<sub>3</sub> Gadolinium(III) chloride  
(c, α) C: eah fab  
(aq) C: faa fab fac fad

**69-11**  
GdBr<sub>3</sub> Gadolinium(III) bromide  
(c) C: eah

**69-12**  
GdI<sub>3</sub> Gadolinium(III) iodide  
(c) C: eah fab  
(aq) C: faa fab fac fad

**69-14-1**  
 $Gd_2(SO_4)_3$  Gadolinium(III) sulfate  
(aq) C: faa fab fac fad  
 $Gd_2(SO_4)_3 \cdot 8H_2O$  Gadolinium(III) sulfate-8-Water  
(c) C: faa fab fac fad fae  
E-XI: fac fae(-t)  
E-XIII: fae

**70 — Europium — Eu**

**70**  
Europium  
Eu  
(c) D: eah fac(t) fae(t) faf(t) fai(t) fbf  
E-XIII: fae(t) fai(t) fal(t) fbf  
F: eal(t) fbn(t) fbn fbo  
(liq) D: eaq fac(t) fae(t) faf(t) fai(t) fbj  
E-XIII: fae fai(t) fal(t)  
(g) C: fab fac fae  
D: faa(t,+t) fab(t,+t) fac(t,+t)  
fad(t,+t) fae(t,+t) faf(t,+t)  
fai(t,+t)  
E-XIII: fae fai(t,+t) fal(t,+t)  
F: fac fae(t,+t) faf(t,+t) fai(t,+t)  
fal(t,+t)

Eu<sup>+</sup>

(g) C: fab

Eu<sup>2+</sup>

(g) C: fab  
(aq) C: faa fad

Eu<sup>3+</sup>

(aq) C: faa fab fad

**70-10**  
EuCl<sub>3</sub> Europium(III) chloride  
(c, a) C: eah fab  
(aq) C: faa fab fad

**70-14-1**  
Eu<sub>2</sub>(SO<sub>4</sub>)<sub>3</sub> Europium(III) sulfate  
(aq) C: faa fab fad  
Eu<sub>2</sub>(SO<sub>4</sub>)<sub>3</sub>·8H<sub>2</sub>O Europium(III) sulfate-8-Water  
(c) C: faa fad fae  
E-XI: fac fae(-t)  
E-XIII: fae

**71 — Samarium — Sm**

**71**  
Samarium  
Sm  
(c, a) D: eaj fac(t) fae(t) faf(t) fai(t) fbb  
E-XIII: fae(t) fai(t) fal(t) fbb  
F: eaj eal(t) fac fae(-t,t) faf(t)  
fai(t) fal(t) fbb fbc fbn(t) fbn(t)

(c, β) D: eah fac(t) fae(t) faf(t) fai(t) fbf  
E-XIII: fae fai(t) fal(t) fbf  
F: eah eal(t) fae(t) faf(t) fai(t) fal(t)  
fbf fbg fbn(t) fbn(t)  
(c) C: eah  
(liq) D: eaq fac(t) fae(t) faf(t) fai(t) fbj  
E-XIII: fae fai(t) fal(t)  
F: eal(t,+t) fae(t,+t) faf(t,+t)  
fai(t,+t) fal(t,+t) fbi(t,+t)  
fbj(t,+t) fbk  
(g) C: fab fac fae  
D: faa(t,+t) fab(t,+t) fac(t,+t)  
fad(t,+t) fae(t,+t) faf(t,+t)  
fai(t,+t)  
E-XIII: fae(+t) fai(+t) fal(+t)  
fac fae(t,+t) faf(t,+t) fai(t,+t)  
fal(t,+t)

Sm<sup>+</sup>

(g) C: fab

Sm<sup>2+</sup>

(g) C: fab

Sm<sup>3+</sup>

(aq) C: faa fab fad

**71-1**  
Sm<sub>2</sub>O<sub>3</sub> Samarium(III) oxide  
(c) E-XII: faa(t) fab(t)

**71-2-1**  
Sm(OH)<sub>3</sub> Samarium(III) hydroxide  
(c) C: faa fad

**71-10**  
SmCl<sub>2</sub> Samarium(II) chloride  
(c) C: eah  
SmCl<sub>3</sub> Samarium(III) chloride  
(c, a) C: eah fab  
(aq) C: faa fab fad

**71-11**  
SmBr<sub>3</sub> Samarium(III) bromide  
(c) C: eah

**71-12**  
SmI<sub>3</sub> Samarium(III) iodide  
(c) C: eah fab  
(aq) C: faa fab fad

**71-14-1**  
Sm<sub>2</sub>(SO<sub>4</sub>)<sub>3</sub> Samarium(III) sulfate  
(aq) C: faa fab fad  
Sm<sub>2</sub>(SO<sub>4</sub>)<sub>3</sub>·8H<sub>2</sub>O Samarium(III) sulfate-8-Water  
(c) C: faa fad  
E-XI: fac fae(-t)  
E-XIII: fae

**71-18-10-2**  
SmCl<sub>3</sub>·NH<sub>3</sub> Samarium(III) chloride-Ammonia  
(c) C: fab  
SmCl<sub>3</sub>·2NH<sub>3</sub> Samarium(III) chloride-2-Ammonia  
(c) C: fab

SmCl<sub>3</sub>·3NH<sub>3</sub> Samarium(III) chloride—3-Ammonia  
(c) C: fab  
SmCl<sub>3</sub>·4NH<sub>3</sub> Samarium(III) chloride—4-Ammonia  
(c) C: fab  
SmCl<sub>3</sub>·5NH<sub>3</sub> Samarium(III) chloride—5-Ammonia  
(c) C: fab  
SmCl<sub>3</sub>·8NH<sub>3</sub> Samarium(III) chloride—8-Ammonia  
(c) C: fab  
SmCl<sub>3</sub>·9½NH<sub>3</sub> Samarium(III) chloride—9½-Ammonia  
(c) C: fab  
SmCl<sub>3</sub>·11½NH<sub>3</sub> Samarium(III) chloride—11½-Ammonia  
(c) C: fab

71-52-1

Sm<sub>2</sub>(MoO<sub>4</sub>)<sub>3</sub> Samarium(III) tetroxomolybdate(VI)  
(c) C: eah

72 — Promethium — Pm

72  
Pm Promethium  
(c) D: eah fac(t) fae(t) faf(t) fal(t) fbf  
E-XIII: fae(t) fal(t) fal(t) fbf  
(liq) D: eaq fac(t,+) fae(t,+) fal(t,+) fbf  
E-XIII: fae fal(t,+) fal(t,+) fbf  
Pm<sup>3+</sup>  
(aq) C: fab

72-10

PmCl<sub>3</sub> Promethium(III) chloride  
(c) C: fab  
(aq) C: fab

73 — Neodymium — Nd

73  
Nd Neodymium  
(c, IV) C: eaj  
(c, III) C: eaj fae  
(c, II) C: eaj  
(c, I) C: eah  
(c, a) D: eaj fac(t) fae(t) faf(t) fal(t) fbb  
E-XIII: fae(t) fal(t) fal(t) fbb  
F: eaj eal(t) fac fae(-t,t) faf(t)  
fal(t) fal(t) fbb fbc fbn(t) fbn(t)  
(c, β) D: eah fac fae faf fal fbf  
E-XIII: fae fal(t) fal(t) fbf  
F: eah eal(t) fae(t) faf(t) fal(t) fal(t)  
fbf fbg fbn(t) fbn(t)  
(liq) D: eaq fac(t,+) fae(t,+) fal(t,+) fbf  
E-XIII: fae fal(t,+) fal(t,+) fbf  
F: eal(t,+) fae(t,+) faf(t,+) fal(t,+) fal(t,+) fbf(t,+) fbf(t,+) fbk

(g) C: fab  
D: fac(t,+) fab(t,+) fac(t,+) fal(t,+) fae(t,+) faf(t,+) fal(t,+) fbf  
E-XIII: fae(t,+) fal(t,+) fal(t,+) fbf  
F: fac fae(t,+) fal(t,+) fal(t,+) fal(t,+) fbf

Nd<sup>4+</sup>

(g) C: fab

Nd<sup>3+</sup>

(aq) C: faa fab fad

73-1

Nd<sub>2</sub>O<sub>3</sub> Neodymium(III) oxide  
(c, bex.) E-XII: faa(t) fab(t)  
(c) C: fab  
E-XIII: fae(t) fal(t) fal(t)

73-2-1

Nd(OH)<sub>3</sub> Neodymium(III) hydroxide  
(c) C: faa fad

73-9

NdF<sub>3</sub> Neodymium(III) fluoride  
(c) C: eah

73-10

NdCl<sub>3</sub> Neodymium(III) chloride  
(c, a) C: eah fab  
(aq) C: faa fab fad  
NdCl<sub>3</sub>·6H<sub>2</sub>O Neodymium(III) chloride—6-Water  
(c) C: eah fab

73-11

NdBr<sub>3</sub> Neodymium(III) bromide  
(c) C: eah

73-12

NdI<sub>3</sub> Neodymium(III) iodide  
(c) C: eah fab  
(aq) C: faa fab fad

73-14

Nd<sub>2</sub>S<sub>3</sub> Neodymium(III) sulfide  
(c) C: fab

73-14-1

Nd<sub>2</sub>(SO<sub>4</sub>)<sub>3</sub> Neodymium(III) sulfate  
(c) C: fab  
(aq) C: faa fab fad  
Nd<sub>2</sub>(SO<sub>4</sub>)<sub>3</sub>·5H<sub>2</sub>O Neodymium(III) sulfate—5-Water  
(c) C: fab  
Nd<sub>2</sub>(SO<sub>4</sub>)<sub>3</sub>·8H<sub>2</sub>O Neodymium(III) sulfate—8-Water  
(c) C: faa fab fad

73-18-10-2

NdCl<sub>3</sub>·NH<sub>3</sub> Neodymium(III) chloride—Ammonia  
(c) C: fab  
NdCl<sub>3</sub>·2NH<sub>3</sub> Neodymium(III) chloride—2-Ammonia  
(c) C: fab  
NdCl<sub>3</sub>·4NH<sub>3</sub> Neodymium(III) chloride—4-Ammonia  
(c) C: fab

**NEODYMIUM**  
73-18-10-2 NdCl<sub>3</sub>·5NH<sub>3</sub>

NdCl<sub>3</sub>·5NH<sub>3</sub> Neodymium(III) chloride-5-Ammonia  
(c) C: fab  
NdCl<sub>3</sub>·8NH<sub>3</sub> Neodymium(III) chloride-8-Ammonia  
(c) C: fab  
NdCl<sub>3</sub>·11NH<sub>3</sub> Neodymium(III) chloride-11-Ammonia  
(c) C: fab  
NdCl<sub>3</sub>·12NH<sub>3</sub> Neodymium(III) chloride-12-Ammonia  
(c) C: fab

**73-52-1**

Nd<sub>2</sub>(MoO<sub>4</sub>)<sub>3</sub> Neodymium(III) tetroxomolybdate(VI)  
(c) C: eah

**74 - Praseodymium - Pr**

**74**

Pr Praseodymium  
(c, II, α) D: eaj fac(t) fae(t) faf(t) fai(t) fbb  
E-XIII: fae(t) fai(t) fal(t) fbb  
(c, I, β) C: eah fbi fbj  
D: eah fac(t) fae(t) faf(t) fai(t) fbf  
E-V: eah fbi fbj  
E-XIII: fae fal(t) fal(t) fbi  
F: eah eal(t) fac fae(-,t) fai  
fbm(t) fbn(t)  
(c) C: fae  
(liq) D: eaq fac(t,+t) fae(t,+t) faf(t,+t)  
fai(t,+t) fbj  
E-XIII: fae fai(t,+t) fal(t,+t)  
F: eal(t,+t) fbi(t,+t) fbk  
(g) C: fab  
Pr<sup>+</sup>  
(g) C: fab  
Pr<sup>3+</sup>  
(aq) C: faa fab fad

**74-1**

PrO<sub>2</sub> Praseodymium(IV) oxide  
(c) C: fab  
E-XII: faa(t) fab(t)  
Pr<sub>2</sub>O<sub>3</sub> Praseodymium(III) oxide  
(c, C-type) E-XII: faa(t) fab(t)  
(c) C: fab  
Pr<sub>6</sub>O<sub>11</sub> Hexapraseodymium undecaoxide  
(c) C: fab  
E-XII: faa(t) fab(t)  
E-XIII: fae(t) fai(t) fal(t)

**74-2-1**

Pr(OH)<sub>3</sub> Praseodymium(III) hydroxide  
(c) C: faa fad

**74-9**

PrF<sub>3</sub> Praseodymium(III) fluoride  
(c) C: eah

**74-10**

PrCl<sub>3</sub> Praseodymium(III) chloride  
(c, a) C: eah fab  
(aq) C: faa fab fad  
PrCl<sub>3</sub>·H<sub>2</sub>O Praseodymium(III) chloride-Water  
(c) C: fab  
PrCl<sub>3</sub>·7H<sub>2</sub>O Praseodymium(III) chloride-7-Water  
(c) C: eah fab

**74-11**

PrBr<sub>3</sub> Praseodymium(III) bromide  
(c) C: eah

**74-12**

PrI<sub>3</sub> Praseodymium(III) iodide  
(c) C: eah fab  
(aq) C: faa fab fad  
Pr<sub>2</sub>(SO<sub>4</sub>)<sub>3</sub> Praseodymium(III) sulfate  
(aq) C: faa fab fad  
Pr<sub>2</sub>(SO<sub>4</sub>)<sub>3</sub>·8H<sub>2</sub>O Praseodymium(III) sulfate-8-Water  
(c) C: faa fad

**74-18-1**

Pr(NO<sub>3</sub>)<sub>3</sub> Praseodymium(III) nitrate  
(aq) C: fab

**74-26**

PrSn<sub>3</sub> Praseodymium tristannide  
(c) C: eah  
Pr<sub>2</sub>Sn Dipraseodymium stannide  
(c) C: eah  
Pr<sub>2</sub>Sn<sub>3</sub> Dipraseodymium tristannide  
(c) C: eah

**74-27**

PrPb Praseodymium plumbide  
(c) C: eah  
PrPb<sub>3</sub> Praseodymium triplumbide  
(c) C: eah  
Pr<sub>2</sub>Pb Dipraseodymium plumbide  
(c) C: eah

**74-29**

Pr-Al Praseodymium-Aluminum  
(c) F: fcf  
PrAl<sub>2</sub> Praseodymium dialuminide  
(c) C: eah  
PrAl<sub>4</sub> Praseodymium tetra-aluminide  
(c) C: fab

**74-30**

PrGa<sub>2</sub> Praseodymium digallide  
(c) C: eah

**74-32**

PrTl Praseodymium thallide  
(c) C: eah  
PrTl<sub>3</sub> Praseodymium trithallide  
(c) C: eah

**74-36**  
PrCu<sub>2</sub> Praseodymium dicupride  
(c) C: eah  
PrCu<sub>3</sub> Praseodymium hexacupride  
(c) C: eah

**74-37**  
PrAg Praseodymium argentide  
(c) C: eah  
PrAg<sub>3</sub> Praseodymium triargentide  
(c) C: eah

**74-38**  
PrAu Praseodymium-Gold  
(c) F: fcr(t) fct(t)  
PrAu Praseodymium auride  
(c) C: eah  
PrAu<sub>2</sub> Praseodymium diauride  
(c) C: eah  
PrAu<sub>3</sub> Praseodymium triauride  
(c) C: eah  
PrAu<sub>4</sub> Praseodymium tetra-auride  
(c) C: eah

**74-47**  
PrNi Praseodymium nickelide  
(c) C: eah  
PrNi<sub>5</sub> Praseodymium pentanickelide  
(c) C: eah  
Pr<sub>3</sub>Ni Tripraseodymium nickelide  
(c) C: eah

**74-52-1**  
Pr<sub>2</sub>(MoO<sub>4</sub>)<sub>3</sub> Praseodymium(III) tetroxomolybdate(VI)  
(c) C: eah

**75 - Cerium - Ce**

**75**  
Ce Cerium  
(c, IV) C: eaj  
(c, III) C: eaj fac fae  
(c, II) C: eaj  
(c, α) D: eaj fac(t) fae(t) faf(t) fai(t) fbb  
E-XIII: fae(t) fal(t) fal(t) fbb  
F: eaj eal(t) fac fae(-t,t) faf(t)  
fai(t)  
fal(t) fbb fbc fbn(t) fbn(t)  
(c, I) C: eah fbf fbq  
E-V: eah fbf fbq  
(c, β) D: eah fbf  
E-XIII: fae fai(t) fal(t) fbf  
F: eah eal fae(t) faf(t) fai(t) fal(t)  
fbf fbq fbn fbn  
(c) E-XI: fac fae

(liq) D: eaj fac(t,+t) fae(t,+t) faf(t,+t)  
fai(t,+t) fbf  
E-XIII: fae fai(t,+t) fal(t,+t)  
F: eal(t,+t) fae(t) faf(t) fai(t) fal(t)  
fbf(t,+t) fbf  
(g) C: fab  
E-XI: fac

Ce<sup>+</sup>  
(g) C: fab

Ce<sup>2+</sup>  
(g) C: fab

Ce<sup>3+</sup>  
(g) C: fab  
(aq) C: faa fab fac fad

Ce<sup>4+</sup>  
(g) C: fab  
(in aq HClO<sub>4</sub>) C: fab

**75-1**  
CeO Cerium monoxide  
(g) E-XIII: fae(t) fal(t) fal(t)  
CeO<sub>2</sub> Cerium(IV) oxide  
(c) C: fab fae  
E-XII: faa(t) fab(t)  
E-XIII: fae  
CeO<sub>2</sub>·2H<sub>2</sub>O Cerium trioxide-2-Water  
(c) C: fab  
Ce<sub>2</sub>O<sub>3</sub> Cerium(III) oxide  
(c) C: eah  
E-XII: faa(t) fab(t)

**75-2**  
Ce<sub>8</sub>H<sub>8</sub> Tricerium octahydride  
(c) C: fab

**75-2-1**  
Ce(OH)<sup>3+</sup> Hydroxocerium(IV) ion  
(aq) C: faa fad  
Ce(OH)<sub>2</sub><sup>2+</sup> Dihydroxocerium(IV) ion  
(aq) C: faa fad

**75-9**  
CeF<sub>3</sub> Cerium(III) fluoride  
(c) C: eah  
E-XIII: fae(t) fal(t) fal(t) fbf  
(liq) E-XIII: fae fai(t) fal(t)

**75-10**  
CeCl<sub>3</sub> Cerium(III) chloride  
(c, α) C: eah fab fbf fbq  
(aq) C: faa fab fac fad

**75-11**  
CeBr<sub>3</sub> Cerium(III) bromide  
(c) C: eah

**75-12**  
CeI<sub>3</sub> Cerium(III) iodide  
(c) C: eah fab  
(aq) C: faa fab fac fad



**CERIUM**  
75-14 CeS<sub>2</sub>

**75-14**  
CeS<sub>2</sub> Cerium(IV) sulfide  
(c) C: fab  
Ce<sub>2</sub>S<sub>3</sub> Cerium(III) sulfide  
(c) C: fab

**75-14-1**  
Ce(SO<sub>4</sub>)<sub>2</sub> Cerium(IV) sulfate  
(c) C: fab  
Ce<sub>2</sub>(SO<sub>4</sub>)<sub>3</sub> Cerium(III) sulfate  
(c) C: fae  
E-XIII: fae  
(aq) C: faa fab fac fad  
Ce<sub>2</sub>(SO<sub>4</sub>)<sub>3</sub>·5H<sub>2</sub>O Cerium(III) sulfate-5-Water  
(c) C: fab fae  
E-XIII: fae  
Ce<sub>2</sub>(SO<sub>4</sub>)<sub>3</sub>·8H<sub>2</sub>O Cerium(III) sulfate-8-Water  
(c) C: faa fad  
Ce<sub>2</sub>(SO<sub>4</sub>)<sub>3</sub>·9H<sub>2</sub>O Cerium(III) sulfate-9-Water  
(c) C: faa fad

**75-18**  
CeN Cerium(III) nitride  
(c) C: fab fae  
E-VIII: faa(t) fab(t)

**75-18-10-2**  
CeCl<sub>3</sub>·2NH<sub>3</sub> Cerium(III) chloride-2-Ammonia  
(c) C: fab  
CeCl<sub>3</sub>·4NH<sub>3</sub> Cerium(III) chloride-4-Ammonia  
(c) C: fab  
CeCl<sub>3</sub>·8NH<sub>3</sub> Cerium(III) chloride-8-Ammonia  
(c) C: fab  
CeCl<sub>3</sub>·12NH<sub>3</sub> Cerium(III) chloride-12-Ammonia  
(c) C: fab  
CeCl<sub>3</sub>·20NH<sub>3</sub> Cerium(III) chloride-20-Ammonia  
(c) C: fab

**75-22**  
CeBi Cerium bismuthide  
(c) C: eah  
Ce<sub>4</sub>Bi<sub>3</sub> Tetracerium tribismuthide  
(c) C: eah

**75-26**  
CeSn<sub>2</sub> Cerium distannide  
(c) C: eah  
CeSn<sub>3</sub> Cerium tristannide  
(c) C: eah  
Ce<sub>2</sub>Sn Dicerium stannide  
(c) C: eah  
Ce<sub>2</sub>Sn<sub>3</sub> Dicerium tristannide  
(c) C: eah

**75-27**  
Ce-Pb Cerium-Lead  
(c) F: fcf(x)  
CePb<sub>3</sub> Cerium triplumbide  
(c) C: eah  
Ce<sub>2</sub>Pb Dicerium plumbide  
(c) C: eah

**75-29**  
Ce-Al Cerium-Aluminum  
(c) F: fcf(x)  
CeAl<sub>2</sub> Cerium dialuminide  
(c) C: eah  
CeAl<sub>4</sub> Cerium tetra-aluminide  
(c, II) C: eaj fab  
Ce<sub>3</sub>Al Tricerium aluminide  
(c) C: eah fab

**75-32**  
CeTl Cerium thallide  
(c) C: eah  
CeTl<sub>3</sub> Cerium trithallide  
(c) C: eah

**75-33**  
CeZn<sub>9</sub> Cerium nonazincide  
(c) C: eah

**75-35**  
Ce-Hg Cerium-Mercury  
(c) F: fca fcb  
CeHg<sub>4</sub> Cerium tetramercuride  
(c) C: fab

**75-36**  
CeCu<sub>2</sub> Cerium dicupride  
(c) C: eah  
CeCu<sub>6</sub> Cerium hexacupride  
(c) C: eah

**75-37**  
CeAg Cerium argentide  
(c) C: eah  
CeAg<sub>3</sub> Cerium triargentide  
(c) C: eah

**75-38**  
CeAu Cerium auride  
(c) C: eah  
CeAu<sub>2</sub> Cerium diauride  
(c) C: eah  
CeAu<sub>3</sub> Cerium triauride  
(c) C: eah

**75-45**  
CeNi Cerium nickelide  
(c) C: eah  
CeNi<sub>5</sub> Cerium pentanickelide  
(c) C: eah  
Ce<sub>3</sub>Ni Tricerium nickelide  
(c) C: eah

**75-46**  
Ce<sub>3</sub>Co Tricerium cobaltide  
(c) C: eah

**75-51-1**  
Ce<sub>2</sub>O<sub>3</sub>·Cr<sub>2</sub>O<sub>3</sub> Cerium(III) oxide-Chromium(III) oxide  
(c) C: eah

**75-52-1**  
Ce<sub>2</sub>(MoO<sub>4</sub>)<sub>3</sub> Cerium(III) tetroxomolybdate(VI)  
(c) C: eah fae  
E-XIII: fae

**75-53-1**  
Ce<sub>2</sub>(WO<sub>4</sub>)<sub>3</sub> Cerium(III) tetroxotungstate(VI)  
(c) C: eah

**76 – Lanthanum – La**

**76**  
Lanthanum  
La  
(c, α + β) F: fac fae(-t) fai  
(c, IV) C: eaj  
(c, III) C: eaj fac fae  
(c, II) C: eaj  
(c, β) F: eaj eal(t) fae(t) faf(t) fai(t) fal(t)  
fbb fbc fbn(t) fbn(t)  
(c, I) C: eah  
(c, γ) D: eah fac(t) fae(t) faf(t) fai(t) fbf  
E-XIII: fae(t) fai(t) fal(t) fbf  
F: eah eal(t) fae(t) faf(t) fai(t) fal(t)  
fbf fbg fbn(t) fbn(t)  
(c) E-XI: fac fae  
(liq) D: eaj fac(t, +t) fae(t, +t) faf(t, +t)  
fai(t, +t) fbj  
E-XIII: fae fai(t, +t) fal(t, +t)  
F: eal(t, +t) fae(t, +t) faf(t, +t)  
fai(t, +t) fal(t, +t) fbi(t, +t)  
fbj(t, +t) fbk  
(g) C: faa fab fac fad fae  
D: faa(t) fab(t) fac(t) fad(t) fae(t) faf(t)  
fai(t)  
E-XI: fac  
E-XIII: fae(t, +t) fai(t, +t) fal(t, +t)  
F: fac fae(t, +t) faf(t, +t) fai(t, +t)  
fal(t, +t)

La<sup>+</sup>  
(g) C: fab

La<sup>2+</sup>  
(g) C: fab

La<sup>3+</sup>  
(g) C: fab  
(aq) C: faa fab fac fad

**76-1**  
LaO Lanthanum monoxide  
(g) E-XIII: fae(t) fai(t) fal(t)

La<sub>2</sub>O<sub>3</sub> Lanthanum oxide  
(c) C: eah fab fae  
E-XII: faa(t) fab(t)  
E-XIII: fae(t) fai(t) fal(t)

**76-2**  
La<sub>8</sub>H<sub>8</sub> Trilanthanum octahydride  
(c) C: fab fae

**76-2-1**  
La(OH)<sub>3</sub> Lanthanum hydroxide  
(c) C: faa fad

**76-10**  
LaCl<sub>3</sub> Lanthanum chloride  
(c, α) C: eah fab  
(aq) C: faa fab(x) fac fad

**76-11**  
LaBr<sub>3</sub> Lanthanum bromide  
(c) C: eah

**76-12**  
LaI<sub>3</sub> Lanthanum iodide  
(c) C: eah fab  
(aq) C: faa fab fac fad

**76-14**  
LaS<sub>2</sub> Lanthanum disulfide  
(c) C: fab

La<sub>2</sub>S<sub>3</sub> Lanthanum sulfide  
(c) C: fab

**76-14-1**  
La<sub>2</sub>(SO<sub>4</sub>)<sub>3</sub> Lanthanum sulfate  
(c) C: fae  
E-XIII: fae  
(aq) C: faa fab(x) fac fad

La<sub>2</sub>(SO<sub>4</sub>)<sub>3</sub>·9H<sub>2</sub>O Lanthanum sulfate-9-Water  
(c) C: faa fad fae  
E-XIII: fae

**76-18**  
LaN Lanthanum nitride  
(c) C: fab fae  
E-VIII: faa(t) fab(t)

**76-18-1**  
La(NO<sub>3</sub>)<sub>3</sub>·6H<sub>2</sub>O Lanthanum nitrate-6-Water  
(c, II) C: eaj fae  
(c, I) C: eah  
(c) E-XIII: fae

**76-23-2-1**  
LaC<sub>3</sub>H<sub>3</sub>O<sub>6</sub> Lanthanum formate  
(c) C: fae

**76-23-18**  
La<sub>2</sub>C<sub>3</sub>N<sub>6</sub> Lanthanum cyanamide  
(c) C: fab

**76-26**  
La<sub>3</sub>Sn<sub>3</sub> Lanthanum tristannide  
(c) C: eah

La<sub>2</sub>Sn Dilanthanum stannide  
(c) C: eah

La<sub>2</sub>Sn<sub>3</sub> Dilanthanum tristannide  
(c) C: eah

**LANTHANUM**  
76-27 LaPb

	<b>76-27</b>
LaPb	Lanthanum plumbide (c) C: eah
LaPb <sub>3</sub>	Lanthanum triplumbide (c) C: eah
La <sub>2</sub> Pb	Dilanthanum plumbide (c) C: eah
	<b>76-29</b>
La-Al	Lanthanum-Aluminum (c) F: fcf
LaAl <sub>2</sub>	Lanthanum dialuminide (c) C: eah fab
LaAl <sub>4</sub>	Lanthanum tetra-aluminide (c, II) C: eaj fab
	<b>76-32</b>
LaTl	Lanthanum thallide (c) C: eah
LaTl <sub>3</sub>	Lanthanum trithallide (c) C: eah
	<b>76-33</b>
LaZn <sub>9</sub>	Lanthanum nonazincide (c) C: eah
	<b>76-36</b>
LaCu <sub>2</sub>	Lanthanum dicupride (c) C: eah
LaCu <sub>3</sub>	Lanthanum hexacupride (c) C: eah
	<b>76-37</b>
LaAg	Lanthanum argentide (c) C: eah
LaAg <sub>3</sub>	Lanthanum triargentide (c) C: eah
	<b>76-38</b>
LaAu	Lanthanum auride (c) C: eah
LaAu <sub>2</sub>	Lanthanum diauride (c) C: eah
LaAu <sub>3</sub>	Lanthanum triauride (c) C: eah
	<b>76-45</b>
LaNi	Lanthanum nickelide (c) C: eah
LaNi <sub>5</sub>	Lanthanum pentanickelide (c) C: eah
La <sub>3</sub> Ni	Trilanthanum nickelide (c) C: eah
	<b>76-52-1</b>
La <sub>2</sub> (MoO <sub>4</sub> ) <sub>3</sub>	Lanthanum tetroxomolybdate(VI) (c) C: eah fae E-XIII: fae

**85 - Americium - Am**

	<b>85-1</b>
AmO <sub>2</sub>	Americium(IV) oxide (c) E-XII: faa(t) fab(t)
Am <sub>2</sub> O <sub>3</sub>	Americium(III) oxide (c) E-XII: faa(t) fab(t)

**86 - Plutonium - Pu**

	<b>86</b>
Pu <sup>3+</sup>	(aq) C: fab
Pu <sup>4+</sup>	(in aq HClO <sub>4</sub> ) C: fab
	<b>86-1</b>
PuO <sub>2</sub>	Plutonium(IV) oxide (c) C: fab E-XII: faa(t) fab(t)
PuO <sub>2</sub> <sup>+</sup>	Plutonyl(V) ion (in aq HClO <sub>4</sub> ) C: fab
PuO <sub>2</sub> <sup>2+</sup>	Plutonyl(VI) ion (in aq HClO <sub>4</sub> ) C: fab
	<b>86-2</b>
PuH <sub>2</sub>	Plutonium dihydride (c) C: fab
	<b>86-9</b>
PuF <sub>3</sub>	Plutonium(III) fluoride (c) C: ead fbn fbo (liq) C: eaq fbj fbk (aq) C: fab
	<b>86-10</b>
PuCl <sub>3</sub>	Plutonium(III) chloride (c) C: ead fab fbn fbo (liq) C: eaq fbj fbk (aq) C: fab
	<b>86-10-1</b>
PuOCl	Plutonium(III) oxide chloride (c) C: fab
	<b>86-11</b>
PuBr <sub>3</sub>	Plutonium(III) bromide (c) C: ead fab fbn fbo (liq) C: eaq fbj fbk (aq) C: fab
	<b>86-12</b>
PuI <sub>3</sub>	Plutonium(III) iodide (c) C: fab

87 — Neptunium — Np

87

Np<sup>3+</sup>  
(in aq HCl) C: fab

Np<sup>4+</sup>  
(in aq HCl) C: fab

87-1

NpO<sub>2</sub> Neptunium(IV) oxide  
(c) E-XII: faa(t) fab(t)

NpO<sub>2</sub><sup>+</sup> Neptunyl(V) ion  
(in aq HCl) C: fab

NpO<sub>2</sub><sup>2+</sup> Neptunyl(VI) ion  
(in aq HCl) C: fab

87-9

NpF<sub>3</sub> Neptunium(III) fluoride  
(c) C: fab

NpF<sub>4</sub> Neptunium(IV) fluoride  
(c) C: fab

NpF<sub>6</sub> Neptunium(VI) fluoride  
(c) C: eah

87-10

NpCl<sub>3</sub> Neptunium(III) chloride  
(c) C: eah fab

(in aq HCl) C: fab

NpCl<sub>4</sub> Neptunium(IV) chloride  
(c) C: eah fab

NpCl<sub>5</sub> Neptunium(V) chloride  
(c) C: fab

87-11

NpBr<sub>3</sub> Neptunium(III) bromide  
(c) C: fab

NpBr<sub>4</sub> Neptunium(IV) bromide  
(c) C: eah fab

87-12

NpI<sub>3</sub> Neptunium(III) iodide  
(c) C: eah fab

88 — Uranium — U

88

U Uranium

(c, III, α) C: eaj fac fae fbb fbc  
D: eaj fac(t) fae(t) faf(t) fai(t) fbb  
E-XIII: fae(t) fai(t) fal(t) fbb  
F: eaj eal(t) fac fae(-t,t) faf(t)  
fai(t) fal(t) fbb fbc fbn fbo

(c, II, β) C: eaj fbb fbc  
D: eaj fac fae faf fai fbb  
E-XIII: fae fai(t) fal(t) fbb  
F: eaj eal(t) fae(t) faf(t) fai(t) fal(t)  
fbb fbc fbn fbo

(c, I, γ) C: eah  
D: eah fac(t) fae(t) faf(t) fai(t) fbf  
E-XIII: fae fai(t) fal(t) fbf  
F: eah eal(t) fae(t) faf(t) fai(t) fal(t)  
fbf fbq fbn fbo  
(c) E-XI: fac fae  
(liq) D: eaq fac(t,t) fae(t,t) faf(t,t)  
fai(t,t) fbj  
E-XIII: fae fai(t,t) fal(t,t)  
F: eal(t,t) fae(t,t) faf(t,t)  
fai(t,t) fal(t,t)  
(g) C: fab  
D: faa(t,t) fab(t,t) fac(t,t)  
fad(t,t) fae(t,t) faf(t,t)  
fai(t,t)  
E-XIII: fae(t,t) fai(t,t) fal(t,t)  
F: fac fae(t,t) faf(t,t) fai(t,t)  
fal(t,t)

U<sup>+</sup>

(g) C: fab

U<sup>2+</sup>

(aq) C: faa fab fac fad

U<sup>3+</sup>

(aq) C: faa fab fac fad

88-1

UO<sub>2</sub> Uranium(IV) oxide  
(c) C: faa fab fac fad  
E-VIII: fam(t) fan  
E-XII: faa(t) fab(t)  
E-XIII: fae(t) fai(t) fal(t)

(aq) C: faa fab fac fad

UO<sub>2</sub><sup>2+</sup>

Uranyl(VI) ion  
(aq) C: faa fab fac fad  
E-XI: fac

UO<sub>3</sub>

Uranium(VI) oxide  
(c) C: faa fab fac fad  
E-XII: faa(t) fab(t)  
E-XIII: fae(t) fai(t) fal(t)

UO<sub>3</sub>·H<sub>2</sub>O Uranium(VI) oxide—Water  
(c) C: fab

UO<sub>3</sub>·2H<sub>2</sub>O Uranium(VI) oxide—2-Water  
(c) C: fab

UO<sub>4</sub>·2H<sub>2</sub>O Uranium tetroxide—2-Water  
(c) C: fab

U<sub>3</sub>O<sub>8</sub>

Triuranium octaoxide  
(c) C: fab  
E-XII: faa(t) fab(t)  
E-XIII: fae

U<sub>4</sub>O<sub>9</sub>

Tetrauranium nonaoxide  
(c) E-XIII: fae

88-2

UH<sub>3</sub> Uranium(III) hydride  
(c) C: fab

88-2-1

U(OH)<sup>2+</sup> Hydroxouranium(IV) ion  
(aq) C: faa fab fac fad

U(OH)<sub>4</sub><sup>2+</sup> Tetrahydroxouranium(VI) ion  
(aq) E-XI: fac

**88-9**

UF<sub>3</sub> Uranium(III) fluoride  
(c) C: faa fab fac fad

UF<sub>4</sub> Uranium(IV) fluoride  
(c) C: eai faa fab fac fad fae  
fbn fbo  
E-XI: fac fae(-t)  
E-XIII: fae  
(liq) C: eaq fbj fbk

UF<sub>5</sub> Uranium(V) fluoride  
(c) C: faa fab fac fad

UF<sub>6</sub> Uranium(VI) fluoride  
(c) C: eah eai faa fab fac fad  
fbf fbq fbh fbn fbo  
E-III: eai eal(-t,t) fbi fbj  
fbk  
E-XI: fac fae(-t)  
E-XIII: fae fbf  
(liq) C: eaq fbj fbk  
E-XIII: fae  
(g) C: faa fab fac fad  
E-XI: fac  
E-XIII: fae(t) fal(t) fal(t)

**88-9-1**

UO<sub>2</sub>F<sub>2</sub> Uranyl(VI) fluoride  
(c) C: fac fae  
E-XI: fac fae(-t)  
E-XIII: fae

**88-10**

UCl<sub>3</sub> Uranium(III) chloride  
(c) C: eai faa fab fac fad fbn  
fbo  
E-XIII: fae(t) fal(t) fal(t)  
(liq) C: eaq fbj fbk

UCl<sub>4</sub> Uranium(IV) chloride  
(c) C: eai faa fab fac fad fbn  
fbo  
E-XIII: fae(t) fal(t) fal(t)  
(liq) C: eaq fbj fbk

UCl<sub>5</sub> Uranium(V) chloride  
(c) C: faa fab fac fad

UCl<sub>6</sub> Uranium(VI) chloride  
(c) C: faa fab fac fad

**88-10-1**

UOCl<sub>2</sub> Uranium(IV) oxide dichloride  
(c) E-XIII: fae

UO<sub>2</sub>Cl<sub>2</sub> Uranyl(VI) chloride  
(c) E-XIII: fae  
(aq) C: fab

**88-11**

UBr<sub>3</sub> Uranium(III) bromide  
(c) C: eah eai faa fab fac fad  
fbf fbq fbh fbn fbo  
(liq) C: eaq eai fbj fbk

UBr<sub>4</sub> Uranium(IV) bromide  
(c) C: eai faa fab fac fad fbn  
fbo  
(liq) C: eaq fbj fbk

**88-11-1**

UOB<sub>2</sub> Uranium(IV) oxide dibromide  
(c) E-XIII: fae

UO<sub>2</sub>B<sub>2</sub> Uranyl(VI) bromide  
(aq) C: fab

**88-12**

UI<sub>3</sub> Uranium(III) iodide  
(c) C: faa fab fac fad

UI<sub>4</sub> Uranium(IV) iodide  
(c) C: faa fab fac fad

**88-12-10**

UCl<sub>3</sub>I Uranium(IV) trichloride iodide  
(c) C: faa fab fac fad

**88-12-11**

UBr<sub>3</sub>I Uranium(IV) tribromide iodide  
(c) C: fab

**88-14-1**

UO<sub>2</sub>SO<sub>4</sub> Uranyl(VI) sulfate  
(aq) C: faa fab fac fad

UO<sub>2</sub>SO<sub>4</sub>·3H<sub>2</sub>O Uranyl(VI) sulfate-3-Water  
(c) C: faa fab fac fad

U(SO<sub>4</sub>)<sub>2</sub> Uranium(IV) sulfate  
(c) C: fab

**88-18**

UN Uranium nitride  
(c) C: faa fab fac fad

U<sub>2</sub>N<sub>6</sub> Diuranium trinitride  
(c) C: faa fab fac fad

U<sub>3</sub>N<sub>4</sub> Uranium(IV) nitride  
(c) E-VIII: faa(t) fab(t)

**88-18-1**

UO<sub>2</sub>(NO<sub>3</sub>)<sub>2</sub> Uranyl(VI) nitrate  
(c) C: faa fab fac fad  
(aq) C: faa fab fac fad

UO<sub>2</sub>(NO<sub>3</sub>)<sub>2</sub>·H<sub>2</sub>O Uranyl(VI) nitrate-Water  
(c) C: faa fab fac fad

UO<sub>2</sub>(NO<sub>3</sub>)<sub>2</sub>·2H<sub>2</sub>O Uranyl(VI) nitrate-2-Water  
(c) C: faa fab fac fad

UO<sub>2</sub>(NO<sub>3</sub>)<sub>2</sub>·3H<sub>2</sub>O Uranyl(VI) nitrate-3-Water  
(c) C: faa fab fac fad

UO<sub>2</sub>(NO<sub>3</sub>)<sub>2</sub>·6H<sub>2</sub>O Uranyl(VI) nitrate-6-Water  
(c) C: faa fab fac fad  
E-XI: fac fae(-t)  
E-XIII: fae

**88-23**

UC<sub>2</sub> Uranium dicarbide  
(c) C: eah faa fab fac fad  
E-VIII: fam(t) fan(t)

U<sub>2</sub>C<sub>3</sub> Uranium(VI) carbide  
(c) C: eah

**88-23-2-1**

UO<sub>2</sub>C<sub>4</sub>H<sub>6</sub>O<sub>4</sub> Uranyl(VI) acetate  
(aq) C: fab

UO<sub>2</sub>C<sub>4</sub>H<sub>8</sub>O<sub>4</sub>·2H<sub>2</sub>O Uranyl(VI) acetate-2-Water  
(c) C: eah

88-23-18-2-1

UO<sub>2</sub>(NO<sub>3</sub>)<sub>2</sub>(CH<sub>3</sub>NH<sub>2</sub>)<sub>2</sub> Ethylenediammoniumuranyl(VI) nitrate  
(c) C: eah

UO<sub>2</sub>C<sub>4</sub>H<sub>8</sub>O<sub>4</sub>·NH<sub>4</sub>C<sub>2</sub>H<sub>5</sub>O<sub>2</sub>·6H<sub>2</sub>O Uranyl(VI) acetate-Ammonium acetate-6-Water  
(c) C: fab

88-23-18-10-2-1

UO<sub>2</sub>Cl<sub>4</sub>(CH<sub>3</sub>NH<sub>2</sub>)<sub>2</sub> Ethylenediammoniumuranyl(VI) chloride  
(c) C: eah

88-28-2

U(BH<sub>4</sub>)<sub>4</sub> Uranium(IV) borohydride  
(liq) C: eaq fbj fbk

88-28-23-2

U(BH<sub>4</sub>)<sub>3</sub>(BH<sub>3</sub>CH<sub>3</sub>) Uranium(IV) tris(tetrahydroborate) methyltrihydroborate  
(liq) C: eaq fbj fbk

U(BH<sub>3</sub>CH<sub>3</sub>)<sub>4</sub> Uranium(IV) methyltrihydroborate  
(liq) C: eaq fbj fbk

88-51-1

UO<sub>3</sub>CrO<sub>4</sub> Uranyl(VI) chromate  
(aq) C: fab

UO<sub>3</sub>CrO<sub>4</sub>·5½H<sub>2</sub>O Uranyl(VI) chromate-5½-Water  
(c) C: fab

89 - Protactinium - Pa

89

Pa Protactinium  
(c) D: eah fac(t) fae(t) faf(t) fai(t) fbf  
E-XIII: fae(t) fai(t) fal(t) fbf  
(liq) D: eaq fac(t,+t) fae(t,+t) faf(t,+t)  
fai(t,+t) fbj  
E-XIII: fae fai(t,+t) fal(t,+t)

89-10

PaCl<sub>3</sub> Protactinium chloride  
(c) C: eah

90 - Thorium - Th

90

Th Thorium  
(c, l) C: eaj  
(c, a) D: eaj fac(t) fae(t) faf(t) fai(t) fbb  
E-XIII: fae(t) fai(t) fal(t) fbb  
F: eaj eal(t) fac fae(-t,t) faf(t)  
fai(t) fal(t) fbb fbc fbn fbo

(c, β) D: eah fac(t) fae(t) faf(t) fai(t) fbf  
E-XIII: fae fai(t) fal(t) fbf  
F: eah eal(t) fae(t) faf(t) fai(t) fal(t)  
fbf fbq fbn fbo

(c) C: eah fac fae  
E-XI: fac fae

(liq) D: eaq fac(t,+t) fae(t,+t) faf(t,+t)  
fai(t,+t) fbj  
E-XIII: fae fai(t,+t) fal(t,+t)  
F: eal(t,+t) fae(t,+t) faf(t,+t)  
fai(t,+t) fal(t,+t) fbj fbk

(g) C: fac

Th<sup>4+</sup>

(aq) C: fab

90-1

ThO<sub>2</sub> Thorium oxide  
(c) C: eah fab fae  
E-VIII: fam(t) fan(t)  
E-XII: fac(t) fab(t)  
E-XIII: fae(t) fai(t) fal(t)

90-2

ThH<sub>4</sub> Thorium hydride  
(c) C: fab

90-2-1

Th(OH)<sub>4</sub> Thorium hydroxide  
(c) C: fab

90-9

ThF<sub>4</sub> Thorium fluoride  
(c) C: fab  
E-XIII: fae

90-10

ThCl<sub>4</sub> Thorium chloride  
(c) C: eai fab fbn fbo  
(liq) C: eaq fbj fbk  
(aq) C: fab

ThCl<sub>4</sub>·2H<sub>2</sub>O Thorium chloride-2-Water  
(c) C: fab

ThCl<sub>4</sub>·4H<sub>2</sub>O Thorium chloride-4-Water  
(c) C: fab

ThCl<sub>4</sub>·7H<sub>2</sub>O Thorium chloride-7-Water  
(c) C: fab

ThCl<sub>4</sub>·8H<sub>2</sub>O Thorium chloride-8-Water  
(c) C: fab

90-10-1

ThOCl<sub>2</sub> Thorium oxide dichloride  
(c) C: fab

90-10-2-1

Th(OH)Cl<sub>3</sub>·H<sub>2</sub>O Thorium hydroxide trichloride-Water  
(c) C: fab

90-11

ThBr<sub>4</sub> Thorium bromide  
(c) C: eai fab fbn fbo  
(liq) C: eaq fbj fbk  
(aq) C: fab

**THORIUM**  
90-11 ThBr<sub>4</sub>·7H<sub>2</sub>O

ThBr<sub>4</sub>·7H<sub>2</sub>O Thorium bromide—7-Water  
(c) C: fab  
ThBr<sub>4</sub>·10H<sub>2</sub>O Thorium bromide—10-Water  
(c) C: fab  
ThBr<sub>4</sub>·12H<sub>2</sub>O Thorium bromide—12-Water  
(c) C: fab

**90-11-1**

ThOB<sub>2</sub> Thorium oxide dibromide  
(c) C: fab

**90-12**

ThI<sub>4</sub> Thorium iodide  
(c) C: eah fab  
(liq) C: eaq fbj fbk

**90-12-1**

ThOI<sub>2</sub> Thorium oxide di-iodide  
(c) C: fab  
ThOI<sub>2</sub>·3½H<sub>2</sub>O Thorium oxide di-iodide—3½-Water  
(c) C: fab

**90-12-2-1**

Th(OH)I<sub>3</sub>·10H<sub>2</sub>O Thorium hydroxide tri-iodide—10-Water  
(c) C: fab

**90-14**

Th<sub>2</sub>S<sub>3</sub> Dithorium trisulfide  
(c) C: fab

**90-14-1**

ThOSO<sub>4</sub> Thorium oxide sulfate  
(c) C: fab  
Th(SO<sub>4</sub>)<sub>2</sub> Thorium sulfate  
(c) C: fab fae  
E-XIII: fae  
(aq) C: fab  
Th(SO<sub>4</sub>)<sub>2</sub>·4H<sub>2</sub>O Thorium sulfate—4-Water  
(c) C: fab  
Th(SO<sub>4</sub>)<sub>2</sub>·8H<sub>2</sub>O Thorium sulfate—8-Water  
(c) C: fab

**90-18**

Th<sub>3</sub>N<sub>2</sub> Trithorium dinitride  
(c) E-VIII: faa(t) fab(t)  
Th<sub>3</sub>N<sub>4</sub> Thorium nitride  
(c) C: fab fae  
E-XIII: fae(t) fal(t) fal(t)

**90-18-1**

Th(NO<sub>3</sub>)<sub>4</sub> Thorium nitrate  
(aq) C: fab(x)

**90-18-2-1**

Th(NO<sub>3</sub>)<sub>4</sub>·NH<sub>4</sub>NO<sub>3</sub>·H<sub>2</sub>O Thorium nitrate—Ammonium nitrate—  
Water  
(c) C: fab  
Th(NO<sub>3</sub>)<sub>4</sub>·NH<sub>4</sub>NO<sub>3</sub>·8H<sub>2</sub>O Thorium nitrate—Ammonium nitrate—8-  
Water  
(c) C: fab

5Th(NO<sub>3</sub>)<sub>4</sub>·4NH<sub>4</sub>NO<sub>3</sub>·11H<sub>2</sub>O 5-Thorium nitrate—4-Ammonium  
nitrate—11-Water  
(c) C: fab  
5Th(NO<sub>3</sub>)<sub>4</sub>·4NH<sub>4</sub>NO<sub>3</sub>·25H<sub>2</sub>O 5-Thorium nitrate—4-Ammonium  
nitrate—25-Water  
(c) C: fab

**90-18-10-2**

ThCl<sub>4</sub>·4NH<sub>3</sub> Thorium chloride—4-Ammonia  
(c) C: fab  
ThCl<sub>4</sub>·6NH<sub>3</sub> Thorium chloride—6-Ammonia  
(c) C: fab  
ThCl<sub>4</sub>·7NH<sub>3</sub> Thorium chloride—7-Ammonia  
(c) C: fab  
ThCl<sub>4</sub>·12NH<sub>3</sub> Thorium chloride—12-Ammonia  
(c) C: fab  
ThCl<sub>4</sub>·18NH<sub>3</sub> Thorium chloride—18-Ammonia  
(c) C: fab  
ThCl<sub>4</sub>·NH<sub>4</sub>Cl Thorium chloride—Ammonium chloride  
(c) C: fab  
ThCl<sub>4</sub>·2NH<sub>4</sub>Cl·10H<sub>2</sub>O Thorium chloride—2-Ammonium chloride—  
10-Water  
(c) C: fab  
[Th(NH<sub>3</sub>)<sub>6</sub>]Cl<sub>4</sub> Hexamminethorium chloride  
(c) C: fab  
[Th(NH<sub>3</sub>)<sub>6</sub>]Cl<sub>4</sub>·NH<sub>3</sub> Hexamminethorium chloride—Ammonia  
(c) C: fab  
[Th(NH<sub>3</sub>)<sub>6</sub>]Cl<sub>4</sub>·6NH<sub>3</sub> Hexamminethorium chloride—6-Ammonia  
(c) C: fab  
[Th(NH<sub>3</sub>)<sub>6</sub>]Cl<sub>4</sub>·12NH<sub>3</sub> Hexamminethorium chloride—12-Ammonia  
(c) C: fab

**90-23**

ThC<sub>2</sub> Thorium dicarbide  
(c) C: fab  
E-VIII: faa(t) fab(t) fam(t) fan(t)

**90-28-2**

Th(BH<sub>4</sub>)<sub>4</sub> Thorium borohydride  
(c) C: eai fbn fbo

**91 — Actinium — Ac**

**91**

Ac Actinium  
(c) D: eah fac(t) fae(t) fai(t) fai(t) fbf  
E-XIII: fae(t) fal(t) fal(t) fbf  
(liq) D: eaq fac(t,+t) fae(t,+t) fai(t,+t)  
fai(t,+t) fbj  
E-XIII: fae fai(t,+t) fal(t,+t)

**91-1**

Ac<sub>2</sub>O<sub>3</sub> Actinium oxide  
(c) E-XII: faa(t) fab(t)

92 - Beryllium - Be

**92**  
**Be** Beryllium  
(c) C: eah eai fac fae fbf fbq  
fbn fbo  
D: eah fac(t) fae(t) fai(t) fbf  
E-XI: fac fae(-t)  
E-XIII: fae(t) fai(t) fbf  
F: eah eal(t,+t) fac fae(-t,t,+t)  
fai(t,+t) fai(t,+t) fal(t,+t)  
fbf fbq fbn(t,+t) fbn(t,+t)  
(liq) D: eaq fac(t,+t) fae(t,+t) fai(t,+t)  
fai(t,+t) fbf  
E-XIII: fae fai(t,+t) fal(t,+t)  
F: eal(+t) fae(+t) fai(+t) fai(+t)  
fal(+t) fbi(+t) fbj(+t) fbk  
(g) C: faa fab fac fad fae  
D: faa(+t) fab(+t) fac(+t)  
fad(+t) fae(+t) fai(+t) fai(+t)  
E-XI: fac  
E-XIII: fae fai(t,+t) fal(t,+t)  
F: fac fae(t,+t) fai(t,+t) fai(t,+t)  
fal(t,+t)

**Be<sup>+</sup>**  
(g) C: fab

**Be<sup>2+</sup>**  
(g) C: fab  
(in aq acid soln.) C: fab

**Be<sup>3+</sup>**  
(g) C: fab

**Be<sup>4+</sup>**  
(g) C: fab

**92-1**  
**BeO** Beryllium oxide  
(c) C: eah eai faa fab fac fad  
fae fbn fbo  
E-XI: fac fae(-t)  
E-XII: faa(t) fab(t)  
E-XIII: fae(t) fai(t) fal(t)  
(g) C: faa fab fac fad fae  
E-XI: fac

**BeO<sub>2</sub><sup>2-</sup>** Dioxoberyllate ion  
(aq) C: fab

**92-2**  
**BeH** Beryllium monohydride  
(g) C: faa fab fac fad fae  
E-XI: fac  
E-XIII: fae(t) fai(t) fal(t)

**92-2-1**  
**Be(OH)<sub>2</sub>** Beryllium hydroxide  
(c, α) C: fab  
(c, β) C: fab

**BeO·Be(OH)<sub>2</sub>** Beryllium oxide-Beryllium hydroxide  
(c) C: fab

**92-9**  
**BeF** Beryllium monofluoride  
(g) E-XI: fac  
E-XIII: fae(t) fai(t) fal(t)

**BeF<sub>2</sub>** Beryllium fluoride  
(aq) C: fab

**92-10**  
**BeCl** Beryllium monochloride  
(g) E-XI: fac  
E-XIII: fae(t) fai(t) fal(t)

**BeCl<sub>2</sub>** Beryllium chloride  
(c) C: eai fab fbn fbo  
E-III: eal(t)

(in aq HCl) C: fab  
(in ethanol) C: fab  
(liq) C: eaq fbf fbk  
E-III: eaq eal(t)

**BeCl<sub>2</sub>·4H<sub>2</sub>O** Beryllium chloride-4-Water  
(c) C: fab

**92-11**  
**BeBr<sub>2</sub>** Beryllium bromide  
(c) C: eah eai fab fbn fbo  
E-III: eal(t)  
(in aq HCl) C: fab

**92-12**  
**BeI<sub>2</sub>** Beryllium iodide  
(c) C: eah eai  
(in aq HCl) C: fab fbn fbo  
E-III: eal(t) fab

**92-14**  
**BeS** Beryllium sulfide  
(c) C: fab

**92-14-1**  
**BeSO<sub>4</sub>** Beryllium sulfate  
(c) C: fab fae  
E-VII: fam(t) fan(t)  
E-XIII: fae  
(aq) C: fab(x)

**BeSO<sub>4</sub>·H<sub>2</sub>O** Beryllium sulfate-Water  
(c) C: fab

**BeSO<sub>4</sub>·2H<sub>2</sub>O** Beryllium sulfate-2-Water  
(c) C: fab

**BeSO<sub>4</sub>·4H<sub>2</sub>O** Beryllium sulfate-4-Water  
(c) C: fab

**BeSO<sub>4</sub>·4BeO** Beryllium sulfate-4-Beryllium oxide  
(c) C: fab  
E-VII: fam(t) fan(t)

**92-14-11-2**  
**BeBr<sub>2</sub>·2H<sub>2</sub>S** Beryllium bromide-2-Hydrogen sulfide  
(c) C: fab

**92-14-12-2**  
**BeI<sub>2</sub>·2H<sub>2</sub>S** Beryllium iodide-2-Hydrogen sulfide  
(c) C: fab



**BERYLLIUM**  
92-18 Be<sub>3</sub>N<sub>2</sub>

**92-18**  
Be<sub>3</sub>N<sub>2</sub> Beryllium nitride  
(c) C: fab  
E-VIII: faa(t) fab(t)  
E-XIII: fae(t) fai(t) fal(t)

**92-18-1**  
Be(NO<sub>3</sub>)<sub>2</sub> Beryllium nitrate  
(aq) C: fab

**92-18-10-2**  
BeCl<sub>2</sub>·2NH<sub>3</sub> Beryllium chloride-2-Ammonia  
(c) C: fab  
BeCl<sub>2</sub>·4NH<sub>3</sub> Beryllium chloride-4-Ammonia  
(c) C: fab  
BeCl<sub>2</sub>·6NH<sub>3</sub> Beryllium chloride-6-Ammonia  
(c) C: fab  
BeCl<sub>2</sub>·12NH<sub>3</sub> Beryllium chloride-12-Ammonia  
(c) C: fab

**92-18-11-2**  
BeBr<sub>2</sub>·4NH<sub>3</sub> Beryllium bromide-4-Ammonia  
(c) C: fab  
BeBr<sub>2</sub>·6NH<sub>3</sub> Beryllium bromide-6-Ammonia  
(c) C: fab  
BeBr<sub>2</sub>·10NH<sub>3</sub> Beryllium bromide-10-Ammonia  
(c) C: fab

**92-18-12-2**  
BeI<sub>2</sub>·4NH<sub>3</sub> Beryllium iodide-4-Ammonia  
(c) C: fab  
BeI<sub>2</sub>·6NH<sub>3</sub> Beryllium iodide-6-Ammonia  
(c) C: fab  
BeI<sub>2</sub>·13NH<sub>3</sub> Beryllium iodide-13-Ammonia  
(c) C: fab

**92-23-2-1**  
BeO·3BeC<sub>4</sub>H<sub>9</sub>O<sub>4</sub> Beryllium oxide-3-Beryllium acetate  
(c, II) C: eai eaj fbb fbc fbn fbo  
(c, I) C: eah eai fbf fbq fbn fbo

**92-23-10-2-1**  
BeCl<sub>2</sub>·2C<sub>4</sub>H<sub>10</sub>O Beryllium chloride-2-Ethyl ether  
(c) C: eah

**92-23-11-2-1**  
BeBr<sub>2</sub>·2C<sub>4</sub>H<sub>10</sub>O Beryllium bromide-2-Ethyl ether  
(c) C: eah

**92-24-1**  
Be<sub>2</sub>SiO<sub>4</sub> Beryllium orthosilicate  
(c) C: fac fae  
E-XI: fac fae(-t)  
E-XIII: fae

**92-28-2**  
Be(BH<sub>4</sub>)<sub>2</sub> Beryllium borohydride  
(c) C: eai fbn fbo

**92-28-23-18-2**  
Be(BH<sub>4</sub>)<sub>2</sub>·N(CH<sub>3</sub>)<sub>3</sub> Beryllium borohydride-Trimethylamine  
(c) C: eah  
(liq) C: eaq fbj fbk

**92-29-1**  
BeO·Al<sub>2</sub>O<sub>3</sub> Beryllium oxide-Aluminum oxide  
(c) C: eah  
BeAl<sub>2</sub>O<sub>4</sub> Beryllium dialuminum tetroxide  
(c) C: fae  
E-XIII: fae

**92-52-1**  
BeMoO<sub>4</sub> Beryllium tetroxomolybdate(VI)  
(c) C: fab

**92-58-1**  
3BeO·2ZrO<sub>2</sub> 3-Beryllium oxide-2-Zirconium oxide  
(c) C: eah

**93 - Magnesium - Mg**

**93**  
Magnesium  
(c) C: eah fac fae fbf fbq  
D: eah fac(t) fae(t) faf(t) fai(t) fbf  
E-III: eal(t) fbn(t) fbn(t)  
E-V: eah fbf fbq  
E-XI: fac fae(-t)  
E-XIII: fae(t) fai(t) fal(t) fbf  
F: eah eal(t) fac fae(-t, t) faf(t)  
fai(t) fal(t) fbf fbq fbn(t) fbn(t)  
(liq) C: eaq fbj fbk  
D: eaq fac(t) fae(t) faf(t) fai(t) fbj  
E-III: eaq eal(t) fbi(t) fbj(t) fbk  
E-XIII: fae fai(t) fal(t)  
F: eal(t) fae(t) faf(t) fai(t) fal(t) fbi(t)  
fbj(t) fbk  
(g) C: faa fab fac fad fae  
D: faa(t, +t) fab(t, +t) fac(t, +t)  
fad(t, +t) fae(t, +t) faf(t, +t)  
fai(t, +t)  
E-III: fac  
E-XI: fac  
E-XIII: fae fai(t, +t) fal(t, +t)  
F: fac fae(t) faf(t) fai(t) fal(t)

Mg<sup>+</sup>  
(g) C: fab

Mg<sup>2+</sup>  
(g) C: fab  
(aq) C: faa fab fac fad  
E-XI: fac

Mg<sup>3+</sup>  
(g) C: fab

Mg<sup>4+</sup>  
(g) C: fab

Mg<sup>5+</sup>  
(g) C: fab

Mg <sup>2+</sup>	(g) C: fab
Mg <sup>+</sup>	(g) C: fab
Mg <sup>0+</sup>	(g) C: fab
Mg <sup>3+</sup>	(g) C: fab
Mg <sup>10+</sup>	(g) C: fab
Mg <sup>11+</sup>	(g) C: fab

93-1

MgO	Magnesium oxide
(c, finely divided) C:	faa fab fac fad fae
(c) C:	eah faa fab fac fad fae
	fbf fbq
E-IV:	faa fab fam(t) fan(t)
E-V:	eah fbf fbq
E-XI:	fac fae(-t)
E-XII:	faa(t) fab(t)
E-XIII:	fae(t, +t) fai(t, +t) fal(t, +t)
(g) E-XI:	fac

MgO <sub>2</sub>	Magnesium dioxide
(c) C:	fab
E-XII:	faa(t) fab(t)

93-2

MgH	Magnesium monohydride
(g) C:	faa fab fac fad fae
E-XI:	fac
E-XIII:	fae(t) fai(t) fal(t)

Mg <sup>2</sup> H	Magnesium monodeuteride
(g) E-XI:	fac
E-XIII:	fae(t) fai(t) fal(t)

93-2-1

Mg(OH) <sub>2</sub>	Magnesium hydroxide
(c) C:	faa fab fac fad fae
(aq) E-IV:	eam
E-XI:	fac fae(-t)
E-XIII:	fae(t) fai(t) fal(t)

93-9

MgF	Magnesium monofluoride
(g) C:	faa fab fac fad fae
E-XI:	fac
E-XIII:	fae(t) fai(t) fal(t)

MgF <sub>2</sub>	Magnesium fluoride
(c) C:	eah faa fab fac fad fae
	fbf fbq
E-V:	eah fbf fbq
E-XI:	fac fae(-t)
E-XIII:	fae(t) fai(t) fal(t) fbf
(liq) C:	eaq fbj fbk
E-XIII:	fae fai(t) fal(t)

93-10

MgCl	Magnesium monochloride
(g) C:	fab
E-XI:	fac
E-XIII:	fae(t) fai(t) fal(t)

MgCl <sub>2</sub>	Magnesium chloride
(c) C:	eah faa fab fac fad fae
	fbf fbq
E-V:	eah fbf fbq
E-XI:	fac fae(-t)
E-XIII:	fae(t) fai(t) fal(t) fbf
(liq) C:	eaq fbj fbk
E-III:	eaq eal(t) fbl(t) fbj(t) fbk
E-XII:	fae fai(t) fal(t)
(aq) C:	faa fab(x) fac fad

MgCl <sub>2</sub> ·H <sub>2</sub> O	Magnesium chloride-Water
(c) C:	faa fab fac fad fae
E-XI:	fac fae(-t)
E-XIII:	fae(t)

MgCl <sub>2</sub> ·2H <sub>2</sub> O	Magnesium chloride-2-Water
(c) C:	faa fab fac fad fae
E-XI:	fac fae(-t)
E-XIII:	fae(t)

MgCl <sub>2</sub> ·4H <sub>2</sub> O	Magnesium chloride-4-Water
(c) C:	faa fab fac fad fae
E-XI:	fac fae(-t)
E-XIII:	fae(t)

MgCl <sub>2</sub> ·6H <sub>2</sub> O	Magnesium chloride-6-Water
(c) C:	eah faa fab fac fad fae
	fbf fbq
E-XI:	fac fae(-t)
E-XIII:	fae(t)

93-10-1

MgO·MgCl <sub>2</sub>	Magnesium oxide-Magnesium chloride
(c) C:	fab

MgO·MgCl <sub>2</sub> ·6H <sub>2</sub> O	Magnesium oxide-Magnesium chloride-6-Water
(c) C:	fab

MgO·MgCl <sub>2</sub> ·16H <sub>2</sub> O	Magnesium oxide-Magnesium chloride-16-Water
(c) C:	fab

Mg(ClO <sub>4</sub> ) <sub>2</sub>	Magnesium perchlorate
(c) C:	fab
(aq) C:	fab

Mg(ClO <sub>4</sub> ) <sub>2</sub> ·2H <sub>2</sub> O	Magnesium perchlorate-2-Water
(c) C:	fab

Mg(ClO <sub>4</sub> ) <sub>2</sub> ·4H <sub>2</sub> O	Magnesium perchlorate-4-Water
(c) C:	fab

Mg(ClO <sub>4</sub> ) <sub>2</sub> ·6H <sub>2</sub> O	Magnesium perchlorate-6-Water
(c) C:	fab

93-10-2-1

Mg(OH)Cl	Magnesium hydroxide chloride
(c) C:	faa fab fac fad
E-XIII:	fae(t)

93-11

MgBr	Magnesium monobromide
(g) E-XI:	fac
E-XIII:	fae(t) fai(t) fal(t)

MgBr <sub>2</sub>	Magnesium bromide
(c) C:	eah fab fbf fbq
(aq) C:	faa fab(x) fac fad
E-V:	eah fbf fbq

MgBr <sub>2</sub> ·6H <sub>2</sub> O	Magnesium bromide-6-Water
(c) C:	eah faa fab fac fad

**MAGNESIUM**  
93-12 MgI

**93-12**  
MgI Magnesium monoiodide  
(g) E-XI: fac  
E-XIII: fae(t) fai(t) fal(t)

MgI<sub>2</sub> Magnesium iodide  
(c) C: fab  
(aq) C: faa fab fac fad

**93-14**  
MgS Magnesium sulfide  
(c) C: fab  
(g) E-XIII: fae(t) fai(t) fal(t)

**93-14-1**  
MgSO<sub>3</sub> Magnesium sulfite  
(c) C: fab

MgSO<sub>3</sub>·3H<sub>2</sub>O Magnesium sulfite-3-Water  
(c) C: fab

MgSO<sub>3</sub>·6H<sub>2</sub>O Magnesium sulfite-6-Water  
(c) C: fab

MgSO<sub>4</sub> Magnesium sulfate  
(c) C: eah faa fab fac fad fae  
fbf fbg  
E-V: eah fbf fbg  
E-VII: faa(t) fab(t) fam(t) fan(t)  
E-XI: fac fae(-t)  
E-XIII: fae  
(aq) C: faa fab(x) fac fad

MgSO<sub>4</sub>·H<sub>2</sub>O Magnesium sulfate-Water  
(c) E-XIII: fae

MgSO<sub>4</sub>·2H<sub>2</sub>O Magnesium sulfate-2-Water  
(c) C: fab

MgSO<sub>4</sub>·4H<sub>2</sub>O Magnesium sulfate-4-Water  
(c) C: fab

MgSO<sub>4</sub>·6H<sub>2</sub>O Magnesium sulfate-6-Water  
(c) C: fab  
E-VII: fam fan  
E-XIII: fae

MgSO<sub>4</sub>·7H<sub>2</sub>O Magnesium sulfate-7-Water  
(c) C: fab  
E-VII: fam fan  
E-XIII: fae

Mg<sub>2</sub>S<sub>2</sub>O<sub>3</sub> Magnesium thiosulfate  
(aq) C: fab

Mg<sub>2</sub>S<sub>2</sub>O<sub>3</sub>·3H<sub>2</sub>O Magnesium thiosulfate-3-Water  
(c) C: fab

Mg<sub>2</sub>S<sub>2</sub>O<sub>3</sub>·6H<sub>2</sub>O Magnesium thiosulfate-6-Water  
(c) C: fab

**93-16**  
Mg-Te Magnesium-Tellurium  
(c) F: fcf(x)

MgTe Magnesium telluride  
(c) C: fab

**93-18**  
Mg<sub>3</sub>N<sub>2</sub> Magnesium nitride  
(c, III, γ) C: eaj fbb fbc  
E-XIII: fae(t) fai(t) fal(t) fbb  
(c, II, β) C: eaj fbb fbc  
E-XIII: fae(t) fai(t) fal(t) fbb  
(c, γ) E-XIII: fae fai(t) fal(t)

(c) C: fab fae  
E-VIII: faa(t) fab(t)

**93-18-1**  
Mg(NO<sub>3</sub>)<sub>2</sub> Magnesium nitrate  
(c) C: faa fab fac fad fae  
E-XI: fac fae(-t)  
E-XIII: fae(t) fai(t) fal(t)  
(aq) C: faa fab(x) fac fad

Mg(NO<sub>3</sub>)<sub>2</sub>·2H<sub>2</sub>O Magnesium nitrate-2-Water  
(c) C: eah

Mg(NO<sub>3</sub>)<sub>2</sub>·6H<sub>2</sub>O Magnesium nitrate-6-Water  
(c) C: eah fab fbf fbg

**93-18-2**  
Mg(NH<sub>2</sub>)<sub>2</sub><sup>2+</sup> Diamminemagnesium ion  
(aq) C: fab

**93-18-10-2**  
MgCl<sub>2</sub>·NH<sub>3</sub> Magnesium chloride-Ammonia  
(c) C: fab

MgCl<sub>2</sub>·2NH<sub>3</sub> Magnesium chloride-2-Ammonia  
(c) C: fab  
(aq) C: fab

**93-18-11-2**  
MgBr<sub>2</sub>·NH<sub>3</sub> Magnesium bromide-Ammonia  
(c) C: fab

MgBr<sub>2</sub>·2NH<sub>3</sub> Magnesium bromide-2-Ammonia  
(c) C: fab

**93-18-12-2**  
MgI<sub>2</sub>·2NH<sub>3</sub> Magnesium iodide-2-Ammonia  
(c) C: fab

**93-18-14-2-1**  
Mg(NH<sub>2</sub>)<sub>2</sub>SO<sub>4</sub> Diamminemagnesium sulfate  
(aq) C: fab

3MgSO<sub>3</sub>·(NH<sub>4</sub>)<sub>2</sub>SO<sub>3</sub>·6H<sub>2</sub>O 3-Magnesium sulfite-Ammonium sulfite-6-Water  
(c) C: fab

3MgSO<sub>3</sub>·(NH<sub>4</sub>)<sub>2</sub>SO<sub>3</sub>·18H<sub>2</sub>O 3-Magnesium sulfite-Ammonium sulfite-18-Water  
(c) C: fab

**93-19-1**  
Mg<sub>2</sub>P<sub>2</sub>O<sub>7</sub> Magnesium diphosphate  
(c, II) C: eaj  
(c, I) C: eah

Mg<sub>3</sub>(PO<sub>4</sub>)<sub>2</sub> Magnesium phosphate  
(c) C: eah fab fbf fbg  
E-V: eah fbf fbg

**93-19-2-1**  
MgHPO<sub>4</sub> Magnesium hydrogen phosphate  
(aq) C: fab

**93-19-18-2-1**  
Mg(NH<sub>4</sub>)PO<sub>4</sub>·6H<sub>2</sub>O Magnesium ammonium phosphate-6-Water  
(c) C: fab

**93-20**  
Mg<sub>3</sub>As<sub>2</sub> Magnesium arsenide  
(c) C: eah

**93-20-1**  
Mg<sub>3</sub>(AsO<sub>4</sub>)<sub>2</sub> Magnesium arsenate  
(c) C: fab

**93-20-2-1**  
MgHAsO<sub>4</sub> Magnesium hydrogen arsenate  
(aq) C: fab

Mg(H<sub>2</sub>AsO<sub>4</sub>)<sub>2</sub> Magnesium dihydrogen arsenate  
(aq) C: fab

**93-20-18-2-1**  
Mg(NH<sub>4</sub>)AsO<sub>4</sub>·6H<sub>2</sub>O Magnesium ammonium arsenate—6-Water  
(c) C: fab

**93-21**  
Mg-Sb Magnesium-Antimony  
(c) F: fcf  
(liq) F: fcc(x) fcd(x) fcg(x) fcn(x) fco(x) fcv(x) fcw(x)

Mg<sub>3</sub>Sb<sub>2</sub> Trimagnesium diantimonide  
(c, II) C: eaj fab  
E-XIII: fae(t)

**93-22**  
Mg-Bi Magnesium-Bismuth  
(liq) F: fca(x) fcb(x) fcc(x) fcd(x) fcf(x) fcg(x) fcl(x) fcm(x) fcn(x) fco(x) fcv(x) fcw(x)

Mg<sub>3</sub>Bi<sub>2</sub> Trimagnesium dibismuthide  
(c) C: fab

**93-22-18-1**  
3Mg(NO<sub>3</sub>)<sub>2</sub>·2Bi(NO<sub>3</sub>)<sub>3</sub>·24H<sub>2</sub>O 3-Magnesium nitrate—2-Bismuth(III) nitrate—24-Water  
(c) C: eah

**93-23-1**  
MgCO<sub>3</sub> Magnesium carbonate  
(c, magnesite) E-XI: fac fae(-t)  
(c) C: faa fab fac fad fae  
E-IV: faa(t) fab(t) fam(t) fan(t)  
E-XIII: fae(t) fai(t) fal(t)

MgCO<sub>3</sub>·3H<sub>2</sub>O Magnesium carbonate—3-Water  
(aq) E-IV: eam fap

**93-23-2-1**  
MgC<sub>4</sub>H<sub>7</sub>O<sub>4</sub>·4H<sub>2</sub>O Magnesium acetate—4-Water  
(c) C: eah

MgC<sub>4</sub>H<sub>5</sub>O<sub>5</sub> Magnesium glycollate  
(c) C: fab  
(aq) C: fab

MgC<sub>4</sub>H<sub>5</sub>O<sub>5</sub>·2H<sub>2</sub>O Magnesium glycollate—2-Water  
(c) C: fab

**93-23-10-2-1**  
MgCl<sub>2</sub>·6CH<sub>3</sub>O Magnesium chloride—6-Methanol  
(c) C: fab

MgCl<sub>2</sub>·6C<sub>2</sub>H<sub>5</sub>O Magnesium chloride—6-Ethanol  
(c) C: fab

**93-23-11-2-1**  
MgBr<sub>2</sub>·6CH<sub>2</sub>O<sub>2</sub> Magnesium bromide—6-Formic acid  
(c) C: eah

MgBr<sub>2</sub>·6CH<sub>3</sub>O Magnesium bromide—6-Methanol  
(c) C: eah

MgBr<sub>2</sub>·6C<sub>2</sub>H<sub>4</sub>O<sub>2</sub> Magnesium bromide—6-Acetic acid  
(c) C: eah

MgBr<sub>2</sub>·6C<sub>2</sub>H<sub>5</sub>O Magnesium bromide—6-Ethanol  
(c) C: eah

**93-23-12-2-1**  
MgI<sub>2</sub>·6CH<sub>3</sub>O Magnesium iodide—6-Methanol  
(c) C: eah

MgI<sub>2</sub>·6C<sub>2</sub>H<sub>4</sub>O<sub>2</sub> Magnesium iodide—6-Acetic acid  
(c) C: eah

MgI<sub>2</sub>·6C<sub>2</sub>H<sub>5</sub>O Magnesium iodide—6-Ethanol  
(c) C: eah

**93-23-18**  
MgCN<sub>2</sub> Magnesium cyanamide  
(c) C: fab

Mg(CN)<sub>2</sub> Magnesium cyanide  
(aq) C: fab

**93-23-18-2-1**  
Mg(NO<sub>3</sub>)<sub>2</sub>·6CH<sub>3</sub>O Magnesium nitrate—6-Methanol  
(c) C: fab

Mg(NO<sub>3</sub>)<sub>2</sub>·6C<sub>2</sub>H<sub>5</sub>O Magnesium nitrate—6-Ethanol  
(c) C: fab

**93-23-18-11-2**  
MgBr<sub>2</sub>·3C<sub>2</sub>NH<sub>2</sub> Magnesium bromide—3-Methyl cyanide  
(c) C: eah

**93-23-18-11-2-1**  
MgBr<sub>2</sub>·6C<sub>2</sub>NH<sub>2</sub>O Magnesium bromide—6-Acetamide  
(c) C: eah

**93-23-18-12-2-1**  
MgI<sub>2</sub>·6C<sub>2</sub>NH<sub>2</sub>O Magnesium iodide—6-Acetamide  
(c) C: eah

**93-24**  
Mg<sub>2</sub>Si Magnesium silicide  
(c) C: eah fab  
E-XIII: fae(t)

**93-24-1**  
MgSiO<sub>3</sub> Magnesium metasilicate  
(c, clinostatite) E-XI: fac fae(-t)  
E-XIII: fae(t) fai(t) fal(t)  
(c, amphibole-type) E-XIII: fae(t) fai(t) fal(t)  
(c, pyroxene-type) E-XIII: fae(t) fai(t) fal(t)  
(c) C: eah faa fab fac fad fae  
fbf fbq  
E-V: eah fbf fbq  
(gls) E-XIII: fae(t) fai(t) fal(t)

Mg<sub>2</sub>SiO<sub>4</sub> Magnesium orthosilicate  
(c) C: eah faa fab fac fad fae  
E-XI: fac fae(-t)  
E-XIII: fae(t) fai(t) fal(t)

	<b>93-25</b>	
Mg <sub>2</sub> Ge	Dimagnesium germanide	
	(c) C: eah	
	<b>93-26</b>	
Mg-Sn	Magnesium-Tin	
	(c) F: fcr(t) fct(t)	
	(liq) F: fcf(x) fcq(x)	
Mg <sub>2</sub> Sn	Dimagnesium stannide	
	(c) C: fab	
	<b>93-27</b>	
Mg-Pb	Magnesium-Lead	
	(c) F: fca fcb fcf fcl fcm	
	(liq) F: fca(x) fcb(x) fcc(x) fcd(x) fcf(x) fcq(x)	
	fcl(x) fcm(x) fcn(x) fco(x) fcv(x) fcw(x)	
Mg <sub>2</sub> Pb	Dimagnesium plumbide	
	(c) C: fab	
	<b>93-27-12</b>	
2MgI <sub>2</sub> ·PbI <sub>2</sub>	2-Magnesium iodide—Lead(II) iodide	
	(c) C: fab	
	<b>93-28</b>	
MgB <sub>2</sub>	Magnesium diboride	
	(c) E-XIII: fae	
MgB <sub>4</sub>	Magnesium tetraboride	
	(c) E-XIII: fae	
	<b>93-28-1</b>	
MgO·B <sub>2</sub> O <sub>3</sub>	Magnesium oxide—Diboron trioxide	
	(c) C: eah	
2MgO·B <sub>2</sub> O <sub>3</sub>	2-Magnesium oxide—Diboron trioxide	
	(c) C: eah	
3MgO·B <sub>2</sub> O <sub>3</sub>	3-Magnesium oxide—Diboron trioxide	
	(c) C: eah	
	<b>93-28-10-1</b>	
MgCl <sub>2</sub> ·5MgO·7B <sub>2</sub> O <sub>3</sub>	Magnesium chloride—5-Magnesium oxide— 7-Diboron trioxide	
	(c) C: eaj	
6MgO·MgCl <sub>2</sub> ·8B <sub>2</sub> O <sub>3</sub>	6-Magnesium oxide—Magnesium chloride— 8-Diboron trioxide	
	(c, α) E-XIII: fae(t) fai(t) fal(t) fbb	
	(c, β) E-XIII: fae fai(t) fal(t)	
	<b>93-29</b>	
Mg-Al	Magnesium-Aluminum	
	(c) F: fca fcb fcf fcl fcm	
	(liq) F: fca(x) fcb(x) fcc(x) fcd(x) fcf(x) fcl(x)	
	fcm(x) fcv(x) fcw(x)	
Mg <sub>2</sub> Al <sub>3</sub>	Dimagnesium trialuminide	
	(c) C: eah	
Mg <sub>3</sub> Al <sub>2</sub>	Trimagnesium dialuminide	
	(c) C: eah	
Mg <sub>4</sub> Al <sub>3</sub>	Tetramagnesium trialuminide	
	(c) C: eah fab	
	E-XIII: fae(t)	

	<b>93-29-1</b>	
MgO·Al <sub>2</sub> O <sub>3</sub>	Magnesium oxide—Aluminum oxide	
	(c) C: eah	
	E-XIII: fae(t) fai(t) fal(t)	
	<b>93-32</b>	
Mg-Tl	Magnesium-Thallium	
	(c) F: fcf(x)	
MgTl	Magnesium thallide	
	(c) C: fab	
Mg <sub>5</sub> Tl <sub>2</sub>	Pentamagnesium dithallide	
	(c) C: eah	
	<b>93-33</b>	
Mg-Zn	Magnesium-Zinc	
	(c) F: fbf fbg fca(x) fcb(x) fcf(x) fcl(x)	
	fcm(x) fcr(t) fct(t)	
	(liq) F: fca(x) fcb(x) fcc(x) fcd(x) fcf(x) fcl(x)	
	fcm(x) fcv(x) fcw(x)	
MgZn <sub>2</sub>	Magnesium dizincide	
	(c) C: eah fab fbf fbg	
	E-V: eah fbf fbg	
	E-XIII: fae(t) fai(t) fal(t)	
	<b>93-34</b>	
Mg-Cd	Magnesium-Cadmium	
	(c) F: fca(x) fcb(x) fcc(x) fcd(x) fce(t) fcf(x)	
	fcg(x) fch(t) fcl(x) fcm(x) fcn(x) fco(x)	
	fcp(t) fcr(-t,t) fct(-t,t) fcv(x)	
	(liq) F: fca(x) fcb(x) fcc(x) fcd(x) fcf(x) fcl(x)	
	fcm(x) fcv(x) fcw(x)	
MgCd	Magnesium cadmide	
	(c, II) C: fab	
	(c) E-XIII: fae	
MgCd <sub>6</sub>	Magnesium tricadmide	
	(c) E-XIII: fae	
Mg <sub>3</sub> Cd	Trimagnesium cadmide	
	(c) E-XIII: fae	
	<b>93-35</b>	
Mg-Hg	Magnesium-Mercury	
	(c) F: fca fcb	
	(liq) F: fcc(x) fcd(x) fcq fcv(x) fcw(x)	
	<b>93-35-11</b>	
MgHgBr <sub>4</sub>	Magnesium mercury(II) tetrabromide	
	(aq) C: fab	
MgHg <sub>2</sub> Br <sub>4</sub>	Magnesium mercury(I) tetrabromide	
	(aq) C: fab	
Mg <sub>2</sub> HgBr <sub>6</sub>	Dimagnesium mercury(II) hexabromide	
	(aq) C: fab	
Mg <sub>4</sub> HgBr <sub>10</sub>	Tetramagnesium mercury(II) decabromide	
	(aq) C: fab	
	<b>93-35-23-18</b>	
MgHg(CN) <sub>4</sub>	Magnesium mercury(II) cyanide	
	(aq) C: fab	
MgHg <sub>2</sub> (CN) <sub>6</sub>	Magnesium dimercury(II) cyanide	
	(aq) C: fab	

93-35-23-18-10  
2Hg(CN)<sub>2</sub>·MgCl<sub>2</sub> 2-Mercury(II) cyanide—Magnesium chloride  
(aq) C: fab

2Hg(CN)<sub>2</sub>·MgCl<sub>2</sub>·6H<sub>2</sub>O 2-Mercury(II) cyanide—Magnesium chloride—6-Water  
(c) C: fab

93-35-23-18-11  
2Hg(CN)<sub>2</sub>·MgBr<sub>2</sub> 2-Mercury(II) cyanide—Magnesium bromide  
(aq) C: fab

2Hg(CN)<sub>2</sub>·MgBr<sub>2</sub>·8H<sub>2</sub>O 2-Mercury(II) cyanide—Magnesium bromide—8-Water  
(c) C: fab

95-35-23-18-12  
2Hg(CN)<sub>2</sub>·MgI<sub>2</sub> 2-Mercury(II) cyanide—Magnesium iodide  
(aq) C: fab

2Hg(CN)<sub>2</sub>·MgI<sub>2</sub>·8H<sub>2</sub>O 2-Mercury(II) cyanide—Magnesium iodide—8-Water  
(c) C: fab

93-36  
Mg-Cu Magnesium-Copper  
(c) F: fca(x) fcb(x) fcf(x) fcl(x) fcm(x)

MgCu<sub>2</sub> Magnesium dicupride  
(c) C: eah  
E-XIII: fae(t) fai(t) fal(t)

Mg<sub>2</sub>Cu Dimagnesium cupride  
(c) C: eah  
E-XIII: fae(t)

93-36-21  
MgCuSb Magnesium copper antimonide  
(c) C: eah

93-37  
Mg-Ag Magnesium-Silver  
(c) F: fca(x) fcb(x) fcc(x) fcd(x) fcf(x) fcg(x) fcl(x) fcm(x) fcn(x) fco(x) fcv(x) fcw(x)  
(liq) F: fcf(x)

MgAg Magnesium argentide  
(c) C: eah  
E-XIII: fae(t) fai(t) fal(t)

93-38  
MgAu Magnesium auride  
(c) E-XIII: fae(t)

Mg<sub>2</sub>Au Dimagnesium auride  
(c) E-XIII: fae(t)

Mg<sub>3</sub>Au Trimagnesium auride  
(c) E-XIII: fae(t)

93-45  
Mg-Ni Magnesium-Nickel  
(c) F: fca fcb fcf fcl fcm

MgNi<sub>2</sub> Magnesium dinickelide  
(c) C: eah  
E-XIII: fae(t) fai(t) fal(t)

93-47-1  
MgO·Fe<sub>2</sub>O<sub>2</sub> Magnesium oxide—Iron(III) oxide  
(c) C: eah

MgFe<sub>2</sub>O<sub>4</sub> Magnesium iron(III) tetroxide  
(c, α) E-XIII: fae(t) fai(t) fal(t) fbb  
(c, β) E-XIII: fae fai(t) fal(t) fbb  
(c, γ) E-XIII: fae(t) fai(t) fal(t)

93-51-1  
MgCrO<sub>4</sub> Magnesium chromate  
(c) C: fab  
(aq) C: fab

MgCr<sub>2</sub>O<sub>4</sub> Magnesium chromium(III) tetroxide  
(c) C: fac fae  
E-XI: fac fae(-t)  
E-XIII: fae(t) fai(t) fal(t)

93-57-1  
MgTiO<sub>3</sub> Magnesium titanium(IV) trioxide  
(c) C: fac fae  
E-XI: fac fae(-t)  
E-XIII: fae(t) fai(t) fal(t)

MgTi<sub>2</sub>O<sub>5</sub> Magnesium dititanium(IV) pentoxide  
(c) E-XIII: fae(t) fai(t) fal(t)

MgO·2TiO<sub>2</sub> Magnesium oxide—2-Titanium(IV) oxide  
(c) C: eah

Mg<sub>2</sub>TiO<sub>4</sub> Magnesium titanium(IV) tetroxide  
(c) E-XIII: fae(t) fai(t) fal(t)

2MgO·TiO<sub>2</sub> 2-Magnesium oxide—Titanium(IV) oxide  
(c) C: eah

93-58-1  
MgO·ZrO<sub>2</sub> Magnesium oxide—Zirconium oxide  
(c) C: eah

93-74  
Mg-Pr Magnesium-Praseodymium  
(c) F: fcf(x)

MgPr Magnesium praseodymide  
(c) C: eah fab

Mg<sub>3</sub>Pr Trimagnesium praseodymide  
(c) C: eah fab

93-75  
MgCe Magnesium ceride  
(c) C: eah fab

MgCe<sub>3</sub> Magnesium triceride  
(c) C: fab

MgCe<sub>4</sub> Magnesium tetraceride  
(c) C: eah

Mg<sub>3</sub>Ce Trimagnesium ceride  
(c) C: eah

93-76  
Mg-La Magnesium-Lanthanum  
(c) F: fcf(x)

MgLa Magnesium lanthanide  
(c) C: eah fab

Mg<sub>3</sub>La Trimagnesium lanthanide  
(c) C: eah fab

93-76-1  
MgO·La<sub>2</sub>O<sub>3</sub> Magnesium oxide—Lanthanum oxide  
(c) C: eah

**MAGNESIUM**

93-76-18-1  $3\text{Mg}(\text{NO}_3)_2 \cdot 2\text{La}(\text{NO}_3)_3 \cdot 24\text{H}_2\text{O}$

93-76-18-1  
 $3\text{Mg}(\text{NO}_3)_2 \cdot 2\text{La}(\text{NO}_3)_3 \cdot 24\text{H}_2\text{O}$  3-Magnesium nitrate-2-Lanthanum nitrate-24-Water

(c) C: fac fae  
 E-XI: fac fae(-)  
 E-XIII: fae

**94 - Calcium - Ca**

**94**  
 Calcium

Ca

(c, II, a) C: eaj fac fae fbb fbc fbd  
 D: eaj fac(t) fae(t) fai(t) fai(t) fbb  
 E-III: fbm(t) fbn(t)  
 E-XIII: fae(t) fai(t) fal(t) fbb  
 F: eaj eal(t) fac fae(-,t) fai(t)  
 fai(t) fal(t) fbb fbc fbm(t) fbn(t)

(c, I, β) C: eah eai fbf fbq fbn fbo  
 D: eah fac(t) fae(t) fai(t) fai(t) fbf  
 E-III: eal(t) fbm(t) fbn(t)  
 E-V: eah fbf fbq  
 E-XIII: fae(t) fai(t) fal(t) fbf  
 F: eah eal(t) fae(t) fai(t) fai(t) fal(t)  
 fbf fbq fbm(t) fbn(t)

(c) E-XI: fac fae(-)

(liq) D: eaq fac(t,+t) fae(t,+t) fai(t,+t)  
 fai(t,+t) fbj  
 E-III: eaq eal(t) fbi(t) fbj(t) fbk  
 E-XIII: fae fai(t) fal(t)  
 F: eal(t,+t) fae(t,+t) fai(t,+t) fbi(t,+t)  
 fbj(t,+t) fbk

(g) C: faa fab fac fad fae  
 D: faa(t,+t) fab(t,+t) fac(t,+t)  
 fad(t,+t) fae(t,+t) fai(t,+t)  
 fai(t,+t)  
 E-III: fac  
 E-XI: fac  
 E-XIII: fae fai(t,+t) fal(t,+t)  
 F: fac fae(t,+t) fai(t,+t) fai(t,+t)  
 fal(t,+t)

Ca<sup>+</sup>

(g) C: fab

Ca<sup>2+</sup>

(g) C: fab

(aq) C: faa fab fac fad  
 E-IV: faa fam  
 E-XI: fac

Ca<sup>2+</sup>

(g) C: fab

Ca<sup>2+</sup>

(g) C: fab

Ca<sup>2+</sup>

(g) C: fab

**94-1**  
 Calcium oxide

CaO

(c) C: eah faa fab fac fad fae  
 fbf fbq  
 E-III: eal(+t)  
 E-IV: faa fab fam(t) fan(t)  
 E-V: eah fbf fbq  
 E-XI: fac fae(-)  
 E-XII: faa(t) fab(t)  
 E-XIII: fae(t) fai(t) fal(t)

(g) E-XI: fac  
 E-XIII: fae(t) fai(t) fal(t) fab

CaO<sub>2</sub> Calcium dioxide  
 (c) C: fab  
 E-XII: faa(t) fab(t)

CaO<sub>2</sub>·8H<sub>2</sub>O Calcium dioxide-8-Water  
 (c) C: fab

**94-2**  
 Calcium monohydride

CaH

(g) C: fab  
 E-XI: fac  
 E-XIII: fae(t) fai(t) fal(t)

CaH<sub>2</sub> Calcium hydride  
 (c) C: faa fab fac fad  
 E-XI: fac

**94-2-1**  
 Calcium hydroxide

Ca(OH)<sub>2</sub>

(c) C: faa fab fad fae  
 E-XI: fac  
 E-XIII: fae(t) fai(t) fal(t)

(aq) C: faa fab fac fad  
 E-IV: eam

Ca(OH)<sub>2</sub>·H<sub>2</sub>O<sub>2</sub> Calcium hydroxide-Hydrogen peroxide  
 (c) C: fab

**94-9**  
 Calcium monofluoride

CaF

(g) C: fab  
 E-XI: fac  
 E-XIII: fae(t) fai(t) fal(t)

CaF<sub>2</sub> Calcium fluoride  
 (c, II, a) C: eaj fbb fbc  
 E-XIII: fae(t) fai(t) fal(t) fbb

(c, I, β) C: eah fbf fbq  
 E-V: eah fbf fbq  
 E-XIII: fae(t) fai(t) fal(t) fbf

(c) C: faa fab fac fad fae  
 E-XI: fac fae(-)

(liq) C: eaq fbj fbk  
 E-XIII: fae fai(t) fal(t)

(aq) C: faa fab fac fad

**94-10**  
 Calcium monochloride

CaCl

(g) C: fab  
 E-XI: fac  
 E-XIII: fae(t) fai(t) fal(t)

**CaCl<sub>2</sub>** Calcium chloride  
(c) C: eah eal faa fab fac fad  
fae fbf fbg fbn fbo  
E-V: eah fbf fbg  
E-XI: fac fae(-t)  
E-XIII: fae(t) fai(t) fal(t) fbf  
(liq) E-XIII: fae fai(t) fal(t)  
(aq) C: faa fab(x) fac fad

**CaCl<sub>2</sub>·H<sub>2</sub>O** Calcium chloride-Water  
(c) C: fab

**CaCl<sub>2</sub>·2H<sub>2</sub>O** Calcium chloride-2-Water  
(c) C: fab

**CaCl<sub>2</sub>·4H<sub>2</sub>O** Calcium chloride-4-Water  
(c) C: fab

**CaCl<sub>2</sub>·6H<sub>2</sub>O** Calcium chloride-6-Water  
(c) C: eah fab

94-10-1

**CaOCl<sub>2</sub>** Calcium chloride hypochlorite  
(c) C: fab  
(aq) C: fab

**CaOCl<sub>2</sub>·H<sub>2</sub>O** Calcium chloride hypochlorite-Water  
(c) C: fab

**Ca(OCl)<sub>2</sub>** Calcium hypochlorite  
(aq) C: fab

**CaCl<sub>2</sub>·2CaO** Calcium chloride-2-Calcium oxide  
(c) C: fab

**CaCl<sub>2</sub>·3CaO** Calcium chloride-3-Calcium oxide  
(c) C: fab

**4CaCl<sub>2</sub>·CaO** 4-Calcium chloride-Calcium oxide  
(c) C: eah

**CaCl<sub>2</sub>·3CaO·3H<sub>2</sub>O** Calcium chloride-3-Calcium oxide-3-Water  
(c) C: fab

**CaCl<sub>2</sub>·3CaO·16H<sub>2</sub>O** Calcium chloride-3-Calcium oxide-16-Water  
(c) C: fab

94-11

**CaBr** Calcium monobromide  
(g) E-XIII: fae(t) fai(t) fal(t)

**CaBr<sub>2</sub>** Calcium bromide  
(c) C: faa fab fac fad  
E-V: eah fbf fbg  
(aq) C: faa fab(x) fac fad

**CaBr<sub>2</sub>·6H<sub>2</sub>O** Calcium bromide-6-Water  
(c) C: eah fab

94-11-1

**CaBr<sub>2</sub>·3CaO·16H<sub>2</sub>O** Calcium bromide-3-Calcium oxide-16-Water  
(c) C: fab

94-12

**CaI** Calcium moniodide  
(g) E-XIII: fae(t) fai(t) fal(t)

**CaI<sub>2</sub>** Calcium iodide  
(c) C: faa fab fac fad  
(aq) C: faa fab(x) fac fad

**CaI<sub>2</sub>·8H<sub>2</sub>O** Calcium iodide-8-Water  
(c) C: fab

94-12-1

**CaI<sub>2</sub>·3CaO·16H<sub>2</sub>O** Calcium iodide-3-Calcium oxide-16-Water  
(c) C: fab

94-14

**CaS** Calcium sulfide  
(c) C: faa fab fac fad fae  
E-VII: faa(t) fab(t)  
E-XI: fac fae(-t)  
E-XIII: fae(t)  
(aq) C: fab

94-14-1

**CaSO<sub>3</sub>** Calcium sulfite  
(c) C: fac fae  
E-XI: fac fae(-t)  
E-XIII: fae  
**CaSO<sub>3</sub>·2H<sub>2</sub>O** Calcium sulfite-2-Water  
(c) C: faa fab fac fad fae  
**CaSO<sub>4</sub>** Calcium sulfate  
(c, α, soluble) C: faa fab fac fad  
fae  
E-XI: fac fae(-t)  
(c, β, soluble) C: faa fab fac fad  
fae  
E-XI: fac fae(-t)  
(c, anhydrite, insol.) C: faa fab fac fad  
fae  
E-VII: fam(t) fan(t)  
E-XI: fac fae(-t)  
E-XIII: fae(t) fai(t) fal(t)

(c, II) C: eaj  
(c, I) C: eah fbf fbg  
(c) E-V: eah fbf fbg  
E-VII: faa(t) fab(t)  
(aq) C: faa fab(x) fac fad

**CaSO<sub>4</sub>·½H<sub>2</sub>O** Calcium sulfate-½-Water  
(c, α) C: faa fab fac fad fae  
E-XI: fac fae(-t)  
E-XIII: fae(t)  
(c, β) C: faa fab fac fad fae  
E-XI: fac fae(-t)  
E-XIII: fae(t)

**CaSO<sub>4</sub>·2H<sub>2</sub>O** Calcium sulfate-2-Water  
(c) C: faa fab fac fad fae  
E-VII: fam(t) fan(t)  
E-XI: fac fae(-t)  
E-XIII: fae(t)

**CaS<sub>2</sub>O<sub>3</sub>** Calcium thiosulfate  
(aq) C: fab(x)

**CaS<sub>2</sub>O<sub>3</sub>·6H<sub>2</sub>O** Calcium thiosulfate-6-Water  
(c) C: faa fad

94-15

**CaSe** Calcium selenide  
(c) C: faa fab fac fad

94-16

**CaTe** Calcium telluride  
(c) C: fac



**CALCIUM**  
94-18 CaN<sub>6</sub>

**94-18**  
CaN<sub>6</sub> Calcium azide  
(c) C: fab  
Ca<sub>3</sub>N<sub>2</sub> Calcium nitride  
(c) C: eah faa fab fac fad fae  
E-VIII: faa(t) fab(t)  
E-XIII: fae(t) fai(t) fal(t)

**94-18-1**  
CaN<sub>2</sub>O<sub>2</sub>·4H<sub>2</sub>O Calcium hyponitrite—4-Water  
(c) C: fab  
Ca(NO<sub>2</sub>)<sub>2</sub> Calcium nitrite  
(c) C: fab  
(aq) C: fab  
Ca(NO<sub>3</sub>)<sub>2</sub> Calcium nitrate  
(c) C: eah faa fab fac fad fae  
fbf fbq  
E-V: eah fbf fbq  
E-XI: fac fae(-)  
E-XIII: fae(t) fai(t) fal(t)  
(aq) C: faa fab(x) fac fad  
(in ethanol) C: fab  
Ca(NO<sub>3</sub>)<sub>2</sub>·2H<sub>2</sub>O Calcium nitrate—2-Water  
(c) C: faa fab fac fad  
Ca(NO<sub>3</sub>)<sub>2</sub>·3H<sub>2</sub>O Calcium nitrate—3-Water  
(c) C: eah fab  
Ca(NO<sub>3</sub>)<sub>2</sub>·4H<sub>2</sub>O Calcium nitrate—4-Water  
(c, II) C: eah faa fab fac fad  
(c, I) C: eah

**94-18-2**  
Ca(NH<sub>2</sub>)<sub>2</sub> Calcium amide  
(c) C: fab

**94-18-2-1**  
Ca(NO<sub>3</sub>)<sub>2</sub>·Ca(OH)<sub>2</sub> Calcium nitrate—Calcium hydroxide  
(c) C: fab  
Ca(NO<sub>3</sub>)<sub>2</sub>·Ca(OH)<sub>2</sub>·2½H<sub>2</sub>O Calcium nitrate—Calcium hydroxide—2½-Water  
(c) C: fab

**94-18-10-2**  
CaCl<sub>2</sub>·NH<sub>3</sub> Calcium chloride—Ammonia  
(c) C: fab  
CaCl<sub>2</sub>·2NH<sub>3</sub> Calcium chloride—2-Ammonia  
(c) C: fab  
CaCl<sub>2</sub>·4NH<sub>3</sub> Calcium chloride—4-Ammonia  
(c) C: fab  
CaCl<sub>2</sub>·8NH<sub>3</sub> Calcium chloride—8-Ammonia  
(c) C: fab

**94-18-11-2**  
CaBr<sub>2</sub>·NH<sub>3</sub> Calcium bromide—Ammonia  
(c) C: fab  
CaBr<sub>2</sub>·2NH<sub>3</sub> Calcium bromide—2-Ammonia  
(c) C: fab  
CaBr<sub>2</sub>·6NH<sub>3</sub> Calcium bromide—6-Ammonia  
(c) C: fab  
CaBr<sub>2</sub>·8NH<sub>3</sub> Calcium bromide—8-Ammonia  
(c) C: fab

**94-18-12-2**  
CaI<sub>2</sub>·NH<sub>3</sub> Calcium iodide—Ammonia  
(c) C: fab  
CaI<sub>2</sub>·2NH<sub>3</sub> Calcium iodide—2-Ammonia  
(c) C: fab  
CaI<sub>2</sub>·6NH<sub>3</sub> Calcium iodide—6-Ammonia  
(c) C: fab  
CaI<sub>2</sub>·8NH<sub>3</sub> Calcium iodide—8-Ammonia  
(c) C: fab

**94-19**  
Ca<sub>3</sub>P<sub>2</sub> Calcium phosphide  
(c) C: fab

**94-19-1**  
CaP<sub>2</sub>O<sub>6</sub> Calcium dimetaphosphate  
(c) E-XIII: fae(t) fai(t) fal(t)  
(gls) E-XIII: fae(t) fai(t) fal(t)  
(liq) E-XIII: fae fai(t) fal(t)  
Ca<sub>2</sub>P<sub>2</sub>O<sub>7</sub> Calcium diphosphate  
(c, α) E-XIII: fae(t) fai(t) fal(t) fbb  
(c, β) E-XIII: fae fai(t) fal(t) fbf  
(liq) E-XIII: fae fai(t) fal(t)  
Ca<sub>3</sub>(PO<sub>4</sub>)<sub>2</sub> Calcium phosphate  
(c, α) C: faa fab fac fad fae  
E-XI: fac fae(-)  
E-XIII: fae(t) fai(t) fal(t) fbb  
(c, β) C: faa fab fac fad fae  
E-XI: fac fae(-)  
E-XIII: fae fai(t) fal(t)  
CaO·P<sub>2</sub>O<sub>5</sub> Calcium oxide—Diphosphorus pentoxide  
(c) C: eah  
2CaO·P<sub>2</sub>O<sub>5</sub> 2-Calcium oxide—Diphosphorus pentoxide  
(c) C: eah  
3CaO·P<sub>2</sub>O<sub>5</sub> 3-Calcium oxide—Diphosphorus pentoxide  
(c, II) C: eaj fbb fbc  
(c, I) C: eah  
4CaO·P<sub>2</sub>O<sub>5</sub> 4-Calcium oxide—Diphosphorus pentoxide  
(c) C: eah

**94-19-2-1**  
CaHPO<sub>4</sub> Calcium hydrogen phosphate  
(c) C: faa fab fac fad  
CaHPO<sub>4</sub>·2H<sub>2</sub>O Calcium hydrogen phosphate—2-Water  
(c) C: faa fab fac fad  
Ca(H<sub>2</sub>PO<sub>4</sub>)<sub>2</sub> Calcium dihydrogen phosphate  
(c) C: fab  
Ca(H<sub>2</sub>PO<sub>4</sub>)<sub>2</sub>·H<sub>2</sub>O Calcium dihydrogen phosphate—Water  
(c) C: fab  
Ca<sub>10</sub>(PO<sub>4</sub>)<sub>6</sub>(OH)<sub>2</sub> Calcium dihydroxide hexaphosphate  
(c) E-XIII: fae(t) fai(t) fal(t)

**94-19-9-1**  
Ca<sub>10</sub>(PO<sub>4</sub>)<sub>6</sub>F<sub>2</sub> Calcium difluoride hexaphosphate  
(c) E-XIII: fae(t) fai(t) fal(t)

**94-19-18-2-1**  
Ca(H<sub>2</sub>PO<sub>4</sub>)<sub>2</sub>·H<sub>2</sub>O·NH<sub>3</sub> Calcium dihydrogen phosphate—Water—Ammonia  
(c) C: fab

$\text{Ca}(\text{H}_2\text{PO}_4)_2 \cdot \text{H}_2\text{O} \cdot 2\text{NH}_3$  Calcium dihydrogen phosphate—Water—  
2-Ammonia

(c) C: fab

$\text{Ca}(\text{H}_2\text{PO}_4)_2 \cdot \text{H}_2\text{O} \cdot 4\text{NH}_3$  Calcium dihydrogen phosphate—Water—  
4-Ammonia

(c) C: fab

94-20-1

$\text{Ca}_3(\text{AsO}_4)_2$  Calcium arsenate  
(c) C: eah fab

94-20-2-1

$\text{CaHAsO}_4$  Calcium hydrogen arsenate  
(aq) C: fab

$\text{CaHAsO}_4 \cdot \text{H}_2\text{O}$  Calcium hydrogen arsenate—Water  
(c) C: faa fab fac fad

$\text{Ca}(\text{H}_2\text{AsO}_4)_2$  Calcium dihydrogen arsenate  
(aq) C: fab

94-21

$\text{Ca}_3\text{Sb}_2$  Tricalcium diantimonide  
(c) C: fab

94-22

$\text{Ca-Bi}$  Calcium-Bismuth  
(c) F: fcf

$\text{Ca}_3\text{Bi}_2$  Tricalcium dibismuthide  
(c) C: eah fab

94-23

$\text{CaC}_2$  Calcium acetylide

(c,  $\alpha$ ) E-XIII: fae(t) fai(t) fal(t) fbb

(c,  $\beta$ ) E-XIII: fae(t) fai(t) fal(t)

(c, II) C: eaj fbb fbc fbd

(c) C: faa fab fac fad fae

E-VIII: faa(t) fab(t) fam(t) fan(t)

E-XI: fac fae(-t)

94-23-1

$\text{CaCO}_3$  Calcium carbonate

(c, calcite) C: faa fab fac fad fae

E-IV: faa(t) fab(t) fam(t) fan(t)

E-XI: fac fae(-t)

E-XIII: fae(t) fai(t) fal(t)

(c, aragonite) C: faa fab fac fad fae

E-IV: fam(t) fan(t)

E-XI: fac fae(-t)

E-XIII: fae(t) fai(t) fal(t)

(c) E-IV: fam(t) fan(t)

E-V: eah fbf fbg

(aq) E-IV: eam fam fap

$\text{CaC}_2\text{O}_4 \cdot \text{H}_2\text{O}$  Calcium oxalate—Water

(c) C: faa fab fac fad fae

E-XI: fac fae(-t)

$\text{CaC}_2\text{O}_4 \cdot 2\text{H}_2\text{O}$  Calcium oxalate—2-Water

(c) C: faa fab fac fad

$\text{CaC}_2 \cdot \text{CaO}$  Calcium acetylide—Calcium oxide

(c) C: eah

94-23-2-1

$\text{Ca}(\text{CHO}_2)_2$  Calcium formate

(c) C: fab

(aq) C: fab

$\text{Ca}(\text{HCO}_3)_2$  Calcium hydrogen carbonate

(aq) C: faa fab fac fad

$\text{Ca}(\text{C}_2\text{H}_3\text{O}_2)_2$  Calcium acetate

(c) C: fab

(aq) C: fab

$\text{Ca}(\text{C}_2\text{H}_3\text{O}_2)_2 \cdot \text{H}_2\text{O}$  Calcium acetate—Water

(c) C: fab

$\text{Ca}(\text{C}_2\text{H}_3\text{O}_3)_2$  Calcium glycolate

(c) C: fab

(aq) C: fab

$\text{Ca}(\text{C}_2\text{H}_3\text{O}_3)_2 \cdot 3\text{H}_2\text{O}$  Calcium glycolate—3-Water

(c) C: fab

$\text{Ca}(\text{C}_2\text{H}_3\text{O}_3)_2 \cdot 5\text{H}_2\text{O}$  Calcium glycolate—5-Water

(c) C: fab

$\text{Ca}(\text{OC}_2\text{H}_5)_2$  Calcium ethanolate

(c) C: fab

$\text{Ca}(\text{OC}_2\text{H}_5)_2 \cdot 2\text{C}_2\text{H}_5\text{O}$  Calcium ethanolate—2-Ethanol

(c) C: fab

$3\text{CaO} \cdot 4\text{C}_2\text{H}_5\text{O}$  3-Calcium oxide—4-Ethanol

(c) C: fab

94-23-10-2-1

$\text{CaCl}_2 \cdot 3\text{CH}_3\text{O}$  Calcium chloride—3-Methanol

(c) C: eah

$\text{CaCl}_2 \cdot 3\text{C}_2\text{H}_5\text{O}$  Calcium chloride—3-Ethanol

(c) C: eah fab

$\text{CaCl}_2 \cdot 4\text{C}_2\text{H}_5\text{O}$  Calcium chloride—4-Ethanol

(c) C: fab

94-23-18

$\text{CaCN}_2$  Calcium cyanamide

(c) C: fab

E-VIII: faa fab fam(t) fan(t)

$\text{Ca}(\text{CN})_2$  Calcium cyanide

(c) C: fab

(aq) C: fab

94-23-18-1

$3\text{CaO} \cdot \text{CaC}_2\text{N}_2 \cdot 15\text{H}_2\text{O}$  3-Calcium oxide—Calcium cyanide—15-  
Water

(c) C: fab

94-23-18-2-1

$\text{Ca}(\text{NO}_3)_2 \cdot 2\text{CH}_3\text{O}$  Calcium nitrate—2-Methanol

(c) C: fab

94-24

$\text{CaSi}_2$  Calcium disilicide

(c) C: eah fab

$\text{Ca}_2\text{Si}$  Calcium silicide

(c) C: fab

$\text{Ca}_3\text{Si}_2$  Dicalcium disilicide

(c) C: fab

94-24-1

$\text{CaSiO}_3$  Calcium metasilicate

(c,  $\alpha$ , pseudo-wollastonite) C: faa fab fac  
fad fae

**CALCIUM**  
94-24-1  $\text{CaSiO}_3$

(*c*, *pseudo-wollastonite*) E-XI: fac fae(-t)  
E-XIII: fae(t) fai(t) fal(t)  
(*c*,  $\beta$ , *wollastonite*) C: faa fab fac fad  
fae  
(*c*, *wollastonite*) E-XI: fac fae(-t)  
E-XIII: fae(t) fai(t) fal(t)  
(*c*, II) C: eaj  
(*c*, I) C: eah  
E-V: eah fbf fbq  
(*gls*) E-XIII: fae(t) fai(t) fal(t)  
 **$\text{Ca}_2\text{SiO}_4$**  Calcium orthosilicate  
(*c*, III) C: eaj fbb fbc fbd  
(*c*,  $\beta$ ) C: fab  
E-XIII: fae(t) fai(t) fal(t) fbb  
(*c*, II) C: eaj fbb fbc  
(*c*,  $\alpha$ ) E-XIII: fae(t) fai(t) fal(t) fbb  
(*c*,  $\alpha$ ) E-XIII: fae fai(t) fal(t)  
(*c*, I) C: eah  
(*c*,  $\gamma$ ) C: fab  
E-XIII: fae(t) fai(t) fal(t)  
 **$\text{Ca}_5\text{SiO}_3$**  Calcium pentoxosilicate  
(*c*) C: fab  
E-XIII: fae(t) fai(t) fal(t)  
  
**94-26**  
**Ca-Sn** Calcium-Tin  
(*c*) F: fcf(x)  
**CaSn** Calcium stannide  
(*c*) C: fab  
**CaSn<sub>3</sub>** Calcium tristannide  
(*c*) C: eah fab  
**Ca<sub>2</sub>Sn** Dicalcium stannide  
(*c*) C: fab  
  
**94-27**  
**Ca-Pb** Calcium-Lead  
(*c*) F: fcf(x)  
**CaPb** Calcium plumbide  
(*c*) C: fab  
**CaPb<sub>3</sub>** Calcium triplumbide  
(*c*) C: eah fab  
**Ca<sub>2</sub>Pb** Dicalcium plumbide  
(*c*) C: eah fab  
  
**94-27-12**  
 **$\text{CaI}_2 \cdot \text{PbI}_2$**  Calcium iodide-Lead(II) iodide  
(*c*) C: fab  
 **$\text{CaI}_2 \cdot \text{PbI}_2 \cdot 7\text{H}_2\text{O}$**  Calcium iodide-Lead(II) iodide-7-Water  
(*c*) C: fab  
  
**94-28-1**  
 **$\text{CaO} \cdot \text{B}_2\text{O}_3$**  Calcium oxide-Diboron trioxide  
(*c*) C: eah faa fab fac fad fae  
fbf fbq fbh  
E-XI: fac fae(-t)  
 **$\text{CaO} \cdot 2\text{B}_2\text{O}_3$**  Calcium oxide-2-Diboron trioxide  
(*c*) C: eah faa fab fac fad fae  
fbf fbq fbh  
E-XI: fac fae(-t)  
E-XIII: fae(t) fai(t) fal(t) fbf

(*gls*) C: fab  
E-XIII: fae(t) fai(t) fal(t)  
(*liq*) E-XIII: fae fai(t) fal(t)  
 **$2\text{CaO} \cdot \text{B}_2\text{O}_3$**  2-Calcium oxide-Diboron trioxide  
(*c*, II,  $\alpha$ ) C: eaj fbb fbc fbd  
E-XIII: fae(t) fai(t) fal(t) fbb  
(*c*, I,  $\beta$ ) C: eah fbf fbq fbh  
E-XIII: fae(t) fai(t) fal(t) fbf  
(*c*) C: faa fab fac fad fae  
E-XI: fac fae(-t)  
(*liq*) E-XIII: fae fai(t) fal(t)  
 **$2\text{CaO} \cdot 3\text{B}_2\text{O}_3$**  2-Calcium oxide-3-Diboron trioxide  
(*c*) C: fab  
 **$2\text{CaO} \cdot 3\text{B}_2\text{O}_3 \cdot 13\text{H}_2\text{O}$**  2-Calcium oxide-3-Diboron trioxide-  
13-Water  
(*c*, *inoite*) C: fab  
 **$3\text{CaO} \cdot \text{B}_2\text{O}_3$**  3-Calcium oxide-Diboron trioxide  
(*c*) C: eah faa fab fac fad fae  
fbf fbq fbh  
E-XI: fac fae(-t)  
E-XIII: fae(t) fai(t) fal(t) fbf  
(*liq*) E-XIII: fae fai(t) fal(t)  
 **$\text{CaB}_2\text{O}_4$**  Calcium dimetaborate  
(*c*) E-XIII: fae(t) fai(t) fal(t) fbf  
(*liq*) E-XIII: fae fai(t) fal(t)  
  
**94-28-24-1**  
 **$5\text{CaO} \cdot \text{B}_2\text{O}_3 \cdot \text{SiO}_2$**  5-Calcium oxide-Diboron trioxide-Silicon oxide  
(*c*) C: eah  
  
**94-29**  
**Ca-Al** Calcium-Aluminum  
(*c*) F: fcf(x)  
 **$\text{CaAl}_2$**  Calcium dialuminide  
(*c*) C: eah  
 **$\text{CaAl}_3$**  Calcium trialuminide  
(*c*) C: eah fab  
  
**94-29-1**  
 **$\text{CaO} \cdot \text{Al}_2\text{O}_3$**  Calcium oxide-Aluminum oxide  
(*c*) C: eah  
(*gls*) C: fab  
 **$\text{CaO} \cdot 2\text{Al}_2\text{O}_3$**  Calcium oxide-2-Aluminum oxide  
(*c*) E-XIII: fae(t) fai(t) fal(t)  
 **$2\text{CaO} \cdot \text{Al}_2\text{O}_3$**  2-Calcium oxide-Aluminum oxide  
(*c*) C: fab  
(*gls*) C: fab  
 **$2\text{CaO} \cdot \text{Al}_2\text{O}_3 \cdot 5\text{H}_2\text{O}$**  2-Calcium oxide-Aluminum oxide-5-Water  
(*c*) C: fab  
 **$3\text{CaO} \cdot \text{Al}_2\text{O}_3$**  3-Calcium oxide-Aluminum oxide  
(*c*) C: fab  
E-XIII: fae(t) fai(t) fal(t)  
(*gls*) C: fab  
 **$3\text{CaO} \cdot \text{Al}_2\text{O}_3 \cdot 6\text{H}_2\text{O}$**  3-Calcium oxide-Aluminum oxide-6-Water  
(*c*) C: fab  
 **$4\text{CaO} \cdot \text{Al}_2\text{O}_3$**  4-Calcium oxide-Aluminum oxide  
(*c*) C: fab  
 **$12\text{CaO} \cdot 7\text{Al}_2\text{O}_3$**  12-Calcium oxide-7-Aluminum oxide  
(*c*,  $\alpha$ ) E-XIII: fae(t) fai(t) fal(t)  
(*c*,  $\beta$ ) E-XIII: fae(t) fai(t) fal(t)  
(*c*) C: eah fab  
(*gls*) C: fab

**CaAl<sub>2</sub>O<sub>4</sub>** Calcium aluminum tetroxide  
(c) E-XIII: fae(t) fai(t) fal(t)

**94-29-10**  
**3CaCl<sub>2</sub>·4AlCl<sub>3</sub>** 3-Calcium chloride-4-Aluminum chloride  
(c) C: fab

**94-29-11**  
**CaBr<sub>2</sub>·AlBr<sub>3</sub>** Calcium bromide-Aluminum bromide  
(c) C: eah

**94-29-24-1**  
**CaAl<sub>2</sub>Si<sub>2</sub>O<sub>8</sub>** Calcium dialuminum disilicon octaoxide  
(c, *anorbite*) E-XIII: fae(t) fai(t) fal(t)  
(c) E-V: eah fbf fbg  
(*gls*) E-XIII: fae(t) fai(t) fal(t)

**Ca<sub>2</sub>Al<sub>2</sub>SiO<sub>7</sub>** Dicalcium dialuminum silicon heptaoxide  
(c, *gblenite*) E-XIII: fae(t) fai(t) fal(t)

**CaO·Al<sub>2</sub>O<sub>3</sub>·2SiO<sub>2</sub>** Calcium oxide-Aluminum oxide-2-Silicon dioxide  
(c) C: eah fbf fbg

**CaO·Al<sub>2</sub>O<sub>3</sub>·6SiO<sub>2</sub>** Calcium oxide-Aluminum oxide-6-Silicon dioxide  
(c) C: fab

**2CaO·Al<sub>2</sub>O<sub>3</sub>·SiO<sub>2</sub>** 2-Calcium oxide-Aluminum oxide-Silicon dioxide  
(c) C: eah

**3CaO·Al<sub>2</sub>O<sub>3</sub>·2SiO<sub>2</sub>** 3-Calcium oxide-Aluminum oxide-2-Silicon dioxide  
(c) C: fab

**94-32**  
**CaTl** Calcium thallide  
(c) C: eah fab

**94-32-10**  
**CaCl<sub>2</sub>·TlCl** Calcium chloride-Thallium(I) chloride  
(c) C: eah

**94-33**  
**Ca-Zn** Calcium-Zinc  
(c) F: fcf(x)

**CaZn** Calcium zincide  
(c) C: fab

**CaZn<sub>2</sub>** Calcium dizincide  
(c) C: fab

**CaZn<sub>5</sub>** Calcium pentazincide  
(c) C: fab

**CaZn<sub>10</sub>** Calcium decazincide  
(c) C: eah

**CaZn<sub>13</sub>** Calcium tridecizincide  
(c) C: fab

**Ca<sub>2</sub>Zn<sub>3</sub>** Dicalcium trizincide  
(c) C: eah

**Ca<sub>4</sub>Zn** Tetracalcium zincide  
(c) C: fab

**94-34**  
**Ca-Cd** Calcium-Cadmium  
(c) F: fcf

**CaCd<sub>3</sub>** Calcium tricadmide  
(c) C: eah fab

**94-35-11**  
**CaHgBr<sub>4</sub>** Calcium tetrabromomercurate(II)  
(aq) C: fab

**CaHg<sub>2</sub>Br<sub>3</sub>** Calcium tribromomercurate(II)  
(aq) C: fab

**94-35-23-18**  
**CaHg(CN)<sub>4</sub>** Calcium tetracyanomercurate(II)  
(aq) C: fab

**CaHg<sub>2</sub>(CN)<sub>3</sub>** Calcium tricyanomercurate(II)  
(aq) C: fab

**94-35-23-18-10**  
**CaCl<sub>2</sub>·2Hg(CN)<sub>2</sub>** Calcium chloride-2-Mercury(II) cyanide  
(aq) C: fab

**CaCl<sub>2</sub>·2Hg(CN)<sub>2</sub>·6H<sub>2</sub>O** Calcium chloride-2-Mercury(II) cyanide-6-Water  
(c) C: fab

**94-35-23-18-11**  
**CaBr<sub>2</sub>·2Hg(CN)<sub>2</sub>** Calcium bromide-2-Mercury(II) cyanide  
(aq) C: fab

**CaBr<sub>2</sub>·2Hg(CN)<sub>2</sub>·7H<sub>2</sub>O** Calcium bromide-2-Mercury(II) cyanide-7-Water  
(c) C: fab

**94-35-23-18-12**  
**CaI<sub>2</sub>·2Hg(CN)<sub>2</sub>** Calcium iodide-2-Mercury(II) cyanide  
(aq) C: fab

**CaI<sub>2</sub>·2Hg(CN)<sub>2</sub>·7H<sub>2</sub>O** Calcium iodide-2-Mercury(II) cyanide-7-Water  
(c) C: fab

**94-36**  
**CaCu<sub>4</sub>** Calcium tetracupride  
(c) C: eah

**94-37**  
**CaAg** Calcium argentide  
(c) C: eah

**CaAg<sub>2</sub>** Calcium diargentide  
(c) C: eah

**CaAg<sub>3</sub>** Calcium triargentide  
(c) C: eah

**CaAg<sub>4</sub>** Calcium tetra-argentide  
(c) C: eah

**94-37-23-18**  
**CaAg(CN)<sub>3</sub>** Calcium tricyanoargentate  
(aq) C: fab

**CaAg<sub>2</sub>(CN)<sub>4</sub>** Calcium dicyanoargentate  
(aq) C: fab

**94-38**  
**CaAu<sub>2</sub>** Calcium diauride  
(c) C: eah

**CaAu<sub>4</sub>** Calcium tetra-auride  
(c) C: eah

**94-47-1**  
**CaO·Fe<sub>2</sub>O<sub>3</sub>** Calcium oxide-Iron(III) oxide  
(c) C: fab

**CALCIUM**  
94-47-1  $\text{CaFe}_2\text{O}_4$

$\text{CaFe}_2\text{O}_4$  Calcium iron(III) tetroxide  
(c) E-XIII: fae(t) fai(t) fal(t) fbf  
(liq) E-XIII: fae fai(t) fal(t)

$\text{CaO}\cdot 9\text{FeO}$  Calcium oxide-9-Iron(II) oxide  
(c) C: eah

$2\text{CaO}\cdot\text{Fe}_2\text{O}_3$  2-Calcium oxide-Iron(III) oxide  
(c) E-XIII: fae(t) fai(t) fal(t) fbf  
(liq) E-XIII: fae fai(t) fal(t)

$2\text{CaO}\cdot 3\text{Fe}_2\text{O}_3$  2-Calcium oxide-3-Iron(III) oxide  
(c) C: eah

**94-47-23-18**  
 $\text{Ca}_2\text{Fe}(\text{CN})_6$  Dicalcium hexacyanoferrate(II)  
(aq) C: fab

$\text{Ca}_2\text{Fe}(\text{CN})_6\cdot 11\text{H}_2\text{O}$  Dicalcium hexacyanoferrate(II)-11-Water  
(c) C: fab

**94-47-24-1**  
 $\text{CaO}\cdot\text{FeO}\cdot\text{SiO}_2$  Calcium oxide-Iron oxide-Silicon oxide  
(c) C: eah

**94-47-23-18-2**  
 $\text{CaH}_2\text{Fe}(\text{CN})_6$  Calcium dihydrogen hexacyanoferrate(II)  
(aq) C: fab

**94-47-29-1**  
 $4\text{CaO}\cdot\text{Fe}_2\text{O}_3\cdot\text{Al}_2\text{O}_3$  4-Calcium oxide-Iron(III) oxide-Aluminum oxide  
(c) C: fab

**94-51-1**  
 $\text{CaCrO}_4$  Calcium chromate  
(c) C: eah faa fab fac fad  
(aq) C: fab

**94-52-1**  
 $\text{CaMoO}_4$  Calcium tetroxomolybdate(VI)  
(c) E-XIII: fae

**94-53-1**  
 $\text{CaWO}_4$  Calcium tetroxotungstate(VI)  
(c) C: fab  
E-XIII: fae

**94-57-1**  
 $\text{CaTiO}_3$  Calcium titanium(IV) oxide  
(c, II,  $\alpha$ ) C: eaj fbb fbc fbd  
E-XIII: fae(t) fai(t) fal(t) fbb  
(c,  $\beta$ ) E-XIII: fae fai(t) fal(t)  
(c, perovskite) E-XI: fac fae(-t)  
(c) C: fac fae

$\text{Ca}_3\text{Ti}_2\text{O}_5$  Tricalcium dititanium(III) oxide  
(c) E-XIII: fae

**94-57-24-1**  
 $\text{CaTiSiO}_5$  Calcium titanium(IV) pentoxosilicate  
(c, sphene) E-XIII: fae(t) fai(t) fal(t) fbf  
(liq) E-XIII: fae fai(t) fal(t)

$\text{CaO}\cdot\text{TiO}_2\cdot\text{SiO}_2$  Calcium oxide-Titanium(IV) oxide-Silicon oxide  
(c) C: eah

**94-58-1**  
 $\text{CaO}\cdot\text{ZrO}_2$  Calcium oxide-Zirconium oxide  
(c) C: eah

**94-93**  
 $\text{Ca-Mg}$  Calcium-Magnesium  
(c) F: fcf

$\text{CaMg}_2$  Calcium dimagneside  
(c) C: eah fab

**94-93-10**  
 $\text{CaCl}_2\cdot 2\text{MgCl}_2\cdot 2\text{H}_2\text{O}$  Calcium chloride-2-Magnesium chloride-2-Water  
(c) C: fab

**94-93-23-1**  
 $\text{CaMg}(\text{CO}_3)_2$  Calcium magnesium carbonate  
(c) E-XIII: fae

$\text{CaCO}_3\cdot\text{MgCO}_3$  Calcium carbonate-Magnesium carbonate  
(c) C: fab

**94-93-24-1**  
 $\text{CaMg}(\text{SiO}_3)_2$  Calcium magnesium metasilicate  
(c, diopside) C: eah  
E-V: eah fbf fbg  
E-XIII: fae(t) fai(t) fal(t)  
(gls) E-XIII: fae(t) fai(t) fal(t)

**95 - Strontium - Sr**

**95**  
Strontium

Sr  
(c, II,  $\alpha$ ) D: eaj fac(t) fae(t) faf(t) fal(t)  
fbb  
E-XIII: fae(t) fai(t) fal(t) fbb  
F: eaj eal(t) fbn fbo  
(c, I,  $\beta$ ) C: eah fac fae fbf fbg  
D: eah fac(t) fae(t) faf(t) fai(t) fbf  
E-V: eah fbf fbg  
E-XI: fac  
E-XIII: fae fai(t) fal(t) fbf  
F: eah eal(t) fbn fbo  
(liq amalgam) C: fab  
(liq) C: eaq fbj fbk  
D: eaq fac(t) fae(t) faf(t) fal(t) fbj  
E-III: eaq eal(t) fbi(t) fbj(t) fbk  
E-XIII: fae fai(t) fal(t)  
F: eal(t)  
(g) C: faa fab fac fad fae  
D: faa(t,+t) fab(t,+t) fac(t,+t)  
fad(t,+t) fae(t,+t) faf(t,+t)  
fai(t,+t)  
E-XI: fac  
E-XIII: fae fai(t,+t) fal(t,+t)  
F: fac fae(t,+t) faf(t,+t) fai(t,+t)  
fal(t,+t)

Sr<sup>+</sup>  
(g) C: fab

Sr<sup>2+</sup>

(g) C: fab  
(aq) C: faa fab fac fad  
E-IV: faa fam  
E-XI: fac

95-1

SrO

Strontium oxide  
(c) C: eah faa fab fac fad fae  
E-III: eal(+t)  
E-IV: fam(t) fan(t)  
E-XI: fac fae(-t)  
E-XII: faa(t) fab(t)  
E-XIII: fae(t) fai(t) fal(t)  
(g) E-XI: fac  
E-XIII: fae(t) fai(t) fal(t)

SrO<sub>2</sub>

Strontium dioxide  
(c) C: fab  
E-XII: faa(t) fab(t)

SrO<sub>2</sub>·8H<sub>2</sub>O

Strontium dioxide-8-Water  
(c) C: fab

Sr<sub>2</sub>O

Distrontium oxide  
(c) C: fab

95-2

SrH

Strontium monohydride  
(g) C: faa fab fac fad fae  
E-XI: fac  
E-XIII: fae(t) fai(t) fal(t)

SrH<sub>2</sub>

Strontium hydride  
(c) C: fab

95-2-1

Sr(OH)<sub>2</sub>

Strontium hydroxide  
(c) C: fab  
E-XIII: fae(t) fai(t) fal(t) fbf  
(liq) E-XIII: fae fai(t) fal(t)  
(aq) C: faa fab fac fad

Sr(OH)<sub>2</sub>·H<sub>2</sub>O

Strontium hydroxide-Water  
(c) C: fab

Sr(OH)<sub>2</sub>·8H<sub>2</sub>O

Strontium hydroxide-8-Water  
(c) C: fab  
(aq) E-IV: eam

95-9

SrF

Strontium monofluoride  
(g) C: fab  
E-XIII: fae(t) fai(t) fal(t)

SrF<sub>2</sub>

Strontium fluoride  
(c) C: eah fab fbf fbq  
E-V: eah fbf fbq

95-10

SrCl

Strontium monochloride  
(g) C: fab  
E-XIII: fae(t) fai(t) fal(t)

SrCl<sub>2</sub>

Strontium chloride  
(c) C: eah faa fab fac fad fae  
fbf fbq  
E-V: eah fbf fbq  
E-XIII: fae(t)  
(aq) C: faa fab(x) fac fad

SrCl<sub>2</sub>·H<sub>2</sub>O Strontium chloride-Water

(c) C: fab fae  
E-XIII: fae

SrCl<sub>2</sub>·2H<sub>2</sub>O Strontium chloride-2-Water

(c) C: fab fae  
E-XIII: fae

SrCl<sub>2</sub>·6H<sub>2</sub>O Strontium chloride-6-Water

(c) C: fab

95-10-1

SrOCl<sub>2</sub> Strontium chloride hypochlorite

(aq) C: fab

Sr(OCl)<sub>2</sub> Strontium hypochlorite

(aq) C: fab

SrCl<sub>2</sub>·SrO·H<sub>2</sub>O Strontium chloride-Strontium oxide-Water

(c) C: fab

SrCl<sub>2</sub>·SrO·9H<sub>2</sub>O Strontium chloride-Strontium oxide-9-Water

(c) C: fab

4SrCl<sub>2</sub>·SrO 4-Strontium chloride-Strontium oxide

(c) C: eah

95-10-9

SrCl<sub>2</sub>·SrF<sub>2</sub> Strontium chloride-Strontium fluoride

(c) C: eah

95-11

SrBr Strontium monobromide

(g) E-XIII: fae(t) fai(t) fal(t)

SrBr<sub>2</sub>

Strontium bromide  
(c) C: eah fab fae fbf fbq  
E-V: eah fbf fbq  
E-XIII: fae(t)  
(aq) C: faa fab(x) fac fad

SrBr<sub>2</sub>·H<sub>2</sub>O Strontium bromide-Water

(c) C: fab fae  
E-XIII: fae

SrBr<sub>2</sub>·6H<sub>2</sub>O Strontium bromide-6-Water

(c) C: fab fae  
E-XIII: fae

95-11-1

SrBr<sub>2</sub>·SrO·3H<sub>2</sub>O Strontium bromide-Strontium oxide-3-Water

(c) C: fab

SrBr<sub>2</sub>·SrO·9H<sub>2</sub>O Strontium bromide-Strontium oxide-9-Water

(c) C: fab

95-12

SrI Strontium moniodide

(g) E-XIII: fae(t) fai(t) fal(t)

SrI<sub>2</sub>

Strontium iodide  
(c) C: eah fab fae  
E-XIII: fae(t)  
(aq) C: faa fab fac fad

SrI<sub>2</sub>·H<sub>2</sub>O Strontium iodide-Water

(c) C: fab fae  
E-XIII: fae

SrI<sub>2</sub>·2H<sub>2</sub>O Strontium iodide-2-Water

(c) C: fab fae  
E-XIII: fae

SrI<sub>2</sub>·6H<sub>2</sub>O Strontium iodide-6-Water

(c) C: fab fae  
E-XIII: fae

**STRONTIUM**  
95-14 SrS

**95-14**  
SrS Strontium sulfide  
(c) C: fab  
E-VII: faa(t) fab(t)  
(g) C: fab

**95-14-1**  
SrSO<sub>4</sub> Strontium sulfate  
(c, II) C: eaj  
(c, I) C: eah  
(c) C: faa fab fac fad  
E-VII: faa(t) fab(t)  
E-XI: fac  
E-XIII: fae(t)  
(aq) C: faa fab fac fad

SrS<sub>2</sub>O<sub>6</sub> Strontium dithionate  
(aq) C: fab

SrS<sub>2</sub>O<sub>6</sub>·4H<sub>2</sub>O Strontium dithionate-4-Water  
(c) C: fab

**95-14-12-1**  
SrI<sub>2</sub>·2SO<sub>2</sub> Strontium iodide-2-Sulfur dioxide  
(c) C: fab

SrI<sub>2</sub>·4SO<sub>2</sub> Strontium iodide-4-Sulfur dioxide  
(c) C: fab

**95-15**  
SrSe Strontium selenide  
(c) C: fab

**95-18**  
Sr(N<sub>3</sub>)<sub>2</sub> Strontium azide  
(c) C: fab

Sr<sub>3</sub>N<sub>2</sub> Strontium nitride  
(c) C: fab  
E-VIII: faa(t) fab(t)

**95-18-1**  
SrN<sub>2</sub>O<sub>2</sub>·5H<sub>2</sub>O Strontium hyponitrite-5-Water  
(c) C: fab

Sr(NO<sub>2</sub>)<sub>2</sub> Strontium nitrite  
(c, II) C: fab  
(aq) C: fab

Sr(NO<sub>3</sub>)<sub>2</sub> Strontium nitrate  
(c) C: eah fab fae  
E-XIII: fae  
(aq) C: faa fab(x) fac fad

Sr(NO<sub>3</sub>)<sub>2</sub>·4H<sub>2</sub>O Strontium nitrate-4-Water  
(c) C: fab

**95-18-2**  
Sr(NH<sub>2</sub>)<sub>2</sub> Strontium amide  
(c) C: fab

Sr(NH<sub>3</sub>)<sub>6</sub> Hexamminestrontium  
(c) C: fab

**95-18-10-2**  
SrCl<sub>2</sub>·NH<sub>3</sub> Strontium chloride-Ammonia  
(c) C: fab

SrCl<sub>2</sub>·8NH<sub>3</sub> Strontium chloride-8-Ammonia  
(c) C: fab

**95-18-11-2**  
SrBr<sub>2</sub>·NH<sub>3</sub> Strontium bromide-Ammonia  
(c) C: fab

SrBr<sub>2</sub>·2NH<sub>3</sub> Strontium bromide-2-Ammonia  
(c) C: fab

SrBr<sub>2</sub>·8NH<sub>3</sub> Strontium bromide-8-Ammonia  
(c) C: fab

**95-18-12-2**  
SrI<sub>2</sub>·NH<sub>3</sub> Strontium iodide-Ammonia  
(c) C: fab

SrI<sub>2</sub>·2NH<sub>3</sub> Strontium iodide-2-Ammonia  
(c) C: fab

SrI<sub>2</sub>·6NH<sub>3</sub> Strontium iodide-6-Ammonia  
(c) C: fab

SrI<sub>2</sub>·8NH<sub>3</sub> Strontium iodide-8-Ammonia  
(c) C: fab

**95-18-14-2-1**  
(NH<sub>4</sub>)<sub>2</sub>SO<sub>4</sub>·SrSO<sub>4</sub> Ammonium sulfate-Strontium sulfate  
(c) C: fab

**95-19-1**  
Sr<sub>3</sub>(PO<sub>4</sub>)<sub>2</sub> Strontium phosphate  
(c) C: eah fab fbf fbq  
E-V: eah fbf fbq

**95-19-2-1**  
SrHPO<sub>4</sub> Strontium hydrogen phosphate  
(c) C: fab

Sr(H<sub>2</sub>PO<sub>4</sub>)<sub>2</sub>·H<sub>2</sub>O Strontium dihydrogen phosphate-Water  
(c) C: fab

**95-20-1**  
Sr<sub>3</sub>(AsO<sub>4</sub>)<sub>2</sub> Strontium arsenate  
(c) C: eah fab

**95-20-2-1**  
SrHA<sub>2</sub>O<sub>4</sub> Strontium hydrogen arsenate  
(aq) C: fab

Sr(H<sub>2</sub>AsO<sub>4</sub>)<sub>2</sub> Strontium dihydrogen arsenate  
(aq) C: fab

**95-21**  
Sr-Sb Strontium-Antimony  
(c) F: fcf(x)

**95-23-1**  
SrCO<sub>3</sub> Strontium carbonate  
(c, II, α) C: eaj faa fab tac fad  
fae  
E-XIII: fae(t) fai(t) fal(t) fbb  
(c, I, β) C: eah  
E-XIII: fae fai(t) fal(t)  
(c) E-IV: faa fab fam(t) fan(t)  
E-XI: fac fae(-t)  
(aq) E-IV: eam fam fap

SrC<sub>2</sub>O<sub>4</sub> Strontium oxalate  
(aq) C: taa fab fac fad

SrC<sub>2</sub>O<sub>4</sub>·H<sub>2</sub>O Strontium oxalate-Water  
(c) C: faa fad

SrC<sub>2</sub>O<sub>4</sub>·2½H<sub>2</sub>O Strontium oxalate-2½-Water  
(c) C: fab

95-23-2-1

Sr(CHO<sub>3</sub>)<sub>2</sub> Strontium formate  
(c) C: fab  
(aq) C: fab

Sr(CHO<sub>3</sub>)<sub>2</sub>·2H<sub>2</sub>O Strontium formate-2-Water  
(c) C: fab

Sr(HCO<sub>3</sub>)<sub>2</sub> Strontium hydrogen carbonate  
(aq) C: faa fab fac fad

Sr(C<sub>2</sub>H<sub>3</sub>O<sub>2</sub>)<sub>2</sub> Strontium acetate  
(c) C: fab  
(aq) C: fab

Sr(C<sub>2</sub>H<sub>3</sub>O<sub>2</sub>)<sub>2</sub>·½H<sub>2</sub>O Strontium acetate-½-Water  
(c) C: fab

Sr(C<sub>2</sub>H<sub>3</sub>O<sub>2</sub>)<sub>2</sub> Strontium glycolate  
(c) C: fab  
(aq) C: fab

95-23-11-2-1

SrBr<sub>2</sub>·½C<sub>2</sub>H<sub>5</sub>O Strontium bromide-½-Ethanol  
(c) C: fab

95-23-18

Sr(CN)<sub>2</sub> Strontium cyanide  
(aq) C: fab

Sr(CN)<sub>2</sub>·4H<sub>2</sub>O Strontium cyanide-4-Water  
(c) C: fab

95-24

SrSi Strontium monosilicide  
(c) C: fab

SrSi<sub>2</sub> Strontium disilicide  
(c) C: fab

95-24-1

SrO·SiO<sub>2</sub> Strontium oxide-Silicon oxide  
(c) C: eah

2SrO·SiO<sub>2</sub> 2-Strontium oxide-Silicon oxide  
(c) C: eah

SrSiO<sub>3</sub> Strontium metasilicate  
(c) C: fab  
(gls) C: fab

Sr<sub>2</sub>SiO<sub>4</sub> Strontium orthosilicate  
(c) C: fab

95-27

SrPb<sub>3</sub> Strontium triplumbide  
(c) C: eah

95-27-12

SrI<sub>2</sub>·2PbI<sub>2</sub> Strontium iodide-2-Lead(II) iodide  
(c) C: fab

SrI<sub>2</sub>·2PbI<sub>2</sub>·7H<sub>2</sub>O Strontium iodide-2-Lead(II) iodide-7-Water  
(c) C: fab

95-28-1

SrO·B<sub>2</sub>O<sub>3</sub> Strontium oxide-Diboron trioxide  
(c) C: eah

SrO·2B<sub>2</sub>O<sub>3</sub> Strontium oxide-2-Diboron trioxide  
(c) C: eah

2SrO·B<sub>2</sub>O<sub>3</sub> 2-Strontium oxide-Diboron trioxide  
(c) C: eah

95-29-1

SrO·Al<sub>2</sub>O<sub>3</sub> Strontium oxide-Aluminum oxide  
(c) C: eah

95-29-10

3SrCl<sub>2</sub>·4AlCl<sub>3</sub> 3-Strontium chloride-4-Aluminum chloride  
(c) C: fab

95-35-11

SrHgBr<sub>4</sub> Strontium tetrabromomercurate(II)  
(aq) C: fab

SrHg<sub>2</sub>Br<sub>6</sub> Strontium tribromomercurate(II)  
(aq) C: fab

Sr<sub>2</sub>HgBr<sub>6</sub> Distrontium bromide tetrabromomercurate(II)  
(aq) C: fab

95-35-23-18

SrHg(CN)<sub>4</sub> Strontium tetracyanomercurate(II)  
(aq) C: fab

SrHg<sub>2</sub>(CN)<sub>6</sub> Strontium tricyanomercurate(II)  
(aq) C: fab

95-35-23-18-10

SrCl<sub>2</sub>·2Hg(CN)<sub>2</sub> Strontium chloride-2-Mercury(II) cyanide  
(aq) C: fab

SrCl<sub>2</sub>·2Hg(CN)<sub>2</sub>·6H<sub>2</sub>O Strontium chloride-2-Mercury(II) cyanide-6-Water  
(c) C: fab

95-35-23-18-11

SrBr<sub>2</sub>·2Hg(CN)<sub>2</sub> Strontium bromide-2-Mercury(II) cyanide  
(aq) C: fab

SrBr<sub>2</sub>·2Hg(CN)<sub>2</sub>·6H<sub>2</sub>O Strontium bromide-2-Mercury(II) cyanide-6-Water  
(c) C: fab

95-35-23-18-12

SrI<sub>2</sub>·2Hg(CN)<sub>2</sub> Strontium iodide-2-Mercury(II) cyanide  
(aq) C: fab

SrI<sub>2</sub>·2Hg(CN)<sub>2</sub>·7H<sub>2</sub>O Strontium iodide-2-Mercury(II) cyanide-7-Water  
(c) C: fab

95-37

SrAg Strontium argentide  
(c) C: eah

SrAg<sub>4</sub> Strontium tetra-argentide  
(c) C: eah

Sr<sub>3</sub>Ag<sub>2</sub> Tristrontium diargentide  
(c) C: eah

Sr<sub>3</sub>Ag<sub>5</sub> Tristrontium penta-argentide  
(c) C: eah

95-37-23-18

SrAg(CN)<sub>3</sub> Strontium tricyanoargentate  
(aq) C: fab

SrAg<sub>2</sub>(CN)<sub>4</sub> Strontium dicyanoargentate  
(aq) C: fab



95-45-23-18  
SrNi(CN)<sub>4</sub> Strontium tetracyanonickelate(II)  
(aq) C: fab

95-47-23-18-1  
Sr<sub>3</sub>[FeCO(CN)<sub>5</sub>]<sub>2</sub> Strontium pentacyanocarbonylferrate(II)  
(c) C: fab  
(aq) C: fab

Sr<sub>3</sub>[FeCO(CN)<sub>5</sub>]<sub>2</sub>·4H<sub>2</sub>O Strontium pentacyanocarbonylferrate(II)  
-4-Water  
(c) C: fab

95-52-1  
SrMoO<sub>4</sub> Strontium tetroxomolybdate(VI)  
(c) E-XIII: fae

95-53-1  
SrWO<sub>4</sub> Strontium tetroxotungstate(VI)  
(c) C: fab

95-57-1  
SrTiO<sub>3</sub> Strontium titanium(IV) trioxide  
(c) E-XIII: fae(t) fai(t) fal(t)

Sr<sub>2</sub>TiO<sub>4</sub> Strontium titanium(IV) tetroxide  
(c) E-XIII: fae(t) fai(t) fal(t)

95-93  
SrMg<sub>2</sub> Strontium dimagneside  
(c) C: eah

SrMg<sub>9</sub> Strontium nonamagneside  
(c) C: eah

96 - Barium - Ba

96  
Ba Barium  
(c, II, α) C: eaj fac fae  
D: eaj fac(t) fae(t) faf(t) fai(t) fbb  
E-XIII: fae(t) fai(t) fal(t) fbb  
(c, I, β) C: eah eai fbn fbo  
D: eah fac(t) fae(t) faf(t) fai(t) fbf  
E-XIII: fae(t) fai(t) fal(t) fbf  
(c) E-XI: fac  
F: eal(t) fac fae(-) fbn(t) fbn(t)  
(liq) C: eag fbj fbk  
D: eag fac(t) fae(t) faf(t) fai(t) fbj  
E-III: eag eal(t) fbi(t) fbj(t) fbk  
E-XIII: fae fai(t) fal(t)  
F: eag eal(t) fbi(t) fbj(t)  
(g) C: faa fab fac fad fae  
D: faa(t, +t) fab(t, +t) fac(t, +t)  
fad(t, +t) fae(t, +t) faf(t, +t)  
fai(t, +t)  
E-XI: fac  
E-XIII: fae(t, +t) fai(t, +t) fal(t, +t)  
F: fac fae(t) faf(t) fai(t) fal(t)

Ba<sup>+</sup>  
(g) C: fab

Ba<sup>2+</sup>  
(g) C: fab  
(aq) C: faa fab fac fad  
E-IV: fam  
E-XI: fac

96-1  
BaO Barium oxide  
(c) C: eah eai faa fab fac fad  
fae fbn fbo  
E-III: eal(t, +t)  
E-IV: fab fam(t) fan(t)  
E-XI: fac fae(-)  
E-XII: faa(t) fab(t)  
E-XIII: fae(t) fai(t) fal(t)  
(g) C: fac fae  
E-XI: fac  
E-XIII: fae(t) fai(t) fal(t)

BaO<sub>2</sub> Barium dioxide  
(c) C: fab  
E-XII: faa(t) fab(t)

BaO<sub>2</sub>·H<sub>2</sub>O Barium dioxide-Water  
(c) C: fab

BaO<sub>2</sub>·8H<sub>2</sub>O Barium dioxide-8-Water  
(c) C: fab

Ba<sub>2</sub>O Dibarium oxide  
(c) C: fab

96-2  
BaH Barium monohydride  
(g) C: faa fab fac fad fae  
E-XI: fac  
E-XIII: fae(t) fai(t) fal(t)

BaH<sub>2</sub> Barium hydride  
(c) C: fab

96-2-1  
Ba(OH)<sub>2</sub> Barium hydroxide  
(c) C: eah fab fbf fbj  
E-XIII: fae(t) fai(t) fal(t) fbf  
(liq) E-XIII: fae fai(t) fal(t)  
(aq) C: faa fab fac fad

Ba(OH)<sub>2</sub>·H<sub>2</sub>O Barium hydroxide-Water  
(c) C: fab

Ba(OH)<sub>2</sub>·8H<sub>2</sub>O Barium hydroxide-8-Water  
(c) C: fab  
(aq) E-IV: eam

BaO<sub>2</sub>·H<sub>2</sub>O<sub>2</sub> Barium peroxide-Hydrogen peroxide  
(c) C: fab

96-9  
BaF Barium monofluoride  
(g) C: fab  
E-XIII: fae(t) fai(t) fal(t)

BaF<sub>2</sub> Barium fluoride  
(c) C: eah faa fab fac fad fae  
fbf fbj  
E-V: eah fbf fbj  
E-XI: fac fae(-)  
E-XIII: fae(t) fai(t) fal(t)  
(liq) C: eag fbj fbk  
(aq) C: fab

<b>96-10</b>	
BaCl	Barium monochloride
(c) C:	fab
(g) C:	fab
E-XIII:	fae(t) fai(t) fal(t)
BaCl <sub>2</sub>	Barium chloride
(c, II) C:	ej
(c, I) C:	eah fbf fbq
E-V:	eah flf fbq
(c) C:	faa fab fac fad fae
E-XIII:	fae(t)
(liq) C:	eaq fbj fbk
(aq) C:	faa fab(x) fac fad
BaCl <sub>2</sub> ·H <sub>2</sub> O	Barium chloride—Water
(c) C:	faa fab fac fad fae
E-XIII:	fae
BaCl <sub>2</sub> ·2H <sub>2</sub> O	Barium chloride—2-Water
(c) C:	faa fab fac fad fae
E-XI:	fac fae(-t)
E-XIII:	fae
<b>96-10-1</b>	
BaOCl <sub>2</sub>	Barium chloride hypochlorite
(aq) C:	fab
Ba(OC1) <sub>2</sub>	Barium hypochlorite
(aq) C:	fab
Ba(ClO <sub>2</sub> ) <sub>2</sub>	Barium chlorite
(c) C:	fab
Ba(ClO <sub>3</sub> ) <sub>2</sub>	Barium chlorate
(c) C:	fab
(aq) C:	fab
Ba(ClO <sub>3</sub> ) <sub>2</sub> ·H <sub>2</sub> O	Barium chlorate—Water
(c) C:	fab fae
E-XIII:	fae
Ba(ClO <sub>4</sub> ) <sub>2</sub>	Barium perchlorate
(c, II) C:	ej
(c) C:	fab
(aq) C:	fab
Ba(ClO <sub>4</sub> ) <sub>2</sub> ·3H <sub>2</sub> O	Barium perchlorate—3-Water
(c) C:	fab
BaCl <sub>2</sub> ·BaO·3H <sub>2</sub> O	Barium chloride—Barium oxide—3-Water
(c) C:	fab
BaCl <sub>2</sub> ·BaO·5H <sub>2</sub> O	Barium chloride—Barium oxide—5-Water
(c) C:	fab
BaCl <sub>2</sub> ·BaO·8H <sub>2</sub> O	Barium chloride—Barium oxide—8-Water
(c) C:	fab
<b>96-11</b>	
BaBr	Barium monobromide
(g) E-XIII:	fae(t) fai(t) fal(t)
BaBr <sub>2</sub>	Barium bromide
(c) C:	eah fab fbf fbq
E-V:	eah fbf fbq
(aq) C:	faa fab(x) fac fad
BaBr <sub>2</sub> ·H <sub>2</sub> O	Barium bromide—Water
(c) C:	fab
BaBr <sub>2</sub> ·2H <sub>2</sub> O	Barium bromide—2-Water
(c) C:	fab
<b>96-11-1</b>	
BaOB <sub>2</sub>	Barium bromide hypobromite
(aq) C:	fab

Ba(BrO <sub>3</sub> ) <sub>2</sub> ·H <sub>2</sub> O	Barium bromate—Water
(c) C:	fac fae
E-XI:	fac fae(-t)
E-XIII:	fae
BaBr <sub>2</sub> ·BaO·2H <sub>2</sub> O	Barium bromide—Barium oxide—2-Water
(c) C:	fab
BaBr <sub>2</sub> ·BaO·5H <sub>2</sub> O	Barium bromide—Barium oxide—5-Water
(c) C:	fab
<b>96-12</b>	
BaI <sub>2</sub>	Barium iodide
(c) C:	eah fab
(aq) C:	faa fab(x) fac fad
BaI <sub>2</sub> ·H <sub>2</sub> O	Barium iodide—Water
(c) C:	fab
BaI <sub>2</sub> ·2H <sub>2</sub> O	Barium iodide—2-Water
(c) C:	fab
BaI <sub>2</sub> ·2½H <sub>2</sub> O	Barium iodide—2½-Water
(c) C:	fab
BaI <sub>2</sub> ·7H <sub>2</sub> O	Barium iodide—7-Water
(c) C:	fab

<b>96-12-1</b>	
Ba(IO <sub>3</sub> ) <sub>2</sub>	Barium iodate
(aq) C:	fab
Ba(IO <sub>3</sub> ) <sub>2</sub> ·H <sub>2</sub> O	Barium iodate—Water
(c) C:	fab
BaI <sub>2</sub> ·BaO·2H <sub>2</sub> O	Barium iodide—Barium oxide—2-Water
(c) C:	fab
BaI <sub>2</sub> ·BaO·9H <sub>2</sub> O	Barium iodide—Barium oxide—9-Water
(c) C:	fab

<b>96-14</b>	
BaS	Barium sulfide
(c) C:	fab
E-VII:	faa(t) fab(t)
(g) C:	fab
(aq) C:	fab

<b>96-14-1</b>	
BaSO <sub>3</sub>	Barium sulfite
(c) C:	fab
BaSO <sub>4</sub>	Barium sulfate
(c, II) C:	ej
(c, I) C:	eah fbf fbq
E-V:	eah fbf fbq
(c) C:	faa fab fac fad fae
E-VII:	faa(t) fab(t)
E-XI:	fac fae(-t)
E-XIII:	fae(t) fai(t) fal(t)
(aq) C:	faa fab fac fad
BaS <sub>2</sub> O <sub>3</sub>	Barium thiosulfate
(c) C:	fae
E-XIII:	fae
BaS <sub>2</sub> O <sub>6</sub>	Barium dithionate
(aq) C:	fab
BaS <sub>2</sub> O <sub>6</sub> ·2H <sub>2</sub> O	Barium dithionate—2-Water
(c) C:	fab
BaS <sub>2</sub> O <sub>8</sub>	Barium peroxodisulfate
(aq) C:	fab
BaS <sub>2</sub> O <sub>8</sub> ·4H <sub>2</sub> O	Barium peroxodisulfate—4-Water
(c) C:	fab

**BARIUM**

96-14-1 BaS<sub>4</sub>O<sub>6</sub>

BaS<sub>4</sub>O<sub>6</sub> Barium tetrathionate  
(aq) C: fab  
BaS<sub>4</sub>O<sub>6</sub>·2H<sub>2</sub>O Barium tetrathionate-2-Water  
(c) C: fab

**96-14-2**

Ba(HS)<sub>2</sub> Barium hydrogen sulfide  
(aq) C: fab

**96-14-2-1**

Ba(HSO<sub>3</sub>)<sub>2</sub> Barium hydrogen sulfite  
(aq) C: fab  
BaSO<sub>4</sub>·H<sub>2</sub>SO<sub>4</sub> Barium sulfate-Sulfuric acid  
(c) C: fab  
BaSO<sub>4</sub>·2H<sub>2</sub>SO<sub>4</sub>·H<sub>2</sub>O Barium sulfate-2-Sulfuric acid-Water  
(c) C: fab

**96-14-12-1**

BaI<sub>2</sub>·2SO<sub>2</sub> Barium iodide-2-Sulfur dioxide  
(c) C: fab  
BaI<sub>2</sub>·4SO<sub>2</sub> Barium iodide-4-Sulfur dioxide  
(c) C: fab

**96-15**

BaSe Barium selenide  
(c) C: fab

**96-15-1**

BaSeO<sub>4</sub> Barium selenate  
(c) C: fab

**96-18**

Ba(N<sub>3</sub>)<sub>2</sub> Barium azide  
(c) C: fab  
(aq) C: fab

Ba<sub>3</sub>N<sub>2</sub> Barium nitride  
(c) C: fab  
E-VIII: faa(t) fab(t)

**96-18-1**

Ba(NO<sub>2</sub>)<sub>2</sub> Barium nitrite  
(c) C: fab  
(aq) C: fab

Ba(NO<sub>2</sub>)<sub>2</sub>·H<sub>2</sub>O Barium nitrite-Water  
(c) C: fab

Ba(NO<sub>3</sub>)<sub>2</sub> Barium nitrate  
(c) C: eah faa fab fac fad fae  
fbf fbq  
E-V: eah fbf fbq  
E-XI: fac fae(-t)  
E-XIII: fae(t) fai(t) fal(t)  
(aq) C: faa fab(x) fac fad

**96-18-2**

BaNH Barium imide  
(c) C: fab

Ba(NH<sub>2</sub>)<sub>2</sub> Barium amide  
(c) C: fab

Ba(NH<sub>3</sub>)<sub>6</sub> Hexamminebarium  
(c) C: fab

**96-18-10-2**

BaCl<sub>2</sub>·8NH<sub>3</sub> Barium chloride-8-Ammonia  
(c) C: fab

**96-18-11-2**

BaBr<sub>2</sub>·NH<sub>3</sub> Barium bromide-Ammonia  
(c) C: fab  
BaBr<sub>2</sub>·2NH<sub>3</sub> Barium bromide-2-Ammonia  
(c) C: fab  
BaBr<sub>2</sub>·4NH<sub>3</sub> Barium bromide-4-Ammonia  
(c) C: fab  
BaBr<sub>2</sub>·8NH<sub>3</sub> Barium bromide-8-Ammonia  
(c) C: fab

**96-18-12-2**

BaI<sub>2</sub>·2NH<sub>3</sub> Barium iodide-2-Ammonia  
(c) C: fab  
BaI<sub>2</sub>·4NH<sub>3</sub> Barium iodide-4-Ammonia  
(c) C: fab  
BaI<sub>2</sub>·6NH<sub>3</sub> Barium iodide-6-Ammonia  
(c) C: fab  
BaI<sub>2</sub>·8NH<sub>3</sub> Barium iodide-8-Ammonia  
(c) C: fab  
BaI<sub>2</sub>·9NH<sub>3</sub> Barium iodide-9-Ammonia  
(c) C: fab  
BaI<sub>2</sub>·10NH<sub>3</sub> Barium iodide-10-Ammonia  
(c) C: fab

**96-19-1**

Ba<sub>3</sub>(PO<sub>4</sub>)<sub>2</sub> Barium phosphate  
(c) C: eah fab fbf fbq  
E-V: eah fbf fbq  
(aq, colloidal) C: fab

**96-19-2-1**

BaHPO<sub>4</sub> Barium hydrogen phosphate  
(c) C: fab  
Ba(H<sub>2</sub>PO<sub>4</sub>)<sub>2</sub> Barium dihydrogen phosphate  
(c) C: fab  
Ba(H<sub>2</sub>PO<sub>2</sub>)<sub>2</sub> Barium hypophosphite  
(aq) C: fab  
Ba(H<sub>2</sub>PO<sub>2</sub>)<sub>2</sub>·H<sub>2</sub>O Barium hypophosphite-Water  
(c) C: fab

**96-20-1**

Ba<sub>3</sub>(AsO<sub>4</sub>)<sub>2</sub> Barium arsenate  
(c) C: eah fab

**96-20-2-1**

BaHAsO<sub>4</sub>·H<sub>2</sub>O Barium hydrogen arsenate-Water  
(c) C: fab  
Ba(H<sub>2</sub>AsO<sub>4</sub>)<sub>2</sub>·2H<sub>2</sub>O Barium dihydrogen arsenate-2-Water  
(c) C: fab

**96-21**

Ba-Sb Barium-Antimony  
(c) F: fci(x)  
Ba<sub>3</sub>Sb<sub>2</sub> Tribarium diantimonide  
(c) C: fab

**96-22**  
Ba-Bi Barium-Bismuth  
(c) F: fcf

Ba<sub>3</sub>Bi<sub>2</sub> Tribarium dibismuthide  
(c) C: fab

**96-23-1**  
BaCO<sub>3</sub> Barium carbonate  
(c, *witberite*) E-XI: fac fae(-t)  
(c, II, a) C: eaj faa fab fac fad  
foe fbb fbc fbd  
E-IV: faa fab fam(t) fan(t)  
E-XIII: fae(t) fai(t) fal(t) fbb  
(c, β) E-IV: fam(t) fan(t)  
E-XIII: fae fai(t) fal(t) fbb  
(c, γ) E-XIII: fae fai(t) fal(t)  
(aq) C: faa fab fac fad  
E-IV: eam fam fap

BaO·BaCO<sub>3</sub> Barium oxide-Barium carbonate  
(c, a) E-IV: fam(t) fan(t)  
(c, β) E-IV: fam(t) fan(t)  
(c) C: fab

BaC<sub>2</sub>O<sub>4</sub>·½H<sub>2</sub>O Barium oxalate-½-Water  
(c) C: fab

BaC<sub>2</sub>O<sub>4</sub>·2H<sub>2</sub>O Barium oxalate-2-Water  
(c) C: fab

BaC<sub>2</sub>O<sub>4</sub>·3½H<sub>2</sub>O Barium oxalate-3½-Water  
(c) C: fab

**96-23-2-1**  
Ba(CHO<sub>2</sub>)<sub>2</sub> Barium formate  
(c) C: fab  
(aq) C: fab

Ba(HCO<sub>3</sub>)<sub>2</sub> Barium hydrogen carbonate  
(aq) C: faa fab fac fad

Ba(C<sub>2</sub>H<sub>3</sub>O<sub>2</sub>)<sub>2</sub> Barium acetate  
(c) C: fab  
(aq) C: fab

Ba(C<sub>2</sub>H<sub>3</sub>O<sub>2</sub>)<sub>2</sub>·3H<sub>2</sub>O Barium acetate-3-Water  
(c) C: fab

Ba(C<sub>2</sub>H<sub>3</sub>O<sub>2</sub>)<sub>2</sub> Barium glycolate  
(c) C: fab  
(aq) C: fab

Ba(OC<sub>2</sub>H<sub>5</sub>)<sub>2</sub> Barium ethanolate  
(c) C: fab

3BaO·4CH<sub>3</sub>O 3-Barium oxide-4-Methanol  
(c) C: fab

3BaO·4C<sub>2</sub>H<sub>5</sub>O 3-Barium oxide-4-Ethanol  
(c) C: fab

**96-23-14-2-1**  
Ba(HSO<sub>3</sub>)<sub>2</sub>·C<sub>2</sub>H<sub>2</sub>O<sub>2</sub> Barium hydrogen sulfite-Glyoxal  
(aq) C: fab

Ba(HSO<sub>3</sub>)<sub>2</sub>·C<sub>2</sub>H<sub>2</sub>O<sub>2</sub>·2½H<sub>2</sub>O Barium hydrogen sulfite-Glyoxal-  
2½-Water  
(c) C: fab

Ba(OSO<sub>2</sub>C<sub>2</sub>H<sub>5</sub>)<sub>2</sub> Barium ethyl sulfate  
(aq) C: fab

Ba(OSO<sub>2</sub>C<sub>2</sub>H<sub>5</sub>)<sub>2</sub>·2H<sub>2</sub>O Barium ethyl sulfate-2-Water  
(c) C: fab

**96-23-18**  
BaCN<sub>2</sub> Barium cyanamide  
(c) C: fab

Ba(CN)<sub>2</sub> Barium cyanide  
(c) C: fab  
(aq) C: fab

Ba(CN)<sub>2</sub>·H<sub>2</sub>O Barium cyanide-Water  
(c) C: fab

Ba(CN)<sub>2</sub>·2H<sub>2</sub>O Barium cyanide-2-Water  
(c) C: fab

**96-23-18-1**  
Ba(CNO)<sub>2</sub> Barium cyanate  
(c) C: fab  
(aq) C: fab

**96-24**  
BaSi<sub>3</sub> Barium trisilicide  
(c) C: fab

Ba<sub>2</sub>Si<sub>2</sub> Dibarium disilicide  
(c) C: fab

**96-24-1**  
BaSiO<sub>3</sub> Barium metasilicate  
(c) C: eah fab

Ba<sub>2</sub>SiO<sub>4</sub> Barium orthosilicate  
(c) C: fab

BaO·2SiO<sub>2</sub> Barium oxide-2-Silicon oxide  
(c) C: eah

**96-24-9**  
BaSiF<sub>6</sub> Barium hexafluorosilicate  
(c) C: fab

**96-26**  
Ba-Sn Barium-Tin  
(c) F: fcf(x)

BaSn<sub>3</sub> Barium tristannide  
(c) C: fab

Ba<sub>2</sub>Sn Dibarium stannide  
(c) C: fab

**96-27**  
Ba-Pb Barium-Lead  
(c) F: fcf(x)

BaPb Barium plumbide  
(c) C: fab

BaPb<sub>3</sub> Barium triplumbide  
(c) C: fab

Ba<sub>2</sub>Pb Dibarium plumbide  
(c) C: fab

**96-27-12**  
BaI<sub>2</sub>·2PbI<sub>2</sub> Barium iodide-2-Lead(II) iodide  
(c) C: fab

BaI<sub>2</sub>·2PbI<sub>2</sub>·7H<sub>2</sub>O Barium iodide-2-Lead(II) iodide-7-Water  
(c) C: fab

**96-28-1**  
BaO·B<sub>2</sub>O<sub>3</sub> Barium oxide-Diboron trioxide  
(c) C: eah

**BARIUM**96-28-1 BaO·2B<sub>2</sub>O<sub>3</sub>BaO·2B<sub>2</sub>O<sub>3</sub> Barium oxide-2-Diboron trioxide  
(c) C: eahBaO·3B<sub>2</sub>O<sub>3</sub> Barium oxide-3-Diboron trioxide  
(c) C: eahBaO·4B<sub>2</sub>O<sub>3</sub> Barium oxide-4-Diboron trioxide  
(c) C: eah2BaO·B<sub>2</sub>O<sub>3</sub> 2-Barium oxide-Diboron trioxide  
(c) C: eah3BaO·B<sub>2</sub>O<sub>3</sub> 3-Barium oxide-Diboron trioxide  
(c) C: eah**96-29-1**BaO·Al<sub>2</sub>O<sub>3</sub> Barium oxide-Aluminum oxide  
(c) C: eah**96-29-10**BaCl<sub>2</sub>·2AlCl<sub>3</sub> Barium chloride-2-Aluminum chloride  
(c) C: fab3BaCl<sub>2</sub>·4AlCl<sub>3</sub> 3-Barium chloride-4-Aluminum chloride  
(c) C: fab**96-35**Ba-Hg Barium-Mercury  
(liq) F: fcc(x) fcd(x) fcv(x) fcw(x)**96-35-11**BaHgBr<sub>4</sub> Barium tetrabromomercurate(II)  
(aq) C: fabBaHg<sub>2</sub>Br<sub>8</sub> Barium tribromomercurate(II)  
(aq) C: fabBa<sub>2</sub>HgBr<sub>8</sub>  
(aq) C: fabBa<sub>4</sub>HgBr<sub>10</sub>  
(aq) C: fab**96-35-23-18**BaHg(CN)<sub>4</sub> Barium tetracyanomercurate(II)  
(aq) C: fabBaHg<sub>2</sub>(CN)<sub>8</sub> Barium tricyanomercurate(II)  
(aq) C: fab**96-35-23-18-10**BaCl<sub>2</sub>·2Hg(CN)<sub>2</sub> Barium chloride-2-Mercury(II) cyanide  
(aq) C: fabBaCl<sub>2</sub>·2Hg(CN)<sub>2</sub>·5H<sub>2</sub>O Barium chloride-2-Mercury(II) cyanide-  
5-Water  
(c) C: fab**96-35-23-18-11**BaBr<sub>2</sub>·2Hg(CN)<sub>2</sub> Barium bromide-2-Mercury(II) cyanide  
(aq) C: fabBaBr<sub>2</sub>·2Hg(CN)<sub>2</sub>·7H<sub>2</sub>O Barium bromide-2-Mercury(II)  
cyanide-7-Water  
(c) C: fab**96-35-23-18-12**BaI<sub>2</sub>·2Hg(CN)<sub>2</sub> Barium iodide-2-Mercury(II) cyanide  
(aq) C: fabBaI<sub>2</sub>·2Hg(CN)<sub>2</sub>·6H<sub>2</sub>O Barium iodide-2-Mercury(II) cyanide-  
6-Water  
(c) C: fab**96-37**BaAg<sub>4</sub> Barium tetra-argentide  
(c) C: eahBa<sub>2</sub>Ag<sub>3</sub> Dibarium triargentide  
(c) C: eah**96-37-23-18**BaAg(CN)<sub>3</sub> Barium tricyanoargentate  
(aq) C: fabBaAg<sub>2</sub>(CN)<sub>4</sub> Barium dicyanoargentate  
(aq) C: fab**96-39-10**BaPtCl<sub>6</sub> Barium hexachloroplatinate(IV)  
(c) C: fab

(aq) C: fab

BaPtCl<sub>6</sub>·6H<sub>2</sub>O Barium hexachloroplatinate(IV)-6-Water  
(c) C: fab**96-41-10**BaOsCl<sub>6</sub> Barium hexachloro-osmate(IV)  
(c) C: fab**96-42-10**BaPdCl<sub>4</sub> Barium tetrachloropalladate(II)  
(c) C: fab**96-43-10**Ba<sub>3</sub>(RhCl<sub>6</sub>)<sub>2</sub> Barium hexachlororhodate(III)  
(c) C: fab**96-45-23-18**BaNi(CN)<sub>4</sub> Barium tetracyanonickelate(II)  
(aq) C: fab**96-47-1**BaO·Fe<sub>2</sub>O<sub>3</sub> Barium oxide-Iron(III) oxide  
(c) C: eah**96-47-23-18**Ba<sub>2</sub>Fe(CN)<sub>6</sub> Barium hexacyanoferrate(II)  
(aq) C: fabBa<sub>2</sub>Fe(CN)<sub>6</sub>·6H<sub>2</sub>O Barium hexacyanoferrate(II)-6-Water  
(c) C: fab**96-47-23-18-1**Ba<sub>3</sub>[Fe(CN)<sub>5</sub>CO]<sub>2</sub> Barium pentacyanocarbonylferrate(II)  
(c) C: fab

(aq) C: fab

Ba<sub>3</sub>[Fe(CN)<sub>5</sub>CO]<sub>2</sub>·11H<sub>2</sub>O Barium pentacyanocarbonylferrate(II)-  
11-Water  
(c) C: fab**96-47-23-18-2**BaH<sub>2</sub>Fe(CN)<sub>6</sub> Barium dihydrogen hexacyanoferrate(II)  
(aq) C: fab**96-48-1**BaMnO<sub>4</sub> Barium manganate  
(c) C: fab

**96-51-1**  
BaCrO<sub>4</sub> Barium chromate  
(c) C: fab

**96-52-1**  
BaMoO<sub>4</sub> Barium tetroxomolybdate(VI)  
(c) C: eah fab fae  
E-XIII: fae

**96-53-1**  
BaWO<sub>4</sub> Barium tetroxotungstate(VI)  
(c) C: fab

**96-54-1**  
2BaO·V<sub>2</sub>O<sub>5</sub> 2-Barium oxide-Vanadium(V) oxide  
(c) C: eah

**96-57-1**  
BaTiO<sub>3</sub> Barium titanium(IV) trioxide  
(c, II) C: eaj  
E-XIII: fae(t) fai(t) fal(t)  
Ba<sub>2</sub>TiO<sub>4</sub> Dibarium titanium(IV) tetroxide  
(c) E-XIII: fae(t) fai(t) fal(t)

**96-58-1**  
BaO·ZrO<sub>2</sub> Barium oxide-Zirconium oxide  
(c) C: eah

**96-92-9**  
BaBeF<sub>4</sub> Barium tetrafluoroberyllate  
(c) C: eah  
BaBe<sub>2</sub>F<sub>6</sub> Barium trifluoroberyllate  
(c) C: eah

**96-93**  
BaMg<sub>2</sub> Barium dimagneside  
(c) C: eah  
BaMg<sub>9</sub> Barium nonamagneside  
(c) C: eah

**97 - Radium - Ra**

**97**  
Ra Radium  
(c) C: eah fac  
D: eah fac(t) fae(t) fai(t) fal(t) fbi  
E-XIII: fae(t) fai(t) fal(t) fbi  
(liq) D: eaq fac(t) fae(t) fai(t) fal(t) fbi  
E-XIII: fae fai(t) fal(t)  
(g) C: faa fab fac fad fae  
D: faa(t, +) fab(t, +) fac(t, +)  
fad(t, +) fae(t, +) fai(t, +)  
fai(t, +)  
E-XI: fac  
E-XIII: fae fai(t, +) fal(t, +)

Ra<sup>+</sup>  
(g) C: fab

Ra<sup>2+</sup>  
(g) C: fab  
(aq) C: faa fab fac fad

**97-1**  
RaO Radium oxide  
(c) C: fab  
E-XIII: faa(t) fab(t)

**97-10**  
RaCl<sub>2</sub> Radium chloride  
(c) C: fac  
RaCl<sub>2</sub>·2H<sub>2</sub>O Radium chloride-2-Water  
(c) C: faa fab fac fad  
RaCl<sub>3</sub> Radium trichloride  
(c) C: eah

**97-14-1**  
RaSO<sub>4</sub> Radium sulfate  
(c) C: faa fab fac fad

**97-18-1**  
Ra(NO<sub>3</sub>)<sub>2</sub> Radium nitrate  
(c) C: faa fab fac fad

**98 - Lithium - Li**

**98**  
Li Lithium  
(c, II) C: eaj  
(c, I) C: eah fbf fbq  
(c) C: fac fae  
D: eah fac(t) fae(t) fai(t) fal(t) fbi  
E-III: fbn(t) fbn(t)  
E-V: eah fbf fbq  
E-XI: fac fae(-t)  
E-XIII: fae(t) fai(t) fal(t) fbi  
F: eah eal(t) fac fae(-t, t) fai(t)  
fai(t) fal(t) fbf fbq fbn  
(liq) C: eaq  
D: eaq fac(t) fae(t) fai(t) fal(t) fbi  
E-III: eaq eal(t) fbi(t) fbi fbk  
E-XIII: fae(t) fai(t) fal(t)  
F: eal(t) fae(t) fai(t) fal(t) fal(t) fbi  
(g) C: faa fab fac fad fae  
D: faa(t, +) fab(t, +) fac(t, +)  
fad(t, +) fae(t, +) fai(t, +)  
fai(t, +)  
E-III: fac  
E-XI: fac  
E-XIII: fae fai(t, +) fal(t, +)  
F: fac fae(t) fai(t) fai(t) fal(t)

Li<sup>+</sup>  
(g) C: fab  
(aq) C: faa fab fac fad  
E-IV: faa  
E-XI: fac

Li<sup>2+</sup>  
(g) C: fab

Li <sup>+</sup>	(g) C: fab
Li <sub>2</sub>	Dilithium (g) C: faa fab fac fad fae D: faa(t) fab(t) fac(t) fad(t) fae(t) faf(t) fa(t) E-XI: fac E-XIII: fae(t) fal(t) fal(t)
Li <sub>2</sub> O	98-1 Lithium oxide (c) C: fab E-IV: fam(t) fan(t) E-XII: faa(t) fab(t) E-XIII: fae(t) fal(t) fal(t)
Li <sub>2</sub> O <sub>2</sub>	Lithium peroxide (c) C: fab E-XII: faa(t) fab(t) (aq) C: fab
LiH	98-2 Lithium hydride (c) C: faa fab fac fad fae E-XI: fac fae(-t) E-XIII: fae (g) C: faa fab fac fad fae E-XI: fac E-XIII: fae(t) fal(t) fal(t)
Li <sup>2</sup> H	Lithium deuteride (g) E-XI: fac E-XIII: fae(t) fal(t) fal(t)
LiOH	98-2-1 Lithium hydroxide (c) C: eah faa fab fac fad E-V: eah fbf fbq E-XI: fac E-XIII: fae(t) fal(t) fal(t) fbf (liq) E-XIII: fae fal(t) fal(t) (aq) C: faa fab(x) fac fad
LiOH·H <sub>2</sub> O	Lithium hydroxide-Water (c) C: faa fab fac fad E-XIII: fae (aq) E-IV: eam
Li <sub>2</sub> O <sub>2</sub> ·H <sub>2</sub> O <sub>2</sub> ·3H <sub>2</sub> O	Lithium peroxide-Hydrogen peroxide-3-Water (c) C: fab
LiF	98-9 Lithium fluoride (c) C: eah faa fab fac fad fae fbf fbq E-V: eah fbf fbq E-XI: fac fae(-t) E-XIII: fae(t) fal(t) fal(t) fbf (liq) C: eaq fbj fbk E-III: eal(t) fbl(t) fbj(t) fbk E-XIII: fae fal(t) fal(t) (g) E-XI: fac (aq) C: faa fab fac fad

LiHF <sub>2</sub>	98-9-2 Lithium hydrogen difluoride (aq) C: fab
LiCl	98-10 Lithium chloride (c) C: eah eal fab fae fbf fbq fbn fbo E-V: eah fbf fbq E-XI: fac E-XIII: fae(t) (liq) C: eaq fbj fbk E-III: eaq eal(t) fbl(t) fbj(t) fbk (g) C: faa fab fac fad fae E-XI: fac E-XIII: fae(t) fal(t) fal(t) (aq) C: faa fab(x) fac fad (in methanol) C: fab (in ethanol) C: fab
LiCl·H <sub>2</sub> O	Lithium chloride-Water (c) C: faa fab fac fad fae E-XIII: fae
LiCl·2H <sub>2</sub> O	Lithium chloride-2-Water (c) C: fab
LiCl·3H <sub>2</sub> O	Lithium chloride-3-Water (c) C: fab
LiClO	98-10-1 Lithium hypochlorite (aq) C: fab
LiClO <sub>2</sub>	Lithium chlorate (c, III) C: eaj (c, II) C: eaj (c, I) C: eah
LiClO <sub>3</sub> ·3H <sub>2</sub> O	Lithium chlorate-3-Water (c) C: eah
LiClO <sub>4</sub>	Lithium perchlorate (c) C: eah
LiBr	98-11 Lithium bromide (c) C: eah fab fae fbf fbq E-V: eah fbf fbq E-XIII: fae(t) (liq) C: eaq fbj fbk E-III: eal(t) fbl(t) fbj(t) fbk (g) C: faa fab fac fad fae E-XI: fac E-XIII: fae(t) fal(t) fal(t) (aq) C: faa fab(x) fac fad
LiBr·H <sub>2</sub> O	Lithium bromide-Water (c) C: fab fae E-XIII: fae
LiBr·2H <sub>2</sub> O	Lithium bromide-2-Water (c) C: fab
LiBr·3H <sub>2</sub> O	Lithium bromide-3-Water (c) C: fab

**98-12**  
**LiI** Lithium iodide  
 (c) C: eah fab fae  
 E-V: eah fbf fbq  
 E-XIII: fae(t)  
 (liq) C: eaq fbj fbk  
 E-III: eaq eal(t) fbi(t) fbj(t) fbk  
 (g) C: faa fab fac fad fae  
 E-XI: fac  
 E-XIII: fae(t) fai(t) fal(t)  
 (aq) C: faa fab(x) fac fad  
**LiI·½H<sub>2</sub>O** Lithium iodide-½-Water  
 (c) C: fab  
**LiI·H<sub>2</sub>O** Lithium iodide-Water  
 (c) C: fab fae  
 E-XIII: fae  
**LiI·2H<sub>2</sub>O** Lithium iodide-2-Water  
 (c) C: fab fae  
 E-XIII: fae  
**LiI·3H<sub>2</sub>O** Lithium iodide-3-Water  
 (c) C: fab fae  
 E-XIII: fae

**98-14-1**  
**Li<sub>2</sub>SO<sub>4</sub>** Lithium sulfate  
 (c, II) C: eaj fab fbb fbc  
 (c, I) C: eah fbf fbq  
 E-V: eah fbf fbq  
 E-VII: faa fab fam fan  
 (aq) C: faa fab(x) fac fad  
**Li<sub>2</sub>SO<sub>4</sub>·H<sub>2</sub>O** Lithium sulfate-Water  
 (c) C: fab  
 E-VII: fam fan

**98-14-12-1**  
**LiI·SO<sub>2</sub>** Lithium iodide-Sulfur dioxide  
 (c) C: fab

**98-14-12-1**  
**LiI·2SO<sub>2</sub>** Lithium iodide-2-Sulfur dioxide  
 (c) C: fab

**98-15**  
**Li<sub>2</sub>Se** Lithium selenide  
 (c) C: fab  
 (aq) C: fab  
**Li<sub>2</sub>Se·9H<sub>2</sub>O** Lithium selenide-9-Water  
 (c) C: fab

**98-18**  
**Li<sub>3</sub>N** Lithium nitride  
 (c) C: fab fae  
 E-VIII: faa(t) fab(t)  
 E-XIII: fae(t) fai(t) fal(t)

**98-18-1**  
**LiNO<sub>2</sub>** Lithium nitrite  
 (c) C: fab  
**LiNO<sub>3</sub>** Lithium nitrate  
 (c) C: eah fab fbf fbq ibh  
 E-V: eah fbf fbq  
 E-XIII: fae(t) fai(t) fal(t) fit

(liq) E-XIII: fae fai(t) fal(t)  
 (aq) C: faa fab(x) fac fad  
**LiNO<sub>3</sub>·3H<sub>2</sub>O** Lithium nitrate-3-Water  
 (c) C: eah fab fbf fbq

**98-18-2**  
**LiNH<sub>2</sub>** Lithium amide  
 (c) C: fab  
 (liq) C: fab  
**Li(NH<sub>2</sub>)<sub>4</sub>** Tetramminelithium  
 (liq) C: fab  
**Li<sub>2</sub>NH** Lithium imide  
 (c) C: fab

**98-18-10-2**  
**LiCl·NH<sub>3</sub>** Lithium chloride-Ammonia  
 (c) C: fab  
**LiCl·2NH<sub>3</sub>** Lithium chloride-2-Ammonia  
 (c) C: fab  
**LiCl·3NH<sub>3</sub>** Lithium chloride-3-Ammonia  
 (c) C: fab  
**LiCl·4NH<sub>3</sub>** Lithium chloride-4-Ammonia  
 (c) C: fab  
**LiCl·5NH<sub>3</sub>** Lithium chloride-5-Ammonia  
 (c) C: fab

**98-18-11-2**  
**LiBr·NH<sub>3</sub>** Lithium bromide-Ammonia  
 (c) C: fab  
**LiBr·2NH<sub>3</sub>** Lithium bromide-2-Ammonia  
 (c) C: fab  
**LiBr·3NH<sub>3</sub>** Lithium bromide-3-Ammonia  
 (c) C: fab  
**LiBr·4NH<sub>3</sub>** Lithium bromide-4-Ammonia  
 (c) C: fab  
**LiBr·5NH<sub>3</sub>** Lithium bromide-5-Ammonia  
 (c) C: fab  
**LiBr·6½NH<sub>3</sub>** Lithium bromide-6½-Ammonia  
 (c) C: fab

**98-18-12-2**  
**LiI·NH<sub>3</sub>** Lithium iodide-Ammonia  
 (c) C: fab  
**LiI·2NH<sub>3</sub>** Lithium iodide-2-Ammonia  
 (c) C: fab  
**LiI·3NH<sub>3</sub>** Lithium iodide-3-Ammonia  
 (c) C: fab  
**LiI·4NH<sub>3</sub>** Lithium iodide-4-Ammonia  
 (c) C: fab  
**LiI·5NH<sub>3</sub>** Lithium iodide-5-Ammonia  
 (c) C: fab  
**LiI·5½NH<sub>3</sub>** Lithium iodide-5½-Ammonia  
 (c) C: fab  
**LiI·7NH<sub>3</sub>** Lithium iodide-7-Ammonia  
 (c) C: fab

**98-19-1**  
**Li<sub>3</sub>(PO<sub>4</sub>)<sub>2</sub>** Lithium phosphate  
 (c) C: eah



	<b>98-21</b>				
Li-Sb	Lithium-Antimony				
	(c) F: fcf(x)				
Li <sub>3</sub> Sb <sub>2</sub>	Trilithium diantimonide				
	(c) C: fab				
	<b>98-22</b>				
Li-Bi	Lithium-Bismuth				
	(c) F: fcf(x)				
Li <sub>3</sub> Bi	Trilithium bismuthide				
	(c) C: eah fab				
	<b>98-23</b>				
Li <sub>2</sub> C <sub>2</sub>	Lithium acetylide				
	(c) C: fab				
	<b>98-23-1</b>				
Li <sub>2</sub> CO <sub>3</sub>	Lithium carbonate				
	(c) C: eah faa fab fac fad fae				
	E-IV: faa fab fam(t) fan(t)				
	E-XI: fac fae(-t)				
	E-XIII: fae				
	(aq) C: faa fab(x) fac fad				
	E-IV: eam eap				
	<b>98-23-2-1</b>				
LiHCO <sub>3</sub>	Lithium hydrogen carbonate				
	(aq) C: faa fab(x) fac fad				
LiCH <sub>3</sub> O	Lithium methanolate				
	(in <i>methanol</i> ) C: fab				
LiC <sub>2</sub> H <sub>3</sub> O <sub>2</sub>	Lithium acetate				
	(c) C: eah				
LiC <sub>2</sub> H <sub>3</sub> O <sub>2</sub> ·2H <sub>2</sub> O	Lithium acetate-2-Water				
	(c) C: eah				
LiC <sub>2</sub> H <sub>5</sub> O	Lithium ethanolate				
	(in <i>etbanol</i> ) C: fab				
	<b>98-23-18</b>				
LiCN	Lithium cyanide				
	(aq) C: fab				
	<b>98-23-18-10-2</b>				
LiCl·CNH <sub>5</sub>	Lithium chloride-Methylamine				
	(c) C: fab				
LiCl·2CNH <sub>5</sub>	Lithium chloride-2-Methylamine				
	(c) C: fab				
LiCl·3CNH <sub>5</sub>	Lithium chloride-3-Methylamine				
	(c) C: fab				
LiCl·4CNH <sub>5</sub>	Lithium chloride-4-Methylamine				
	(c) C: fab				
LiCl·C <sub>2</sub> NH <sub>7</sub>	Lithium chloride-Ethylamine				
	(c) C: fab				
LiCl·2C <sub>2</sub> NH <sub>7</sub>	Lithium chloride-2-Ethylamine				
	(c) C: fab				
LiCl·3C <sub>2</sub> NH <sub>7</sub>	Lithium chloride-3-Ethylamine				
	(c) C: fab				
LiCl·C <sub>2</sub> NH <sub>7</sub>	Lithium chloride-Dimethylamine				
	(c) C: fab				
LiCl·2C <sub>2</sub> NH <sub>7</sub>	Lithium chloride-2-Dimethylamine				
	(c) C: fab				
LiCl·3C <sub>2</sub> NH <sub>7</sub>	Lithium chloride-3-Dimethylamine				
	(c) C: fab				

	<b>98-23-18-11-2</b>				
LiBr·CNH <sub>5</sub>	Lithium bromide-Methylamine				
	(c) C: fab				
LiBr·2CNH <sub>5</sub>	Lithium bromide-2-Methylamine				
	(c) C: fab				
LiBr·3CNH <sub>5</sub>	Lithium bromide-3-Methylamine				
	(c) C: fab				
LiBr·4CNH <sub>5</sub>	Lithium bromide-4-Methylamine				
	(c) C: fab				
LiBr·5CNH <sub>5</sub>	Lithium bromide-5-Methylamine				
	(c) C: fab				
LiBr·½C <sub>2</sub> NH <sub>7</sub>	Lithium bromide-½-Dimethylamine				
	(c) C: fab				
LiBr·C <sub>2</sub> NH <sub>7</sub>	Lithium bromide-Dimethylamine				
	(c) C: fab				
LiBr·2C <sub>2</sub> NH <sub>7</sub>	Lithium bromide-2-Dimethylamine				
	(c) C: fab				
LiBr·3C <sub>2</sub> NH <sub>7</sub>	Lithium bromide-3-Dimethylamine				
	(c) C: fab				
LiBr·4C <sub>2</sub> NH <sub>7</sub>	Lithium bromide-4-Dimethylamine				
	(c) C: fab				
LiBr·5C <sub>2</sub> NH <sub>7</sub>	Lithium bromide-5-Dimethylamine				
	(c) C: fab				

	<b>98-23-18-12-2</b>				
LiI·CNH <sub>5</sub>	Lithium iodide-Methylamine				
	(c) C: fab				
LiI·2CNH <sub>5</sub>	Lithium iodide-2-Methylamine				
	(c) C: fab				
LiI·3CNH <sub>5</sub>	Lithium iodide-3-Methylamine				
	(c) C: fab				
LiI·3½CNH <sub>5</sub>	Lithium iodide-3½-Methylamine				
	(c) C: fab				
LiI·½C <sub>2</sub> NH <sub>7</sub>	Lithium iodide-½-Dimethylamine				
	(c) C: fab				
LiI·C <sub>2</sub> NH <sub>7</sub>	Lithium iodide-Dimethylamine				
	(c) C: fab				
LiI·1½C <sub>2</sub> NH <sub>7</sub>	Lithium iodide-1½-Dimethylamine				
	(c) C: fab				
LiI·2C <sub>2</sub> NH <sub>7</sub>	Lithium iodide-2-Dimethylamine				
	(c) C: fab				
LiI·3C <sub>2</sub> NH <sub>7</sub>	Lithium iodide-3-Dimethylamine				
	(c) C: fab				
LiI·5C <sub>2</sub> NH <sub>7</sub>	Lithium iodide-5-Dimethylamine				
	(c) C: fab				

	<b>98-24-1</b>				
Li <sub>2</sub> SiO <sub>3</sub>	Lithium metasilicate				
	(c) C: eah fbf fbg				
	E-V: eah fbf fbg				
	(g/s) C: fab				
Li <sub>4</sub> SiO <sub>4</sub>	Lithium orthosilicate				
	(c) C: eah fbf fbg				
	E-V: eah fbf fbg				

	<b>98-24-9</b>				
Li <sub>2</sub> SiF <sub>6</sub>	Lithium hexafluorosilicate				
	(c) C: fab				
	(aq) C: fab				

**98-25-1**  
**Li<sub>2</sub>GeO<sub>3</sub>** Lithium germanium(IV) trioxide  
 (c) C: eah  
**Li<sub>4</sub>GeO<sub>4</sub>** Tetralithium germanium(IV) tetroxide  
 (c) C: eah

**98-26**  
**Li-Sn** Lithium-Tin  
 (c) F: fcf(x)  
 (liq) F: fcf(x) fcq(x)  
**LiSn** Lithium stannide  
 (c) C: fab  
**LiSn<sub>2</sub>** Lithium distannide  
 (c) C: fab  
**Li<sub>2</sub>Sn** Dilithium stannide  
 (c) C: fab  
**Li<sub>4</sub>Sn** Tetralithium stannide  
 (c) C: fab  
**Li<sub>5</sub>Sn<sub>2</sub>** Pentalithium distannide  
 (c) C: fab  
**Li<sub>7</sub>Sn<sub>2</sub>** Heptalithium distannide  
 (c) C: fab

**98-27**  
**Li-Pb** Lithium-Lead  
 (c) F: fcf(x)  
**LiPb** Lithium plumbide  
 (c) C: fab  
**Li<sub>3</sub>Pb** Trilithium plumbide  
 (c) C: fab  
**Li<sub>4</sub>Pb** Tetralithium plumbide  
 (c) C: fab  
**Li<sub>5</sub>Pb<sub>2</sub>** Pentalithium diplumbide  
 (c) C: fab  
**Li<sub>7</sub>Pb<sub>2</sub>** Heptalithium diplumbide  
 (c) C: fab

**98-27-12**  
**2LiI·PbI<sub>2</sub>** 2-Lithium iodide-Lead(II) iodide  
 (c) C: fab  
**2LiI·PbI<sub>2</sub>·4H<sub>2</sub>O** 2-Lithium iodide-Lead(II) iodide-4-Water  
 (c) C: fab

**98-28-1**  
**LiBO<sub>2</sub>** Lithium metaborate  
 (c) C: eah fbf fbg  
 E-V: eah fbf fbg  
**Li<sub>2</sub>O·B<sub>2</sub>O<sub>3</sub>** Lithium oxide-Diboron trioxide  
 (c) C: eah  
**Li<sub>2</sub>O·2B<sub>2</sub>O<sub>3</sub>** Lithium oxide-2-Diboron trioxide  
 (c) C: eah  
**Li<sub>2</sub>O·3B<sub>2</sub>O<sub>3</sub>** Lithium oxide-3-Diboron trioxide  
 (c) C: eah  
**Li<sub>2</sub>O·4B<sub>2</sub>O<sub>3</sub>** Lithium oxide-4-Diboron trioxide  
 (c) C: eah  
**Li<sub>2</sub>O·5B<sub>2</sub>O<sub>3</sub>** Lithium oxide-5-Diboron trioxide  
 (c) C: eah

**98-28-2**  
**LiBH<sub>4</sub>** Lithium borohydride  
 (c) C: fab fae  
 E-XIII: fae

**98-29-1**  
**LiAlO<sub>2</sub>** Lithium aluminum dioxide  
 (c) E-XIII: fae(t) fai(t) fal(t)

**98-29-2**  
**LiAlH<sub>4</sub>** Lithium tetrahydroaluminate  
 (c) C: fab fae

**98-29-9**  
**3LiF·AlF<sub>3</sub>** 3-Lithium fluoride-Aluminum fluoride  
 (c) C: eah

**98-29-10**  
**LiCl·AlCl<sub>3</sub>** Lithium chloride-Aluminum chloride  
 (c) C: eah

**98-29-11**  
**LiBr·AlBr<sub>3</sub>** Lithium bromide-Aluminum bromide  
 (c) C: eah  
**LiBr·7AlBr<sub>3</sub>** Lithium bromide-7-Aluminum bromide  
 (c) C: eah

**98-30**  
**Li-Ga** Lithium-Gallium  
 (c) F: fbf fbg fch(t) fcp(t) fcr(t) fct(t)  
**LiGa** Lithium gallide  
 (c) E-XIII: fae

**98-31**  
**Li-In** Lithium-Indium  
 (c) F: fbf fbg fch(t) fcp(t) fcr(t) fct(t)  
**LiIn** Lithium indide  
 (c) E-XIII: fae(t)

**98-32**  
**Li-Tl** Lithium-Thallium  
 (c) F: fcf(x)  
**LiTl** Lithium thallide  
 (c) C: fab

**98-33**  
**Li-Zn** Lithium-Zinc  
 (c) F: fcf(x)

**98-34**  
**Li-Cd** Lithium-Cadmium  
 (c) F: fbf fbg fch(t) fcp(t) fcr(t) fct(t)  
**LiCd** Lithium cadmide  
 (c) E-XIII: fae

**98-35**  
**Li-Hg** Lithium-Mercury  
 (c) F: fcf(x)  
 (liq) F: fca(x) fcb(x) fcc(x) fcd(x) fcv(x) fcw(x)  
**LiHg** Lithium mercuride  
 (c) C: fab  
**LiHg<sub>2</sub>** Lithium dimercuride  
 (c) C: fab  
**LiHg<sub>3</sub>** Lithium trimercuride  
 (c) C: fab  
**LiHg<sub>99</sub>**  
 (liq) C: fab

- 98-35-11**  
**LiBr·HgBr<sub>2</sub>** Lithium bromide—Mercury(II) bromide  
 (aq) C: fab  
**2LiBr·HgBr<sub>2</sub>** 2-Lithium bromide—Mercury(II) bromide  
 (aq) C: fab  
**4LiBr·HgBr<sub>2</sub>** 4-Lithium bromide—Mercury(II) bromide  
 (aq) C: fab  
**8LiBr·HgBr<sub>2</sub>** 8-Lithium bromide—Mercury(II) bromide  
 (aq) C: fab

- 98-35-23-18**  
**LiCn·Hg(CN)<sub>2</sub>** Lithium cyanide—Mercury(II) cyanide  
 (aq) C: fab  
**2LiCn·Hg(CN)<sub>2</sub>** 2-Lithium cyanide—Mercury(II) cyanide  
 (aq) C: fab

- 98-35-23-18-10**  
**LiCl·Hg(CN)<sub>2</sub>** Lithium chloride—Mercury(II) cyanide  
 (aq) C: fab  
**2LiCl·Hg(CN)<sub>2</sub>** 2-Lithium chloride—Mercury(II) cyanide  
 (aq) C: fab

- 98-35-23-18-11**  
**LiBr·Hg(CN)<sub>2</sub>** Lithium bromide—Mercury(II) cyanide  
 (aq) C: fab  
**LiBr·Hg(CN)<sub>2</sub>·3½H<sub>2</sub>O** Lithium bromide—Mercury(II) cyanide—3½-  
 Water  
 (c) C: fab  
**2LiBr·Hg(CN)<sub>2</sub>** 2-Lithium bromide—Mercury(II) cyanide  
 (c) C: fab

- 98-35-23-18-12**  
**LiI·Hg(CN)<sub>2</sub>** Lithium iodide—Mercury(II) cyanide  
 (aq) C: fab  
**LiI·Hg(CN)<sub>2</sub>·3½H<sub>2</sub>O** Lithium iodide—Mercury(II) cyanide—3½-  
 Water  
 (c) C: fab  
**2LiI·Hg(CN)<sub>2</sub>** 2-Lithium iodide—Mercury(II) cyanide  
 (aq) C: fab

- 98-46-10**  
**LiCl·CoCl<sub>2</sub>** Lithium chloride—Cobalt(II) chloride  
 (c) C: eah

- 98-47-1**  
**LiFeO<sub>2</sub>** Lithium iron(III) dioxide  
 (c) E-XIII: fae

- 98-50-1**  
**LiReO<sub>4</sub>** Lithium perrhenate  
 (c) C: eah fab  
**LiReO<sub>4</sub>·H<sub>2</sub>O** Lithium perrhenate—Water  
 (c) C: fab  
**LiReO<sub>4</sub>·2H<sub>2</sub>O** Lithium perrhenate—2-Water  
 (c) C: fab

- 98-52-1**  
**Li<sub>2</sub>MoO<sub>4</sub>** Lithium tetroxomolybdate(VI)  
 (c) C: eah fbf fbg  
 E-V: eah fbf fbg

- 98-53-1**  
**Li<sub>2</sub>WO<sub>4</sub>** Lithium tetroxotungstate(VI)  
 (c) C: eah fbf fbg  
 E-V: eah fbf fbg  
**Li<sub>2</sub>W<sub>2</sub>O<sub>7</sub>** Lithium heptoxoditungstate(VI)  
 (c, II) C: eaj  
 (c, I) C: eah

- 98-54-1**  
**LiVO<sub>3</sub>** Lithium vanadium(V) trioxide  
 (c) C: eah

- 98-57-1**  
**Li<sub>2</sub>TiO<sub>3</sub>** Lithium titanium(IV) trioxide  
 (c, α) E-XIII: fae(t) fai(t) fal(t) fbb  
 (c, β) E-XIII: fae(t) fai(t) fal(t) fbf  
 (liq) E-XIII: fae fai fal

- 98-58-24-1**  
**2Li<sub>4</sub>SiO<sub>4</sub>·3ZrSiO<sub>4</sub>** 2-Lithium orthosilicate—3-Zirconium  
 orthosilicate  
 (c) C: eah

- 98-90-10**  
**2LiCl·ThCl<sub>4</sub>** 2-Lithium chloride—Thorium chloride  
 (c) C: fab  
**LiCl·ThCl<sub>4</sub>·8H<sub>2</sub>O** Lithium chloride—Thorium chloride—8-Water  
 (c) C: fab

- 98-92-9**  
**Li<sub>2</sub>BeF<sub>4</sub>** Lithium tetrafluoroberyllate  
 (c) C: eah

**99 – Sodium – Na**

- 99**  
**Na** Sodium  
 (c) C: eah fac fae fbf fbg fbh  
 D: eah fac(t) fae(t) faf(t) fai(t) fbf  
 E-III: fbn(t) fbn(t)  
 E-V: eah fbf fbg  
 E-XI: fac fae(-t)  
 E-XIII: fae fai fal fbf  
 F: eah eal(t) fac fae(-t,t) faf(t)  
 fai(t) fal(t) fbf fbg fbn  
 (liq) C: eaq  
 D: eaq fac(t) fae(t) faf(t) fai(t) fbj  
 E-III: eaq eal(t) fbi(t) fbj(t) fbk  
 E-XIII: fae(t) fai(t) fal(t) fbj  
 F: eal(t) fae(t) faf(t) fai(t) fal(t) fbk  
 (g) C: faa fab fac fad fae  
 D: faa(+t) fab(+t) fac(+t) faf(+t)  
 fad(+t) fae(+t) faf(+t)  
 fai(+t)  
 E-III: fac  
 E-XI: fac  
 E-XIII: fae fai(+t) fal(+t)  
 F: fac fae(t) faf(t) fai(t) fal(t)

<b>Na<sup>+</sup></b>	(g) C: fab				
	(aq) C: faa	fab	fac	fad	
	E-XI:	fac			
<b>Na<sup>2+</sup></b>	(g) C: fab				
<b>Na<sup>3+</sup></b>	(g) C: fab				
<b>Na<sup>4+</sup></b>	(g) C: fab				
<b>Na<sup>5+</sup></b>	(g) C: fab				
<b>Na<sup>6+</sup></b>	(g) C: fab				
<b>Na<sup>7+</sup></b>	(g) C: fab				
<b>Na<sup>8+</sup></b>	(g) C: fab				
<b>Na<sup>9+</sup></b>	(g) C: fab				
<b>Na<sub>2</sub></b>	Disodium				
	(g) C: faa	fab	fac	fad	
	D: faa(t)	fab(t)	fac(t)	fad(t)	fae(t) faf(t)
		fae(t)			
	E-XI:	fac			
	E-XIII:	fae(t,+)	fai(t,+)	fal(t,+)	
<b>NaO<sub>2</sub></b>	99-1 Sodium hyperoxide				
	(c) C: fab				
	E-XII:	faa(t)	fab(t)		
	E-XIII:	fae			
<b>Na<sub>2</sub>O</b>	Sodium oxide				
	(c) C: faa	fab	fac	fad	fae
	E-IV:	fan			
	E-XI:	fac			
	E-XII:	faa(t)	fab(t)		
	E-XIII:	fae(t)	fai(t)	fal(t)	
	(liq) E-XII:	faa(t)	fab(t)		
<b>Na<sub>2</sub>O<sub>2</sub></b>	Sodium peroxide				
	(c) C: eah	fab			
	E-XII:	faa(t)	fab(t)		
	E-XIII:	fae			
	(liq) E-XII:	faa(t)	fab(t)		
<b>NaH</b>	99-2 Sodium hydride				
	(c) C: fab				
	(g) C: faa	fab	fac	fad	fae
	E-XI:	fac			
	E-XIII:	fae(t)	fai(t)	fal(t)	
<b>Na<sup>2</sup>H</b>	Sodium deuteride				
	(g) E-XI:	fac			
	E-XIII:	fae(t)	fai(t)	fal(t)	
<b>NaOH</b>	99-2-1 Sodium hydroxide				
	(c, II, α) C: eaj	fab	fae	fbf	fbh
	E-XIII:	fae(t)	fai(t)	fal(t)	fbf
	(c, I, β) C: eah	fbf	fbg	fbh	
	E-V:	eah	fbf	fbg	
	E-XIII:	fae	fai(t)	fal(t)	fbf

	(c) E-XI:	fac			
	(liq) E-III:	eaq	eal(t)		
	E-XIII:	fae(t)	fai(t)	fal(t)	
	(aq) C: faa	fab(x)	fac	fad	
<b>NaOH·H<sub>2</sub>O</b>	Sodium hydroxide-Water				
	(c) C: eah	faa	fab	fac	fad
	(aq) E-IV:	eam			
<b>NaOH·3½H<sub>2</sub>O</b>	Sodium hydroxide-3½-Water				
	(c) C: eah				
<b>NaHO<sub>2</sub></b>	Sodium hydrogen peroxide				
	(aq) C: fab				
<b>NaF</b>	99-9 Sodium fluoride				
	(c) C: eah	eai	faa	fab	fac
		fae	fbf	fbg	fbh
		fbn	fbk	fbm	fbo
	E-V:	eah	fbf	fbg	
	E-XI:	fac			
	E-XIII:	fae(t)	fai(t)	fal(t)	fbf
	(liq) C: eaq	fbj	fbk		
	E-III:	eaq	eal(t)	fbj(+)	fbj(+)
	E-XIII:	fae	fai(t)	fal(t)	
	(g) C: fab				
	E-XI:	fac			
	(aq) C: faa	fab(x)	fac	fad	
<b>NaHF<sub>2</sub></b>	99-9-2 Sodium hydrogen difluoride				
	(c) C: fab				
	(aq) C: fab				
<b>NaCl</b>	99-10 Sodium chloride				
	(c) C: eah	eai	faa	fab	fac
		fae	fbf	fbg	fbh
		fbn	fbk	fbm	fbo
	E-III:	eal(t)	fbm(t)	fbn(t)	
	E-V:	eah	fbf	fbg	
	E-XI:	fac	fae(-)		
	E-XIII:	fae(t)	fai(t)	fal(t)	fbf
	(liq) C: eaq	fbj	fbk		
	E-III:	eaq	eal(t)	fbj(t)	fbj(t)
	E-XIII:	fae	fai(t)	fal(t)	
	(g) C: fab				
	E-III:	fac			
	E-XI:	fac			
	E-XIII:	fae(t)	fai(t)	fal(t)	
	(aq) C: faa	fab(x)	fac	fad	
	(in methanol) C: fab				
<b>NaClO</b>	99-10-1 Sodium hypochlorite				
	(aq) C: fab				
<b>NaClO<sub>2</sub></b>	Sodium chlorite				
	(c) C: fab				
	(aq) C: fab				
<b>NaClO<sub>3</sub></b>	Sodium chlorate				
	(c) C: eah	fab	fbf	fbg	fbh
	E-V:	eah	fbf	fbg	
	E-XIII:	fae(t)	fai(t)	fal(t)	fbf
	(liq) E-XIII:	fae	fai(t)	fal(t)	
	(aq) C: faa	fab(x)	fac	fad	

**SODIUM**  
**99-10-1 NaClO<sub>4</sub>**

**NaClO<sub>4</sub>** Sodium perchlorate  
*(c, II)* C: eaj fab fae  
*(aq)* C: faa fab(x) fac fad  
*(in methanol)* C: fab  
*(in ethanol)* C: fab

**99-11**

**NaBr** Sodium bromide  
*(c)* C: eah eai fab fae fbf fbq  
 fbn  
 E-V: eah fbf fbq  
 E-XI: fac  
 E-XIII: fae(t) fai(t) fal(t)  
*(liq)* C: eaq fbj fbk  
 E-III: eaq eal(t) fbi(t) fbj(t) fbk  
*(g)* C: fab  
 E-XI: fac  
 E-XIII: fae(t) fai(t) fal(t)  
*(aq)* C: faa fab(x) fac fad  
*(in methanol)* C: fab  
*(in ethanol)* C: fab

**NaBr·2H<sub>2</sub>O** Sodium bromide-2-Water  
*(c)* C: fab

**99-11-1**

**NaBrO** Sodium hypobromite  
*(aq)* C: fab

**99-12**

**NaI** Sodium iodide  
*(c)* C: eah fab fae fbf fbq  
 E-V: eah fbf fbq  
 E-XIII: fae(t)  
*(liq)* C: eaq fbj fbk  
 E-III: eaq eal(t) fbi(t) fbj(t) fbk  
*(g)* C: fab  
 E-XI: fac  
 E-XIII: fae(t) fai(t) fal(t)  
*(aq)* C: faa fab(x) fac fad  
*(in methanol)* C: fab  
*(in ethanol)* C: fab

**NaI·2H<sub>2</sub>O** Sodium iodide-2-Water  
*(c)* C: fab

**99-12-1**

**NaIO<sub>3</sub>** Sodium iodate  
*(aq)* C: fab(x)

**99-14**

**Na<sub>2</sub>S** Sodium sulfide  
*(c)* C: eah fab fbf fbq  
 E-V: eah fbf fbq  
 E-XIII: fae(t) fai(t) fal(t)  
*(aq)* C: fab(x)

**Na<sub>2</sub>S·4½H<sub>2</sub>O** Sodium sulfide-4½-Water  
*(c)* C: fab

**Na<sub>2</sub>S·5H<sub>2</sub>O** Sodium sulfide-5-Water  
*(c)* C: fab

**Na<sub>2</sub>S·9H<sub>2</sub>O** Sodium sulfide-9-Water  
*(c)* C: fab

**Na<sub>2</sub>S<sub>2</sub>** Disodium disulfide  
*(c)* C: eah  
*(aq)* C: fab

**Na<sub>2</sub>S<sub>3</sub>** Disodium trisulfide  
*(c)* C: eah  
*(aq)* C: fab

**Na<sub>2</sub>S<sub>4</sub>** Disodium tetrasulfide  
*(c)* C: eah fab  
*(aq)* C: fab

**Na<sub>2</sub>S<sub>5</sub>** Disodium pentasulfide  
*(c)* C: eah

**Na<sub>4</sub>S<sub>3</sub>** Tetrasodium trisulfide  
*(c)* C: eah

**Na<sub>4</sub>S<sub>5</sub>** Tetrasodium pentasulfide  
*(c)* C: eah

**Na<sub>4</sub>S<sub>7</sub>** Tetrasodium heptasulfide  
*(c)* C: eah

**Na<sub>4</sub>S<sub>9</sub>** Tetrasodium nonasulfide  
*(c)* C: eah

**99-14-1**

**Na<sub>2</sub>SO<sub>3</sub>** Sodium sulfite  
*(c)* C: faa fab fac fad fae  
 E-XI: fac fae(-t)  
 E-XIII: fae  
*(aq)* C: fab

**Na<sub>2</sub>SO<sub>3</sub>·7H<sub>2</sub>O** Sodium sulfite-7-Water  
*(c)* C: fab

**Na<sub>2</sub>SO<sub>4</sub>** Sodium sulfate  
*(c, V)* E-XIII: fae(t) fai(t) fal(t)  
*(c, II)* C: eaj faa fab fac fad fae  
 E-XIII: fae(t) fai(t) fal(t) fbb  
*(c, I)* C: eah fbf fbq  
 E-V: eah fbf fbq  
 E-XIII: fae(t) fai(t) fal(t) fbf  
*(c)* E-VII: faa fab fam(t) fan(t)  
 E-XI: fac fae(-t)  
*(liq)* E-XIII: fae fai(t) fal(t)  
*(aq)* C: faa fab(x) fac fad

**Na<sub>2</sub>SO<sub>4</sub>·10H<sub>2</sub>O** Sodium sulfate-10-Water  
*(c)* C: faa fab fac fad fae  
 E-VII: fam fan  
 E-XI: fac fae(-t)  
 E-XIII: fae

**Na<sub>2</sub>S<sub>2</sub>O<sub>3</sub>** Sodium thiosulfate  
*(c)* C: fab fae  
 E-XIII: fae  
*(aq)* C: fab

**Na<sub>2</sub>S<sub>2</sub>O<sub>3</sub>·5H<sub>2</sub>O** Sodium thiosulfate-5-Water  
*(c, II)* C: fab  
*(c, I)* C: eah fab fae fbf fbq fbh  
*(c)* E-XIII: fae

**Na<sub>2</sub>S<sub>2</sub>O<sub>5</sub>** Sodium disulfite  
*(c)* C: fab  
*(aq)* C: fab

**Na<sub>2</sub>S<sub>2</sub>O<sub>6</sub>** Sodium dithionate  
*(c)* C: fab  
*(aq)* C: fab

**Na<sub>2</sub>S<sub>2</sub>O<sub>6</sub>·2H<sub>2</sub>O** Sodium dithionate-2-Water  
*(c)* C: fab

**Na<sub>2</sub>S<sub>2</sub>O<sub>7</sub>** Sodium disulfate  
*(c)* E-VII: faa fab fam(t) fan(t)

$\text{Na}_2\text{S}_3\text{O}_6$  Sodium trithionate  
(aq) C: fab  
 $\text{Na}_2\text{S}_3\text{O}_6 \cdot 3\text{H}_2\text{O}$  Sodium trithionate-3-Water  
(c) C: fab  
 $\text{Na}_2\text{S}_4\text{O}_6$  Sodium tetrathionate  
(aq) C: fab  
 $\text{Na}_2\text{S}_4\text{O}_6 \cdot 2\text{H}_2\text{O}$  Sodium tetrathionate-2-Water  
(c) C: fab

## 99-14-2

$\text{NaHS}$  Sodium hydrogen sulfide  
(c, II,  $\alpha$ ) C: eaj fab fbb fbc  
E-XIII: fae fai fal fbb  
(c,  $\beta$ ) E-XIII: fae fai(t) fal(t)  
(aq) C: fab(x)  
 $\text{NaHS} \cdot 2\text{H}_2\text{O}$  Sodium hydrogen sulfide-2-Water  
(c) C: fab

## 99-14-2-1

$\text{NaHSO}_3$  Sodium hydrogen sulfite  
(aq) C: fab  
 $\text{NaHSO}_4$  Sodium hydrogen sulfate  
(c) C: eah fab  
E-VII: faa fab fam(t) fan(t)  
(aq) C: fab  
 $\text{NaHSO}_4 \cdot 2\text{H}_2\text{O}$  Sodium hydrogen sulfate-2-Water  
(c) C: fab

## 99-14-12-1

$\text{NaI} \cdot 2\text{SO}_2$  Sodium iodide-2-Sulfur dioxide  
(c) C: fab  
 $\text{NaI} \cdot 4\text{SO}_2$  Sodium iodide-4-Sulfur dioxide  
(c) C: fab

## 99-15

$\text{Na}_2\text{Se}$  Sodium selenide  
(c) C: fab  
(aq) C: fab  
 $\text{Na}_2\text{Se} \cdot 4\frac{1}{2}\text{H}_2\text{O}$  Sodium selenide-4½-Water  
(c) C: fab  
 $\text{Na}_2\text{Se} \cdot 9\text{H}_2\text{O}$  Sodium selenide-9-Water  
(c) C: fab  
 $\text{Na}_2\text{Se} \cdot 16\text{H}_2\text{O}$  Sodium selenide-16-Water  
(c) C: fab

## 99-15-1

$\text{Na}_2\text{SeO}_3$  Sodium selenite  
(aq) C: fab  
 $\text{Na}_2\text{SeO}_4$  Sodium selenate  
(c) C: fab  
(aq) C: fab

## 99-15-2

$\text{NaHSe}$  Sodium hydrogen selenide  
(c, II,  $\alpha$ ) C: eaj fab fbb fbc  
E-XIII: fae fai fal fbb  
(c,  $\beta$ ) E-XIII: fae fai(t) fal(t)  
(aq) C: fab

## 99-15-2-1

$\text{NaHSeO}_3$  Sodium hydrogen selenite  
(aq) C: fab

$\text{NaHSO}_4$  Sodium hydrogen selenate  
(aq) C: fab

## 99-16

$\text{Na}_2\text{Te}$  Sodium telluride  
(c, II) C: eaj fab  
 $\text{Na}_2\text{Te}_2$  Disodium ditelluride  
(c) C: fab

## 99-16-1

$\text{Na}_2\text{TeO}_4$  Sodium tellurate  
(c) C: fab

## 99-18

$\text{NaN}_3$  Sodium azide  
(c) C: fae  
E-XIII: fae

## 99-18-1

$\text{NaNO}_2$  Sodium nitrite  
(c, II) C: eaj fab  
(aq) C: fab  
 $\text{NaNO}_3$  Sodium nitrate  
(c, II,  $\alpha$ ) C: eaj faa fab fac fad  
fae  
E-XIII: fae(t) fai(t) fal(t) fbb  
(c, I,  $\beta$ ) C: eah fbf fbq fbh  
E-V: eah fbf fbq  
E-XIII: fae fai fal fbf  
(c) E-XI: fac fae(-t)  
(liq) E-XIII: fae fai(t) fal(t)  
(aq) C: faa fab(x) fac fad

## 99-18-2

$\text{NaNH}_2$  Sodium amide  
(c) C: eah fab

## 99-18-10-2

$\text{NaCl} \cdot 5\text{NH}_3$  Sodium chloride-5-Ammonia  
(c) C: fab

## 99-18-11-2

$\text{NaBr} \cdot 5\frac{1}{4}\text{NH}_3$  Sodium bromide-5¼-Ammonia  
(c) C: fab  
 $\text{NaBr} \cdot 5\frac{1}{2}\text{NH}_3$  Sodium bromide-5½-Ammonia  
(c) C: fab

## 99-18-12-2

$\text{NaI} \cdot 4\frac{1}{2}\text{NH}_3$  Sodium iodide-4½-Ammonia  
(c) C: fab  
 $\text{NaI} \cdot 6\text{NH}_3$  Sodium iodide-6-Ammonia  
(c) C: fab

## 99-18-14-2-1

$\text{Na}_2\text{SO}_4 \cdot (\text{NH}_4)_2\text{SO}_4 \cdot \text{H}_2\text{O}$  Sodium sulfate-Ammonium sulfate-Water  
(c) C: fab

**SODIUM**  
**99-19-1 NaPO<sub>3</sub>**

**99-19-1**  
**NaPO<sub>3</sub>** Sodium metaphosphate  
 (c) C: eah fab fae  
 E-V: eah fbf fbq  
 E-XIII: fae  
 (aq) C: fab

**Na<sub>3</sub>PO<sub>4</sub>** Sodium phosphate  
 (c) C: fab  
 (aq) C: fab(x)

**Na<sub>3</sub>PO<sub>4</sub>·12H<sub>2</sub>O** Sodium phosphate—12-Water  
 (c) C: fab

**Na<sub>4</sub>P<sub>2</sub>O<sub>7</sub>** Sodium diphosphate  
 (c) C: eah fab fae fbf fbq  
 E-V: eah fbf fbq  
 E-XIII: fae  
 (aq) C: fab

**Na<sub>4</sub>P<sub>2</sub>O<sub>7</sub>·10H<sub>2</sub>O** Sodium diphosphate—10-Water  
 (c) C: fab

**99-19-2-1**  
**NaH<sub>2</sub>PO<sub>3</sub>** Sodium hydrogen phosphite  
 (c) C: eah fab  
 (aq) C: fab

**NaH<sub>2</sub>PO<sub>3</sub>·2½H<sub>2</sub>O** Sodium hydrogen phosphite—2½-Water  
 (c) C: fab

**NaH<sub>2</sub>PO<sub>4</sub>** Sodium dihydrogen phosphate  
 (aq) C: fab

**NaH<sub>3</sub>P<sub>2</sub>O<sub>7</sub>** Sodium trihydrogen diphosphate  
 (c) C: fab  
 (aq) C: fab

**NaH<sub>3</sub>P<sub>2</sub>O<sub>7</sub>·H<sub>2</sub>O** Sodium trihydrogen diphosphate—Water  
 (c) C: fab

**Na<sub>2</sub>HPO<sub>3</sub>** Sodium phosphite  
 (c) C: fab  
 (aq) C: fab(x)

**Na<sub>2</sub>HPO<sub>3</sub>·5H<sub>2</sub>O** Sodium phosphite—5-Water  
 (c) C: fab

**Na<sub>2</sub>HPO<sub>4</sub>** Disodium hydrogen phosphate  
 (c) C: fab  
 (aq) C: fab

**Na<sub>2</sub>HPO<sub>4</sub>·2H<sub>2</sub>O** Disodium hydrogen phosphate—2-Water  
 (c) C: fab

**Na<sub>2</sub>HPO<sub>4</sub>·7H<sub>2</sub>O** Disodium hydrogen phosphate—7-Water  
 (c) C: fab fae  
 E-XIII: fae

**Na<sub>2</sub>HPO<sub>4</sub>·12H<sub>2</sub>O** Disodium hydrogen phosphate—12-Water  
 (c) C: fab fae  
 E-XIII: fae

**Na<sub>2</sub>H<sub>2</sub>P<sub>2</sub>O<sub>5</sub>** Disodium dihydrogen diphosphite  
 (c) C: fab  
 (aq) C: fab

**Na<sub>2</sub>H<sub>2</sub>P<sub>2</sub>O<sub>7</sub>** Disodium dihydrogen diphosphate  
 (c) C: fab  
 (aq) C: fab

**Na<sub>2</sub>H<sub>2</sub>P<sub>2</sub>O<sub>7</sub>·6H<sub>2</sub>O** Disodium dihydrogen diphosphate—6-Water  
 (c) C: fab

**Na<sub>3</sub>HP<sub>2</sub>O<sub>7</sub>** Trisodium hydrogen diphosphate  
 (c) C: fab  
 (aq) C: fab

**Na<sub>3</sub>HP<sub>2</sub>O<sub>7</sub>·H<sub>2</sub>O** Trisodium hydrogen diphosphate—Water  
 (c) C: fab

**Na<sub>3</sub>HP<sub>2</sub>O<sub>7</sub>·6H<sub>2</sub>O** Trisodium hydrogen diphosphate—6-Water  
 (c) C: fab

**99-19-18-2-1**  
**NaNH<sub>4</sub>HPO<sub>4</sub>** Sodium ammonium hydrogen phosphate  
 (aq) C: fab

**NaNH<sub>4</sub>HPO<sub>4</sub>·4H<sub>2</sub>O** Sodium ammonium hydrogen phosphate—4-Water  
 (c) C: fab

**99-20-1**  
**Na<sub>3</sub>AsO<sub>4</sub>** Sodium arsenate  
 (c) C: fab  
 (aq) C: fab

**Na<sub>3</sub>AsO<sub>4</sub>·12H<sub>2</sub>O** Sodium arsenate—12-Water  
 (c) C: fab

**99-20-2-1**  
**NaH<sub>2</sub>AsO<sub>3</sub>** Sodium dihydrogen arsenite  
 (aq) C: fab

**NaH<sub>2</sub>AsO<sub>4</sub>** Sodium dihydrogen arsenate  
 (aq) C: fab

**Na<sub>2</sub>HAsO<sub>4</sub>** Disodium hydrogen arsenate  
 (aq) C: fab

**99-21**  
**Na-Sb** Sodium-Antimony  
 (c) F: fcf(x)

**Na<sub>3</sub>Sb** Trisodium antimonide  
 (c) C: fab

**99-21-1**  
**Na<sub>3</sub>SbO<sub>4</sub>** Sodium antimony(V) tetroxide  
 (c) C: fab

**99-21-14**  
**Na<sub>3</sub>SbS<sub>3</sub>** Sodium antimony(III) trisulfide  
 (aq) C: fab

**99-22**  
**Na-Bi** Sodium-Bismuth  
 (c) F: fcf(x)

**NaBi** Sodium bismuthide  
 (c) C: eah

**Na<sub>3</sub>Bi** Trisodium bismuthide  
 (c) C: eah fab

**99-22-1**  
**Na<sub>3</sub>BiO<sub>4</sub>** Sodium bismuth(V) tetroxide  
 (c) C: fab

**99-23**  
**Na<sub>2</sub>C<sub>2</sub>** Sodium acetylide (Sodium carbide)  
 (c) C: fab

**99-23-1**  
**Na<sub>2</sub>CO<sub>3</sub>** Sodium carbonate  
 (c, IV) C: eaj  
 (c, III) C: eaj  
 (c, II) C: eaj  
 (c, I) C: eah fbf fbq  
 E-V: eah fbf fbq  
 E-XIII: fae(t) fai(t) fal(t) fbf

(c) C: faa fab fac fad fae  
E-IV: fab fam(t) fan(t)  
E-XI: fac fae(-t)  
(liq) E-XIII: fae fai(t) fal(t)  
(aq) C: fab(x)

Na<sub>2</sub>CO<sub>3</sub>·H<sub>2</sub>O Sodium carbonate—Water  
(c) C: fab

Na<sub>2</sub>CO<sub>3</sub>·7H<sub>2</sub>O Sodium carbonate—7-Water  
(c) C: fab

Na<sub>2</sub>CO<sub>3</sub>·10H<sub>2</sub>O Sodium carbonate—10-Water  
(c) C: fab fae  
E-XIII: fae  
(aq) E-IV: eam

Na<sub>2</sub>C<sub>2</sub>O<sub>4</sub> Sodium oxalate  
(c) C: fab fae  
(aq) C: fab

**99-23-2**

NaC<sub>2</sub>H Sodium hydrogen acetylide  
(c) C: fab

**99-23-2-1**

NaCHO<sub>2</sub> Sodium formate  
(c) C: eah fab  
(aq) C: fab

NaCHO<sub>2</sub>·2H<sub>2</sub>O Sodium formate—2-Water  
(c) C: fab

NaCHO<sub>2</sub>·3H<sub>2</sub>O Sodium formate—3-Water  
(c) C: fab

NaHCO<sub>3</sub> Sodium hydrogen carbonate  
(c) C: faa fab fac fad fae  
E-IV: faa fab fam(t) fan(t)  
E-XI: fac fae(-t)  
E-XIII: fae fai fal  
(aq) C: fab  
E-IV: eam

Na<sub>2</sub>CO<sub>3</sub>·NaHCO<sub>3</sub>·2H<sub>2</sub>O Sodium carbonate—Sodium hydrogen carbonate—2-Water  
(c) C: fab

NaCH<sub>3</sub>O Sodium methanolate  
(in methanol) C: fab

NaHC<sub>2</sub>O<sub>4</sub> Sodium hydrogen oxalate  
(c) C: fab  
(aq) C: fab

NaHC<sub>2</sub>O<sub>4</sub>·H<sub>2</sub>O Sodium hydrogen oxalate—Water  
(c) C: fab

NaC<sub>2</sub>H<sub>3</sub>O<sub>2</sub> Sodium acetate  
(c, II) C: eaj  
(c) C: fab  
(aq) C: fab(x)  
(in ethanol) C: fab

NaC<sub>2</sub>H<sub>3</sub>O<sub>2</sub>·3H<sub>2</sub>O Sodium acetate—3-Water  
(c) C: fab

NaC<sub>2</sub>H<sub>3</sub>O<sub>3</sub> Sodium glycolate  
(c) C: fab  
(aq) C: fab

NaC<sub>2</sub>H<sub>3</sub>O<sub>3</sub>·½H<sub>2</sub>O Sodium glycolate—½-Water  
(c) C: fab

NaC<sub>2</sub>H<sub>3</sub>O<sub>3</sub>·C<sub>2</sub>H<sub>4</sub>O<sub>3</sub> Sodium glycolate—Glycollic acid  
(c) C: fab

NaC<sub>2</sub>H<sub>5</sub>O Sodium ethanolate  
(in ethanol) C: fab

NaC<sub>2</sub>H<sub>5</sub>O<sub>2</sub> Monosodium glycol  
(c) C: fab

NaC<sub>2</sub>H<sub>5</sub>O<sub>2</sub>·CH<sub>4</sub>O Monosodium glycol—Methanol  
(c) C: fab

NaC<sub>2</sub>H<sub>5</sub>O<sub>2</sub>·C<sub>2</sub>H<sub>5</sub>O Monosodium glycol—Ethanol  
(c) C: fab

NaC<sub>2</sub>H<sub>5</sub>O<sub>2</sub>·C<sub>2</sub>H<sub>4</sub>O<sub>2</sub> Monosodium glycol—Glycol  
(c) C: fab

Na<sub>2</sub>C<sub>2</sub>H<sub>2</sub>O<sub>3</sub> Disodium glycolate  
(c) C: fab  
(aq) C: fab

Na<sub>2</sub>C<sub>2</sub>H<sub>2</sub>O<sub>3</sub>·2H<sub>2</sub>O Disodium glycolate—2-Water  
(c) C: fab

**99-23-10-1**

NaC<sub>2</sub>Cl<sub>3</sub>O<sub>2</sub> Sodium trichloroacetate  
(aq) C: fab

**99-23-10-2-1**

NaC<sub>2</sub>ClH<sub>2</sub>O<sub>2</sub> Sodium chloroacetate  
(aq) C: fab

NaC<sub>2</sub>Cl<sub>2</sub>HCO<sub>2</sub> Sodium dichloroacetate  
(aq) C: fab

**99-23-12-2-1**

NaI·3CH<sub>4</sub>O Sodium iodide—3-Methanol  
(c) C: fab

**99-23-14-2-1**

NaC<sub>2</sub>SH<sub>5</sub>O<sub>4</sub> Sodium ethyl sulfate  
(aq) C: fab

2NaHSO<sub>3</sub>·C<sub>2</sub>H<sub>2</sub>O<sub>2</sub>·H<sub>2</sub>O 2-Sodium hydrogen sulfite—Glyoxal—Water  
(c) C: fab  
(aq) C: fab

**99-23-18**

NaCN Sodium cyanide  
(c, III) C: eaj fab fbb fbc  
(c, II) C: eaj fbb fbc  
(c, I) C: eah fbf fbq  
E-V: eah fbf fbq  
(liq) C: eaq fbj fbk  
E-III: eaq eal(t) fbi(t) fbj fbk  
(aq) C: fab

NaCN·½H<sub>2</sub>O Sodium cyanide—½-Water  
(c) C: fab

NaCN·2H<sub>2</sub>O Sodium cyanide—2-Water  
(c) C: fab

**99-23-18-1**

NaCNO Sodium cyanate  
(c) C: fab  
E-XIII: fae  
(aq) C: fab

(NaCNO)<sub>3</sub> Tris(sodium cyanate)  
(c) E-XIII: fae

**99-23-18-2**

NaCN<sub>2</sub>H Sodium hydrogen cyanamide  
(aq) C: fab



## SODIUM

99-23-18-2-1 NaCNH<sub>2</sub>O<sub>2</sub>

## 99-23-18-2-1

NaCNH<sub>2</sub>O<sub>2</sub> Sodium carbamate  
(c) C: fab

## 99-23-18-14

NaCNS Sodium thiocyanate  
(c) C: eah fab fbf fbg  
E-V: eah fbf fbg  
(aq) C: fab(x)  
(in ethanol) C: fab

## 99-24-1

Na<sub>2</sub>SiO<sub>3</sub> Sodium metasilicate  
(c) C: eah faa fab fac fad fae  
fbf fbg fbh  
E-V: eah fbf fbg  
E-XI: fac fae(-t)  
E-XIII: fae(t) fai(t) fal(t) fbf  
(gls) C: fab  
(liq) E-XIII: fae fai(t) fal(t)Na<sub>2</sub>SiO<sub>3</sub>·5H<sub>2</sub>O Sodium metasilicate<sup>2</sup>-5-Water  
(c) C: fabNa<sub>2</sub>SiO<sub>3</sub>·9H<sub>2</sub>O Sodium metasilicate-9-Water  
(c) C: fabNa<sub>2</sub>Si<sub>2</sub>O<sub>5</sub> Disodium pentoxodisilicate  
(c) C: eah fac fae fbf fbg  
E-V: eah fbf fbg  
E-XI: fac fae(-t)  
(gls) E-XIII: fae(t) fai(t) fal(t)  
(liq) E-XIII: fae fai(t) fal(t)Na<sub>4</sub>SiO<sub>4</sub> Sodium orthosilicate  
(c) C: fac fae  
E-XI: fac fae(-t)  
E-XIII: fae

## 99-24-9

Na<sub>2</sub>SiF<sub>6</sub> Sodium hexafluorosilicate  
(c) C: fab  
(aq) C: fab

## 99-24-9-2

NaHSiF<sub>6</sub> Sodium hydrogen hexafluorosilicate  
(aq) C: fab

## 99-25-1

Na<sub>2</sub>GeO<sub>3</sub> Sodium germanium(IV) trioxide  
(c) C: eahNa<sub>2</sub>Ge<sub>2</sub>O<sub>5</sub> Sodium digermanium(IV) pentoxide  
(c) C: eahNa<sub>2</sub>Ge<sub>4</sub>O<sub>9</sub> Sodium tetragermanium(IV) nonaoxide  
(c) C: eah

## 99-26

Na-Sn Sodium-Tin  
(liq) F: fca(x) fcb(x) fcc(x) fcd(x) fcf(x) fcg(x)  
fcl(x) fcm(x) fcn(x) fco(x) fcv(x) fcw(x)NaSn Sodium stannide  
(c, II) C: eaj  
(c, I) C: eah  
(c) C: fabNaSn<sub>2</sub> Sodium distannide  
(c) C: fabNa<sub>2</sub>Sn Disodium stannide  
(c) C: eah fabNa<sub>4</sub>Sn Tetrasodium stannide  
(c) C: fabNa<sub>4</sub>Sn<sub>3</sub> Tetrasodium tristannide  
(c) C: fab

## 99-26-1

Na<sub>2</sub>SnO<sub>3</sub> Sodium tin(IV) trioxide  
(c) C: fabNa<sub>4</sub>SnO<sub>4</sub> Sodium tin(IV) tetroxide  
(aq) C: fab

## 99-27

Na-Pb Sodium-Lead  
(c) F: fca(x) fcb(x) fcf(x) fcl(x) fcm(x)  
(liq) F: fca(x) fcb(x) fcc(x) fcd(x) fcf(x) fcg(x)  
fcl(x) fcm(x) fcn(x) fco(x) fcv(x) fcw(x)NaPb Sodium plumbide  
(c) C: eah fabNa<sub>2</sub>Pb Disodium plumbide  
(c) C: eah fabNa<sub>2</sub>Pb<sub>3</sub> Disodium pentaplumbide  
(c) C: eah fabNa<sub>4</sub>Pb Tetrasodium plumbide  
(c) C: eah fabNa<sub>5</sub>Pb<sub>2</sub> Pentasodium diplumbide  
(c) C: eah fab

## 99-27-1

Na<sub>2</sub>PbO<sub>3</sub> Sodium lead(IV) trioxide  
(c) C: fab

## 99-27-12

2NaI·PbI<sub>2</sub> 2-Sodium iodide-Lead(II) iodide  
(c) C: fab2NaI·PbI<sub>2</sub>·4H<sub>2</sub>O 2-Sodium iodide-Lead(II) iodide-4-Water  
(c) C: fab2NaI·PbI<sub>2</sub>·6H<sub>2</sub>O 2-Sodium iodide-Lead(II) iodide-6-Water  
(c) C: fab

## 99-27-14-1

2Na<sub>2</sub>S<sub>2</sub>O<sub>3</sub>·PbS<sub>2</sub>O<sub>3</sub> 2-Sodium thiosulfate-Lead(II) thiosulfate  
(c) C: fab  
(aq) C: fab

## 99-28-1

NaBO<sub>2</sub> Sodium metaborate  
(c) C: eah fab fae  
E-V: eah fbf fbg  
E-XIII: fae(t)  
(aq) C: fabNaBO<sub>3</sub> Sodium trioxoborate  
(aq) C: fabNaBO<sub>3</sub>·4H<sub>2</sub>O Sodium trioxoborate-4-Water  
(c) C: fabNa<sub>2</sub>B<sub>4</sub>O<sub>7</sub> Disodium tetraborate  
(c) C: fab fae  
E-XIII: fae  
(gls) E-XIII: fae  
(aq) C: fab

**Na<sub>2</sub>B<sub>4</sub>O<sub>7</sub>·4H<sub>2</sub>O** Disodium tetraborate—4-Water  
(c) C: fab  
**Na<sub>2</sub>B<sub>4</sub>O<sub>7</sub>·5H<sub>2</sub>O** Disodium tetraborate—5-Water  
(c) C: fab  
**Na<sub>2</sub>B<sub>4</sub>O<sub>7</sub>·10H<sub>2</sub>O** Disodium tetraborate—10-Water  
(c) C: fab fae  
E-XIII: fae  
**Na<sub>2</sub>O·B<sub>2</sub>O<sub>3</sub>** Sodium oxide—Diboron trioxide  
(c) C: eah  
**Na<sub>2</sub>O·B<sub>2</sub>O<sub>3</sub>·8H<sub>2</sub>O** Sodium oxide—Diboron trioxide—8-Water  
(c) C: eah  
**Na<sub>2</sub>O·2B<sub>2</sub>O<sub>3</sub>** Sodium oxide—2-Diboron trioxide  
(c, l) C: eah  
**Na<sub>2</sub>O·4B<sub>2</sub>O<sub>3</sub>** Sodium oxide—4-Diboron trioxide  
(c) C: eah  
**2Na<sub>2</sub>O·B<sub>2</sub>O<sub>3</sub>** 2-Sodium oxide—Diboron trioxide  
(c) C: eah

99-28-2

**NaBH<sub>4</sub>** Sodium borohydride  
(c, l) C: faa fab fac fad fae  
E-XIII: fae(t) fai(t) fal(t)

99-29-1

**NaAlO<sub>2</sub>** Sodium aluminum dioxide  
(c, α) E-XIII: fae(t) fai(t) fal(t) fbb  
(c, β) E-XIII: fae(t) fai(t) fal(t)  
(c) C: fab

99-29-9

**Na<sub>3</sub>AlF<sub>6</sub>** Sodium hexafluoroaluminate  
(c, II, α) C: eaj fab fae fbb fbc fbd  
E-XIII: fae(t) fai(t) fal(t) fbb  
(c, I, β) C: eah fbf fbg fbh  
E-XIII: fae(t) fai(t) fal(t) fbf  
(liq) E-XIII: fae fai(t) fal(t)  
**Na<sub>3</sub>AlF<sub>6</sub>·3½H<sub>2</sub>O** Sodium hexafluoroaluminate—3½-Water  
(c) C: fab  
**3NaF·AlF<sub>3</sub>** 3-Sodium fluoride—Aluminum fluoride  
(c) E-V: eah fbf fbg

99-29-10

**NaCl·AlCl<sub>3</sub>** Sodium chloride—Aluminum chloride  
(c) C: fab  
**3NaCl·AlCl<sub>3</sub>** 3-Sodium chloride—Aluminum chloride  
(c) C: fab  
**3NaCl·2AlCl<sub>3</sub>** 3-Sodium chloride—2-Aluminum chloride  
(c) C: fab

99-29-18-10-2

**NaCl·AlCl<sub>3</sub>·6NH<sub>3</sub>** Sodium chloride—Aluminum chloride—6-Ammonia  
(c) C: fab

99-29-24-1

**NaAlSi<sub>3</sub>O<sub>8</sub>** Sodium aluminum orthosilicate  
(c, α-nepbelite) E-XIII: fae(t) fai(t) fal(t) fbb  
(c, β-nepbelite) E-XIII: fae(t) fai(t) fal(t) fbb  
(c, γ-nepbelite) E-XIII: fae(t) fai(t) fal(t)  
(c, α-carnegieite) E-XIII: fae(t) fai(t) fal(t)  
fbb  
(c, β, carnegieite) E-XIII: fae(t) fai(t) fal(t)

(c, II) C: eaj

(c, I) C: eah

**NaAlSi<sub>2</sub>O<sub>6</sub>** Sodium aluminum dimetasilicate  
(c, jadeite) E-XI: fac fae(-t)  
E-XIII: fae(t) fai(t) fal(t)  
**NaAlSi<sub>2</sub>O<sub>6</sub>·H<sub>2</sub>O** Sodium aluminum dimetasilicate—Water  
(c, analcite) E-XIII: fae  
**NaAlSi<sub>3</sub>O<sub>8</sub>** Sodium aluminum octaoxotrisilicate  
(c, albite) E-XI: fac fae(-t)  
E-XIII: fae(t) fai(t) fal(t)  
(c) E-V: eah fbf fbg  
(gl) E-XIII: fae(t) fai(t) fal(t)  
**Na<sub>2</sub>O·Al<sub>2</sub>O<sub>3</sub>·3SiO<sub>2</sub>** Sodium oxide—Aluminum oxide—3-Silicon oxide  
(c) C: fab  
**Na<sub>2</sub>O·Al<sub>2</sub>O<sub>3</sub>·4SiO<sub>2</sub>** Sodium oxide—Aluminum oxide—4-Silicon oxide  
(c) C: fab

99-31

**Na-In** Sodium-Indium  
(c) F: fbf fbg fch(t) fcp(t) fcr(t) fct(t)

99-33-1

**Na<sub>2</sub>ZnO<sub>2</sub>** Sodium zinc dioxide  
(c) C: fab

99-33-14-1

**Na<sub>2</sub>Zn(SO<sub>4</sub>)<sub>2</sub>** Disodium zinc sulfate  
(c) C: fab  
**Na<sub>2</sub>Zn(SO<sub>4</sub>)<sub>2</sub>·4H<sub>2</sub>O** Disodium zinc sulfate—4-Water  
(c) C: fab

99-34

**Na-Cd** Sodium-Cadmium  
(c) F: fca fcb fcf fcl fcm  
(liq) F: fca(x) fcb(x) fcc(x) fcd(x) fcv(x) fcw(x)  
**NaCd<sub>2</sub>** Sodium dicadmide  
(c) C: eah fab  
**NaCd<sub>5</sub>** Sodium pentacadmide  
(c) C: eah  
**NaCd<sub>6</sub>** Sodium hexacadmide  
(c) C: fab

99-34-1

**Na<sub>2</sub>CdO<sub>2</sub>** Sodium cadmium dioxide  
(c) C: fab

99-35

**Na-Hg** Sodium-Mercury  
(c) F: fac(x)  
(liq) F: fca(x) fcb(x) fcc(x) fcd(x) fcf(x) fcg(x)  
fcl(x) fcm(x) fcn(x) fco(x) fcv(x) fcw(x)  
**NaHg** Sodium mercuride  
(c) C: fab  
**NaHg<sub>2</sub>** Sodium dimercuride  
(c) C: fab  
**NaHg<sub>4</sub>** Sodium tetramercuride  
(c) C: fab  
**NaHg<sub>27.5</sub>**  
(liq) C: fab  
**NaHg<sub>50</sub>**  
(liq) C: fab

## SODIUM

99-35 NaHg<sub>200</sub>NaHg<sub>200</sub>

(liq) C: fab

NaHg<sub>5.0</sub>

(liq) C: fab

Na<sub>3</sub>Hg

Trisodium mercuride

(c) C: fab

Na<sub>3</sub>Hg<sub>2</sub>

Trisodium dimercuride

(c) C: fab

Na<sub>5</sub>Hg<sub>2</sub>

Pentassium dimercuride

(c) C: fab

Na<sub>7</sub>Hg<sub>8</sub>

Heptassium octamercuride

(c) C: fab

## 99-35-11

Na<sub>2</sub>HgBr<sub>4</sub>

Sodium tetrabromomercurate(II)

(aq) C: fab

## 99-35-14

Na<sub>2</sub>HgS<sub>2</sub>

Sodium mercury(II) disulfide

(c) C: fab

## 99-35-23-18

NaHg(CN)<sub>3</sub>

Sodium tricyanomercurate(II)

(aq) C: fab

Na<sub>2</sub>Hg(CN)<sub>4</sub>

Sodium tetracyanomercurate(II)

(aq) C: fab

## 99-35-23-18-10

NaCl·Hg(CN)<sub>2</sub>

Sodium chloride—Mercury(II) cyanide

(aq) C: fab

NaCl·Hg(CN)<sub>2</sub>·1½H<sub>2</sub>OSodium chloride—Mercury(II) cyanide—  
1½-Water

(c) C: fab

2NaCl·Hg(CN)<sub>2</sub>

2-Sodium chloride—Mercury(II) cyanide

(aq) C: fab

## 99-35-23-18-11

NaBr·Hg(CN)<sub>2</sub>

Sodium bromide—Mercury(II) cyanide

(aq) C: fab

NaBr·Hg(CN)<sub>2</sub>·2H<sub>2</sub>OSodium bromide—Mercury(II) cyanide—2-  
Water

(c) C: fab

2NaBr·Hg(CN)<sub>2</sub>

2-Sodium bromide—Mercury(II) cyanide

(aq) C: fab

## 99-35-23-18-12

NaI·Hg(CN)<sub>2</sub>

Sodium iodide—Mercury(II) cyanide

(aq) C: fab

NaI·Hg(CN)<sub>2</sub>·2H<sub>2</sub>O

Sodium iodide—Mercury(II) cyanide—2-Water

(c) C: fab

2NaI·Hg(CN)<sub>2</sub>

2-Sodium iodide—Mercury(II) cyanide

(aq) C: fab

## 99-36-1

Na<sub>2</sub>O·CuO<sub>2</sub>

Sodium oxide—Copper(II) dioxide

(c) C: fab

## 99-36-23-1

Na<sub>2</sub>CO<sub>3</sub>·CuCO<sub>3</sub>

Sodium carbonate—Copper(II) carbonate

(c) C: fab

Na<sub>2</sub>CO<sub>3</sub>·CuCO<sub>3</sub>·3H<sub>2</sub>O Sodium carbonate—Copper(II) carbonate—3-  
Water

(c) C: fab

## 99-37-1

Na<sub>2</sub>O·Ag<sub>2</sub>O<sub>2</sub>

Sodium oxide—Disilver dioxide

(c) C: fab

## 99-37-14-1

Na<sub>3</sub>Ag(S<sub>2</sub>O<sub>3</sub>)<sub>2</sub>

Trisodium silver thiosulfate

(aq) C: fab

## 99-37-23-18

NaAg(CN)<sub>2</sub>

Sodium dicyanoargentate

(aq) C: fab

Na<sub>2</sub>Ag(CN)<sub>3</sub>

Sodium tricyanoargentate

(aq) C: fab

## 99-38

Na-Au

Sodium-Gold

(liq) F: fcf

## 99-39-10

Na<sub>2</sub>PtCl<sub>4</sub>

Sodium tetrachloroplatinate(II)

(aq) C: fab

Na<sub>2</sub>PtCl<sub>6</sub>

Sodium hexachloroplatinate(IV)

(c) C: fab

(aq) C: fab

Na<sub>2</sub>PtCl<sub>6</sub>·2H<sub>2</sub>O

Sodium hexachloroplatinate(IV)—2-Water

(c) C: fab

Na<sub>2</sub>PtCl<sub>6</sub>·6H<sub>2</sub>O

Sodium hexachloroplatinate(IV)—6-Water

(c) C: fab

## 99-39-11

Na<sub>2</sub>PtBr<sub>6</sub>

Sodium hexabromoplatinate(IV)

(c) C: fab

(aq) C: fab

Na<sub>2</sub>PtBr<sub>6</sub>·6H<sub>2</sub>O

Sodium hexabromoplatinate(IV)—6-Water

(c) C: fab

## 99-39-12

Na<sub>2</sub>PtI<sub>6</sub>

Sodium hexaiodoplatinate(IV)

(aq) C: fab

## 99-40-10

Na<sub>2</sub>IrCl<sub>6</sub>

Sodium hexachloroiridate(IV)

(c) C: fab

Na<sub>3</sub>IrCl<sub>6</sub>

Sodium hexachloroiridate(III)

(c) C: fab

## 99-41-10

Na<sub>2</sub>O<sub>8</sub>Cl<sub>6</sub>

Sodium hexachloro-osmate(IV)

(c) C: fab

## 99-43-10

Na<sub>3</sub>RhCl<sub>6</sub>

Sodium hexachlororhodate(III)

(c) C: fab

(aq) C: fab

Na<sub>3</sub>RhCl<sub>6</sub>·12H<sub>2</sub>O

Sodium hexachlororhodate(III)—12-Water

(c) C: fab

**99-45-23-18**  
 $\text{Na}_2\text{Ni}(\text{CN})_4$  Sodium tetracyanonickelate(II),  
 (aq) C: fab

**99-46-1**  
 $\text{Na}_2\text{CoO}_3$  Sodium cobalt(IV) trioxide  
 (c) C: fab

**99-47-1**  
 $\text{NaFeO}_2$  Sodium iron(III) dioxide  
 (c,  $\alpha$ ) E-XIII: fae(t) fai(t) fal(t) fbb  
 (c,  $\beta$ ) E-XIII: fae(t) fai(t) fal(t) fbb  
 (c,  $\gamma$ ) E-XIII: fae fai(t) fal(t) fbf  
 (liq) E-XIII: fae fai(t) fal(t)

$\text{Na}_2\text{Fe}_2\text{O}_4$  Disodium di-iron(III) tetroxide  
 (c) C: fab

$\text{Na}_2\text{O}\cdot\text{Fe}_2\text{O}_3$  Sodium oxide-Iron(III) oxide  
 (c) C: eah

**99-47-23-18-1**  
 $\text{Na}_3\text{Fe}(\text{CN})_5\text{CO}$  Sodium pentacyanocarbonylferrate(II)  
 (c) C: fab  
 (aq) C: fab

$\text{Na}_3\text{Fe}(\text{CN})_5\text{CO}\cdot 7\text{H}_2\text{O}$  Sodium pentacyanocarbonylferrate(II)-7-Water  
 (c) C: fab

**99-48-1**  
 $\text{Na}_2\text{MnO}_4$  Sodium manganate  
 (c) C: fab

**99-48-14-1**  
 $\text{Na}_2\text{SO}_4\cdot\text{MnSO}_4$  Sodium sulfate-Manganese(II) sulfate  
 (c) C: fab

$\text{Na}_2\text{SO}_4\cdot\text{MnSO}_4\cdot 2\text{H}_2\text{O}$  Sodium sulfate-Manganese(II) sulfate-2-Water  
 (c) C: fab

**99-50-1**  
 $\text{NaReO}_4$  Sodium perrhenate  
 (c) C: eah fab  
 (aq) C: fab

**99-51-1**  
 $\text{Na}_2\text{CrO}_4$  Sodium chromate  
 (c, II) C: eaj  
 (c, I) C: eah  
 (c) C: fab  
 (aq) C: fab(x)

$\text{Na}_2\text{CrO}_4\cdot 4\text{H}_2\text{O}$  Sodium chromate-4-Water  
 (c) C: fab

$\text{Na}_2\text{CrO}_4\cdot 10\text{H}_2\text{O}$  Sodium chromate-10-Water  
 (c) C: eah fbf fbg

$\text{Na}_2\text{C}_2\text{O}_7$  Sodium dichromate  
 (c) C: eah  
 E-XIII: fae  
 (aq) C: fab

**99-52-1**  
 $\text{Na}_2\text{MoO}_4$  Sodium tetroxomolybdate(VI)  
 (c, II) C: eaj fab fbb fbc

(c, I) C: eah fbf fbg  
 E-V: eah fbf fbg  
 (aq) C: fab

**99-53-1**  
 $\text{Na}_2\text{WO}_4$  Sodium tetroxotungstate(VI)  
 (c, III) C: eaj fbb fbc  
 (c, II) C: eaj fbb fbc  
 (c, I) C: eah fbf fbg  
 E-V: eah fbf fbg  
 (c) C: fab  
 (aq) C: fab

**99-54-1**  
 $\text{NaVO}_5$  Sodium vanadium pentoxide  
 (aq) C: fab

$\text{Na}_3\text{VO}_4$  Sodium vanadium(V) tetroxide  
 (c) C: fab

$\text{Na}_3\text{V}_3\text{O}_9$  Sodium trivanadium(V) nonaoxide  
 (aq) C: fab

**99-57-1**  
 $\text{Na}_2\text{TiO}_3$  Sodium titanium(IV) trioxide  
 (c, II,  $\alpha$ ) C: eaj fac fae fbb fbc  
 fbd  
 E-XIII: fae(t) fai(t) fal(t) fbb  
 (c, I,  $\beta$ ) C: eah fbf fbg fbh  
 E-XIII: fae(t) fai(t) fal(t) fbf  
 (c) E-XI: fac fae(-t)  
 (liq) E-XIII: fae fai(t) fal(t)

$\text{Na}_2\text{Ti}_2\text{O}_5$  Sodium diti-tanium(IV) pentoxide  
 (c) C: eah fac fae  
 E-XI: fac fae(-t)  
 E-XIII: fae(t) fai(t) fal(t) fbf  
 (liq) E-XIII: fae fai(t) fal(t)

$\text{Na}_2\text{Ti}_3\text{O}_7$  Sodium trititanium(IV) heptaoxide  
 (c) C: eah fac fae  
 E-XI: fac fae(-t)  
 E-XIII: fae(t) fai(t) fal(t) fbf  
 (liq) E-XIII: fae fai(t) fal(t)

**99-88-1**  
 $\text{Na}_2\text{UO}_4$  Sodium uranium(VI) tetroxide  
 (c) C: fab

$\text{Na}_2\text{U}_2\text{O}_7\cdot 1\frac{1}{2}\text{H}_2\text{O}$  Sodium diuranium(VI) heptaoxide-1½-Water  
 (c) C: fab

$(\text{Na}_2\text{O}_2)_2\cdot\text{UO}_4$  2-Sodium peroxide-Uranium tetroxide  
 (aq) C: fab

$(\text{Na}_2\text{O}_2)_2\cdot\text{UO}_4\cdot 9\text{H}_2\text{O}$  2-Sodium peroxide-Uranium tetroxide-9-Water  
 (c) C: fab

**99-90-10**  
 $2\text{NaCl}\cdot\text{ThCl}_4$  2-Sodium chloride-Thorium chloride  
 (c) C: fab

$2\text{NaCl}\cdot\text{ThCl}_4\cdot 10\text{H}_2\text{O}$  2-Sodium chloride-Thorium chloride-10-Water  
 (c) C: fab

**99-93-14-1**  
 $\text{Na}_2\text{SO}_4 \cdot \text{MgSO}_4$  Sodium sulfate–Magnesium sulfate  
*(c, III)* C: eaj  
*(c, II)* C: eaj  
*(c, I)* C: eah

**99-94-14-1**  
 $\text{Na}_2\text{SO}_4 \cdot \text{CaSO}_4$  Sodium sulfate–Calcium sulfate  
*(c)* C: fab

$2\text{Na}_2\text{SO}_4 \cdot \text{CaSO}_4 \cdot 2\text{H}_2\text{O}$  2-Sodium sulfate–Calcium sulfate–2-Water  
*(c)* C: fab

**99-95-19-1**  
 $\text{NaSrPO}_4 \cdot 9\text{H}_2\text{O}$  Sodium strontium phosphate–9-Water  
*(c)* C: fab

**99-95-20-1**  
 $\text{NaSrAsO}_4 \cdot 9\text{H}_2\text{O}$  Sodium strontium arsenate–9-Water  
*(c)* C: fab

**99-96-19-1**  
 $\text{NaBaPO}_4 \cdot 9\text{H}_2\text{O}$  Sodium barium phosphate–9-Water  
*(c)* C: fab

**99-96-20-1**  
 $\text{NaBaAsO}_4 \cdot 9\text{H}_2\text{O}$  Sodium barium arsenate–9-Water  
*(c)* C: fab

**99-98**  
 $\text{NaLi}$  Sodium lithide  
*(g)* E-XI: fac

**99-98-12-10**  
 $\text{NaLiIcI}$  Sodium lithium iodide chloride  
*(c)* C: fab

**100 – Potassium – K**

**100**  
**K** Potassium  
*(c)* C: eah fac fae fbf fbg  
 D: eah fac(t) fae(t) fai(t) fai(t) fbf  
 E-III: fbn(t) fbn(t)  
 E-V: eah fbf fbg  
 E-XI: fac fae(-t)  
 E-XIII: fae fai fal fbf  
 F: eah eal fac fae(-t) faf fai  
 fal fbf fbg fbn

*(liq)* C: eaq  
 D: eaq fac(t) fae(t) faf(t) fai(t) fbj  
 E-III: eaq eal(t) fbi(t) fbj(t) fbk  
 E-XIII: fae(t) fai(t) fal(t)  
 F: eal(t) fae(t) faf(t) fai(t) fal(t) fbk

*(g)* C: faa fab fac fad fae  
 D: faa(t,+t) fab(t,+t) fac(t,+t)  
 fad(t,+t) fae(t,+t) faf(t,+t)  
 fai(t,+t)  
 E-III: fac

E-XI: fac  
 E-XIII: fae fai(t,+t) fal(t,+t)  
 F: fac fae(t) faf(t) fai(t) fal(t)

**K<sup>+</sup>**  
*(g)* C: fab  
*(aq)* C: faa fab fac fad  
 E-XI: fac

**K<sup>2+</sup>**  
*(g)* C: fab

**K<sup>3+</sup>**  
*(g)* C: fab

**K<sup>4+</sup>**  
*(g)* C: fab

**K<sub>2</sub>** Dipotassium  
*(g)* C: faa fab fac fad  
 D: faa(t) fab(t) fac(t) fad(t) fae(t) faf(t)  
 fai(t)  
 E-XI: fac  
 E-XIII: fae(t,+t) fai(t,+t) fal(t,+t)

**100-1**  
**KO<sub>2</sub>** Potassium hyperoxide  
*(c, II)* C: eaj  
*(c)* E-XII: faa fab  
 E-XIII: fae  
*(liq)* E-XII: faa(t) fab(t)

**KO<sub>3</sub>** Potassium trioxide  
*(c)* E-XII: faa(t) fab(t)

**K<sub>2</sub>O** Potassium oxide  
*(c)* C: fab  
 E-IV: fan  
 E-XII: faa(t) fab(t)

**K<sub>2</sub>O<sub>2</sub>** Potassium peroxide  
*(c)* C: eah fab  
 E-XII: faa(t) fab(t)  
*(liq)* E-XII: faa(t) fab(t)

**K<sub>2</sub>O<sub>3</sub>** Dipotassium trioxide  
*(c)* C: eah fab  
 E-XII: faa(t) fab(t)  
*(liq)* E-XII: faa(t) fab(t)

**K<sub>2</sub>O<sub>4</sub>** Dipotassium tetroxide  
*(c)* C: fab

**100-2**  
**KH** Potassium hydride  
*(c)* C: fab  
*(g)* C: faa fab fac fad  
 E-XI: fac  
 E-XIII: fae(t) fai(t) fal(t)

**K<sup>2</sup>H** Potassium deuteride  
*(g)* E-XIII: fae(t) fai(t) fal(t)

**100-2-1**  
**KOH** Potassium hydroxide  
*(c, II)* C: eaj fbb fbc  
*(c, I)* C: eah fbf fbg  
*(c)* C: fab  
 E-V: eah fbf fbg  
*(liq)* C: eaq fbj fbk  
 E-III: eaq eal(t) fbi(t) fbj(t) fbk  
*(aq)* C: faa fab(x) fac fad

**KOH· $\frac{3}{4}$ H<sub>2</sub>O** Potassium hydroxide— $\frac{3}{4}$ -Water  
(c) C: fab  
**KOH·H<sub>2</sub>O** Potassium hydroxide—Water  
(c) C: eah fab  
**KOH·2H<sub>2</sub>O** Potassium hydroxide—2-Water  
(c) C: fab  
(aq) E-IV: eam

**100-9**

**KF** Potassium fluoride  
(c) C: eah faa fab fac fad fae  
fbf fbq fbh  
E-V: eah fbf fbq  
E-XIII: fae(t) fai(t) fal(t) fbf  
(liq) C: eaq fbj fbk  
E-III: eaq eal(t) fbi(t) fbj(t) fbk  
E-XIII: fae fai(t) fal(t)  
(g) E-XI: fac  
E-XIII: fae(t) fai(t) fal(t)  
(aq) C: fab(x)

**KF·2H<sub>2</sub>O** Potassium fluoride—2-Water  
(c) C: faa fab fac fad

**KF·4H<sub>2</sub>O** Potassium fluoride—4-Water  
(c) C: eah fab

**100-9-2**

**KHF<sub>2</sub>** Potassium hydrogen difluoride  
(c, II,  $\alpha$ ) C: eaj fbb fbc  
E-XIII: fae(t) fai(t) fal(t) fbb  
(c, I,  $\beta$ ) C: eah fbf fbq  
E-XIII: fae fai(t) fal(t) fbf  
(c) C: faa fab fac fad fae  
(liq) E-XIII: fae fai fal  
(aq) C: fab(x)

**KF·2HF** Potassium fluoride—2-Hydrogen fluoride  
(c) C: eah fab

**KF·3HF** Potassium fluoride—3-Hydrogen fluoride  
(c) C: eah fab

**KF·4HF** Potassium fluoride—4-Hydrogen fluoride  
(c) C: eah

**2KF·5HF** 2-Potassium fluoride—5-Hydrogen fluoride  
(c) C: eah

**100-10**

**KCl** Potassium chloride  
(c) C: eah eai faa fab fac fad  
fae fbf fbq fbh fbn fbo  
E-III: eal(t) fbm(t) fbn(t)  
E-V: eah fbf fbq  
E-XI: fac fae(-t)  
E-XIII: fae(t) fai(t) fal(t) fbf  
(liq) C: eaq fbj fbk  
E-III: eaq eal(t) fbi(t) fbj(t) fbk  
fae fai(t) fal(t)  
(g) C: faa fab fac fad fae  
E-III: fac  
E-XI: fac  
E-XIII: fae(t) fai(t) fal(t)  
(aq) C: faa fab(x) fac fad

**100-10-1**

**KClO** Potassium hypochlorite  
(aq) C: fab  
**KClO<sub>3</sub>** Potassium chlorate  
(c) C: faa fab fac fad fae  
E-XI: fac fae(-t)  
E-XIII: fae  
(aq) C: fab(x)

**KClO<sub>4</sub>** Potassium perchlorate  
(c, II) C: eaj fbb fbc  
(c) C: faa fab fac fad fae  
E-XI: fac fae(-t)  
E-XIII: fae  
(aq) C: faa fab(x) fac fad

**100-11**

**KBr** Potassium bromide  
(c) C: eah eai faa fab fac fad  
fae fbf fbq fbn fbo  
E-V: eah fbf fbq  
E-XI: fac fae(-t)  
E-XIII: fae(t) fai(t) fal(t)  
(liq) C: eaq fbj fbk  
E-III: eaq eal(t) fbi(t) fbj(t) fbk  
(g) C: fac fae  
E-XI: fac  
E-XIII: fae(t) fai(t) fal(t)  
(aq) C: faa fab(x) fac fad  
(in methanol) C: fab

**KBr<sub>3</sub>** Potassium tribromide  
(aq) C: fab

**KBr<sub>5</sub>** Potassium pentabromide  
(aq) C: fab

**100-11-1**

**KBrO** Potassium hypobromite  
(aq) C: fab  
**KBrO<sub>3</sub>** Potassium bromate  
(c) C: faa fab fac fad fae  
E-XI: fac fae(-t)  
E-XIII: fae  
(aq) C: faa fab(x) fac fad

**100-12**

**KI** Potassium iodide  
(c) C: eah eai faa fab fac fad  
fae fbn fbo  
E-V: eah fbf fbq  
E-XI: fac  
E-XIII: fae(t) fai(t) fal(t)  
(liq) C: eaq fbj fbk  
E-III: eaq eal(t) fbi(t) fbj(t) fbk  
(g) C: fac fae  
E-XI: fac  
E-XIII: fae(t) fai(t) fal(t)  
(aq) C: faa fab(x) fac fad  
(in methanol) C: fab  
(in ethanol) C: fab  
(in acetone) C: fab  
(in acetonitrile) C: fab

**POTASSIUM**  
100-12 KI<sub>3</sub>

KI<sub>3</sub> Potassium tri-iodide  
(c) C: eah fab  
(aq) C: fab

**100-12-1**

KIO<sub>3</sub> Potassium iodate  
(c) C: eah faa fab fac fad fae  
E-XI: fac fae(-t)  
E-XIII: fae  
(aq) C: faa fab(x) fac fad

KIO<sub>4</sub> Potassium periodate  
(aq) C: fab

**100-12-2-1**

KIO<sub>3</sub>·HIO<sub>3</sub> Potassium iodate-Iodic acid  
(c) C: fab  
(aq) C: fab  
KH<sub>4</sub>IO<sub>6</sub> Potassium tetrahydrogen orthoperiodate  
(aq) C: fab  
K<sub>2</sub>H<sub>5</sub>IO<sub>6</sub> Potassium trihydrogen orthoperiodate  
(aq) C: fab

**100-12-10**

KI·KCl Potassium iodide-Potassium chloride  
(c) C: fab

**100-12-11**

KIBr<sub>2</sub> Potassium dibromiodate  
(c) C: eah

**100-14**

K<sub>2</sub>S Potassium sulfide  
(c, II) C: eaj fbb fbc  
(c) C: fab  
(aq) C: fab(x)  
K<sub>2</sub>S·2H<sub>2</sub>O Potassium sulfide-2-Water  
(c) C: fab  
K<sub>2</sub>S·5H<sub>2</sub>O Potassium sulfide-5-Water  
(c) C: fab  
K<sub>2</sub>S<sub>4</sub> Dipotassium tetrasulfide  
(c) C: fab  
(aq) C: fab  
K<sub>2</sub>S<sub>4</sub>·½H<sub>2</sub>O Dipotassium tetrasulfide-½-Water  
(c) C: fab  
K<sub>2</sub>S<sub>4</sub>·2H<sub>2</sub>O Dipotassium tetrasulfide-2-Water  
(c) C: fab  
K<sub>2</sub>S<sub>5</sub> Dipotassium pentasulfide  
(c) C: eah

**100-14-1**

K<sub>2</sub>SO<sub>3</sub> Potassium sulfite  
(c) C: fab  
(aq) C: fab  
K<sub>2</sub>SO<sub>4</sub> Potassium sulfate  
(c, II, α) C: eaj faa fab fac fad  
fae fbb fbc fbd  
E-XIII: fae(t) fai(t) fal(t) fbb  
(c, I, β) C: eah fbf fbq fbh  
E-V: eah fbf fbq  
E-XIII: fae(t) fai(t) fal(t) fbf  
(c) E-VII: faa fab  
E-XI: fac fae(-t)

(liq) E-XIII: fae fai(t) fal(t)  
(aq) C: fab(x)

K<sub>2</sub>S<sub>2</sub>O<sub>3</sub> Potassium thiosulfate  
(c) E-XIII: fae  
(aq) C: fab

K<sub>2</sub>S<sub>2</sub>O<sub>5</sub> Potassium disulfite  
(c) C: fab  
(aq) C: fab

K<sub>2</sub>S<sub>2</sub>O<sub>5</sub>·½H<sub>2</sub>O Potassium disulfite-½-Water  
(c) C: fab

K<sub>2</sub>S<sub>2</sub>O<sub>6</sub> Potassium dithionate  
(c) C: fab  
(aq) C: fab(x)

K<sub>2</sub>S<sub>2</sub>O<sub>8</sub> Potassium peroxydisulfate  
(c) C: fab  
(aq) C: fab

K<sub>2</sub>S<sub>4</sub>O<sub>6</sub> Potassium tetrathionate  
(c) C: fab  
(aq) C: fab

K<sub>2</sub>S<sub>5</sub>O<sub>6</sub> Potassium pentathionate  
(aq) C: fab

K<sub>2</sub>S<sub>5</sub>O<sub>6</sub>·½H<sub>2</sub>O Potassium pentathionate-½-Water  
(c) C: fab

K<sub>2</sub>SO<sub>4</sub>·3K<sub>2</sub>S Potassium sulfate-3-Potassium sulfide  
(c) C: eah

**100-14-2**

KHS Potassium hydrogen sulfide  
(c, II, α) C: eaj fbb fbc  
E-XIII: fae(t) fai(t) fal(t) fbb  
(c, β) E-XIII: fae fai(t) fal(t)  
(c) C: fab  
(aq) C: fab(x)  
KHS·½H<sub>2</sub>O Potassium hydrogen sulfide-½-Water  
(c) C: fab

**100-14-2-1**

KHSO<sub>3</sub> Potassium hydrogen sulfite  
(aq) C: fab  
KHSO<sub>4</sub> Potassium hydrogen sulfate  
(c, III) C: eaj fbb fbc  
(c, II) C: eaj fbb fbc  
(c) C: eah fab  
E-XIII: fae  
(aq) C: fab(x)  
K<sub>2</sub>SO<sub>4</sub>·3H<sub>2</sub>SO<sub>4</sub> Potassium sulfate-3-Sulfuric acid  
(c) C: eah

**100-14-12-1**

KI·4SO<sub>2</sub> Potassium iodide-4-Sulfur dioxide  
(c) C: fab

**100-15**

K<sub>2</sub>Se Potassium selenide  
(c) C: fab  
(aq) C: fab  
K<sub>2</sub>Se·9H<sub>2</sub>O Potassium selenide-9-Water  
(c) C: fab  
K<sub>2</sub>Se·14H<sub>2</sub>O Potassium selenide-14-Water  
(c) C: fab  
K<sub>2</sub>Se·19H<sub>2</sub>O Potassium selenide-19-Water  
(c) C: fab

	<b>100-15-1</b>	
$K_2SeO_4$	Potassium selenate	
	(aq) C: fab	
	<b>100-15-2</b>	
$KHS_e$	Potassium hydrogen selenide	
	(c, II, a) C: eaj fbb fbc	
	E-XIII: fae(t) fai(t) fal(t) fbb	
	(c, $\beta$ ) E-XIII: fae fai(t) fal(t)	
	(c) C: fab	
	(aq) C: fab	
	<b>100-15-2-1</b>	
$KHS_eO_4$	Potassium hydrogen selenate	
	(aq) C: fab	
	<b>100-16-1</b>	
$K_2TeO_3$	Potassium trioxotellurate(IV)	
	(aq) C: fab	
$K_2TeO_4$	Potassium tetroxotellurate(VI)	
	(aq) C: fab	
	<b>100-18</b>	
$KN_3$	Potassium azide	
	(c) C: eah	
	<b>100-18-1</b>	
$KNO_2$	Potassium nitrite	
	(c) C: eah fab	
	(aq) C: fab	
$KNO_3$	Potassium nitrate	
	(c, IV) C: eaj fbb fbc	
	(c, III) C: eaj fbb fbc	
	(c, II, a) C: eaj fbb fbc fbd	
	E-XIII: fae(t) fai(t) fal(t) fbb	
	(c, I, $\beta$ ) C: eah fbf fbq fbh	
	E-V: eah fbf fbq	
	E-XIII: fae fai(t) fal(t) fbf	
	(c) C: faa fab fac fad fae	
	E-XI: fac fae(-t)	
	(liq) E-XIII: fae fai(t) fal(t)	
	(aq) C: faa fab(x) fac fad	
	<b>100-18-2</b>	
$KNH_2$	Potassium amide	
	(c) C: eah fab	
	<b>100-18-2-1</b>	
$KNO_3 \cdot 2HNO_3$	Potassium nitrate-2-Nitric acid	
	(c) C: eah	
	<b>100-18-11-2</b>	
$KBr \cdot 4NH_3$	Potassium bromide-4-Ammonia	
	(c) C: fab	
	<b>100-18-12-2</b>	
$KI \cdot NH_3$	Potassium iodide-Ammonia	
	(c) C: fab	
$KI \cdot 6NH_3$	Potassium iodide-6-Ammonia	
	(c) C: fab	

	<b>100-19-1</b>	
$KPO_3$	Potassium metaphosphate	
	(c, II) C: eaj	
	(c, I) C: eah fbf fbq	
	E-V: eah fbf fbq	
	(c) C: eah fbf fbq	
	E-V: eah fbf fbq	
$K_4P_2O_7$	Potassium diphosphate	
	(c, II) C: eaj	
	(c, I) C: eah fbf fbq	
	E-V: eah fbf fbq	
	(c) E-XIII: fae	
	<b>100-19-2-1</b>	
$KH_2PO_4$	Potassium dihydrogen phosphate	
	(c, II) C: eaj fbb fbc	
	(c) C: fab	
	E-XI: fac fae(-t)	
	E-XIII: fae	
	(aq) C: fab(x)	
$KH_2PO_4 \cdot 6H_2O$	Potassium dihydrogen phosphate-6-Water	
	(c) C: eah	
	<b>100-19-9-1</b>	
$KPO_3 \cdot KF$	Potassium metaphosphate-Potassium fluoride	
	(c, II) C: eaj	
	(c, I) C: eah	
	<b>100-20-1</b>	
$KAsO_3$	Potassium arsenic(V) trioxide	
	(c) E-XIII: fae	
	<b>100-20-2-1</b>	
$KH_2AsO_4$	Potassium dihydrogen arsenate	
	(c, II) C: eaj fbb fbc	
	(c) C: faa fab fac fad fae	
	E-XI: fac fae(-t)	
	E-XIII: fae	
	(aq) C: fab	
	<b>100-21</b>	
$K-S_5$	Potassium-Antimony	
	(c) F: fcf	
$KSb$	Potassium antimonide	
	(c) C: eah	
$K_3Sb$	Tripotassium antimonide	
	(c) C: eah	
	<b>100-22</b>	
$K-Bi$	Potassium-Bismuth	
	(c) F: fcf	
	(liq) F: fca(x) fcb(x) fcc(x) fcd(x) fcv(x) fcw(x)	
$KBi_2$	Potassium dibismuthide	
	(c) C: eah	
$K_2Bi$	Dipotassium bismuthide	
	(c) C: eah	
$K_3Bi$	Tripotassium bismuthide	
	(c) C: eah	
$K_3Bi_2$	Tripotassium dibismuthide	
	(c) C: eah	



**POTASSIUM**  
**100-23-1 K<sub>2</sub>CO<sub>3</sub>**

**100-23-1**  
**K<sub>2</sub>CO<sub>3</sub>** Potassium carbonate

(c, IV) C: eaj  
 (c, III) C: eaj  
 (c, II) C: eaj  
 (c, I) C: eah fbf fbq  
 E-V: eah fbf fbq  
 (c) C: fab  
 E-IV: fam(t) fan(t)  
 E-XIII: fae  
 (aq) C: fab(x)

**K<sub>2</sub>CO<sub>3</sub>·½H<sub>2</sub>O** Potassium carbonate—½-Water  
 (c) C: fab

**K<sub>2</sub>CO<sub>3</sub>·1½H<sub>2</sub>O** Potassium carbonate—1½-Water  
 (c) C: fab  
 (aq) E-IV: eam

**K<sub>2</sub>C<sub>2</sub>O<sub>4</sub>** Potassium oxalate  
 (c) C: fab  
 (aq) C: fab(x)

**K<sub>2</sub>C<sub>2</sub>O<sub>4</sub>·H<sub>2</sub>O** Potassium oxalate—Water  
 (c) C: fab

**100-23-2-1**  
**KCHO<sub>2</sub>** Potassium formate  
 (c) C: eah fab  
 (aq) C: fab

**KHCO<sub>3</sub>** Potassium hydrogen carbonate  
 (c) C: fab  
 E-IV: faa fab fam(t) fan(t)  
 (aq) C: fab  
 E-IV: eam

**KCH<sub>3</sub>O** Potassium methanolate  
 (in methanol) C: fab

**KC<sub>2</sub>H<sub>3</sub>O<sub>2</sub>** Potassium acetate  
 (c) C: eah fab  
 (aq) C: fab(x)

**KC<sub>2</sub>H<sub>3</sub>O<sub>3</sub>** Potassium glycollate  
 (aq) C: fab

**KC<sub>2</sub>H<sub>5</sub>O** Potassium ethanolate  
 (in ethanol) C: fab

**KCHO<sub>2</sub>·CH<sub>2</sub>O<sub>2</sub>** Potassium formate—Formic acid  
 (c) C: eah

**KC<sub>2</sub>H<sub>3</sub>O<sub>2</sub>·C<sub>2</sub>H<sub>4</sub>O<sub>2</sub>** Potassium acetate—Acetic acid  
 (c) C: eah

**5(K<sub>2</sub>CO<sub>3</sub>·1½H<sub>2</sub>O)·4KHCO<sub>3</sub>** 5-(Potassium carbonate—1½-Water)—  
 4-Potassium hydrogen carbonate  
 (c) C: fab

**100-23-18**  
**KCN** Potassium cyanide  
 (c, II) C: eaj fbb fbc  
 (c, I) C: eah fbf fbq  
 E-V: eah fbf fbq  
 (c) C: fab  
 (aq) C: fab

**100-23-18-1**  
**KCNO** Potassium cyanate  
 (c) C: fab  
 (aq) C: fab

**100-23-18-2-1**  
**KC<sub>2</sub>NH<sub>2</sub>O<sub>3</sub>** Potassium oxamate  
 (aq) C: fab

**100-23-18-14**  
**KCNS** Potassium thiocyanate  
 (c, II) C: eaj fbb fbc  
 (c, I) C: eah fbf fbq  
 E-V: eah fbf fbq  
 (c) C: fab  
 (aq) C: fab(x)

**100-23-18-14-1**  
**KCNS·½SO<sub>2</sub>** Potassium thiocyanate—½-Sulfur dioxide  
 (c) C: fab  
**KCNS·SO<sub>2</sub>** Potassium thiocyanate—Sulfur dioxide  
 (c) C: fab

**100-24-1**  
**K<sub>2</sub>SiO<sub>3</sub>** Potassium metasilicate  
 (c) C: eah  
**K<sub>2</sub>O·2SiO<sub>2</sub>** Potassium oxide—2-Silicon oxide  
 (c) C: eah  
**K<sub>2</sub>O·4SiO<sub>2</sub>** Potassium oxide—4-Silicon oxide  
 (c, II) C: eaj fbb fbc  
 (c, I) C: eah fbf fbq

**100-24-9**  
**K<sub>2</sub>SiF<sub>6</sub>** Potassium hexafluorosilicate  
 (c) C: fab

**100-25-1**  
**K<sub>2</sub>O·GeO<sub>2</sub>** Potassium oxide—Germanium oxide  
 (c) C: eah  
**K<sub>2</sub>O·4GeO<sub>2</sub>** Potassium oxide—4-Germanium oxide  
 (c) C: eah

**100-25-9**  
**2KF·GeF<sub>4</sub>** 2-Potassium fluoride—Germanium fluoride  
 (c) C: eah

**100-26-10**  
**K<sub>2</sub>SnCl<sub>4</sub>·H<sub>2</sub>O** Potassium tetrachlorostannate(II)—Water  
 (c) C: fab  
**K<sub>2</sub>SnCl<sub>6</sub>** Potassium hexachlorostannate(IV)  
 (c) C: fab  
 E-XIII: fae  
 (aq) C: fab

**100-27**  
**K-Pb** Potassium-Lead  
 (liq) F: fca(x) fcb(x) fcc(x) fcd(x) fcf(x) fcg(x)  
 fcl(x) fcm(x) fcn(x) fco(x) fcv(x) fcw(x)

**100-27-10**  
**KCl·PbCl<sub>2</sub>·½H<sub>2</sub>O** Potassium chloride—Lead(II) chloride—½-  
 Water  
 (c) C: fab  
**KCl·2PbCl<sub>2</sub>** Potassium chloride—2-Lead(II) chloride  
 (c) C: fab

**100-27-12**  
**KPbI<sub>3</sub>** Potassium tri-iodoplumbate(II)  
 (c) C: eah

$2KI \cdot PbI_2$  2-Potassium iodide—Lead(II) iodide  
(c) C: fab  
 $2KI \cdot PbI_2 \cdot 2H_2O$  2-Potassium iodide—Lead(II) iodide—2-Water  
(c) C: fab  
 $4KI \cdot 3PbI_2$  4-Potassium iodide—3-Lead(II) iodide  
(c) C: fab  
 $4KI \cdot 3PbI_2 \cdot 6H_2O$  4-Potassium iodide—3-Lead(II) iodide—6-Water  
(c) C: fab

100-27-14-1

$K_2SO_4 \cdot PbSO_4$  Potassium sulfate—Lead(II) sulfate  
(c) C: fab  
 $K_2SO_4 \cdot 2PbSO_4$  Potassium sulfate—2-Lead(II) sulfate  
(c, II) C: eaj  
(c, I) C: eah

100-28-1

$KBO_2$  Potassium metaborate  
(c) C: eah fbf fbq  
E-V: eah fbf fbq  
E-XIII: fae(t)  
 $K_2O \cdot B_2O_3$  Potassium oxide—Diboron trioxide  
(c) C: eah  
 $K_2O \cdot 2B_2O_3$  Potassium oxide—2-Diboron trioxide  
(c) C: eah  
 $K_2O \cdot 4B_2O_3$  Potassium oxide—4-Diboron trioxide  
(c) C: eah  
 $K_2B_4O_7$  Potassium tetraborate  
(c) E-XIII: fae

100-28-2

$KBH_4$  Potassium borohydride  
(c) E-XIII: fae(t) fai(t) fal(t)

100-28-9

$KBF_4$  Potassium tetrafluoroborate  
(c, II) C: eaj  
(c, I) C: eah

100-28-19-1

$KPO_3 \cdot KBO_2$  Potassium metaphosphate—Potassium metaborate  
(c) C: eah

100-29-9

$3KF \cdot AlF_3$  3-Potassium fluoride—Aluminum fluoride  
(c) C: eah fab  
(aq) C: fab  
 $3KF \cdot AlF_3 \cdot 3\frac{1}{2}H_2O$  3-Potassium fluoride—Aluminum fluoride—3½-Water  
(c) C: fab

100-29-10

$KCl \cdot AlCl_3$  Potassium chloride—Aluminum chloride  
(c) C: fab  
 $3KCl \cdot AlCl_3$  3-Potassium chloride—Aluminum chloride  
(c) C: fab  
 $3KCl \cdot 2AlCl_3$  3-Potassium chloride—2-Aluminum chloride  
(c) C: fab

100-29-11

$KBr \cdot AlBr_3$  Potassium bromide—Aluminum bromide  
(c) C: eah  
 $KBr \cdot 2AlBr_3$  Potassium bromide—2-Aluminum bromide  
(c) C: eah

100-29-14-1

$KAl(SO_4)_2$  Potassium aluminum sulfate  
(c) C: faa fab fac fad fae  
E-XI: fac fae(-t)  
E-XIII: fae(t) fai(t) fal(t)  
(aq) C: fab  
 $KAl(SO_4)_2 \cdot H_2O$  Potassium aluminum sulfate—Water  
(c) C: fab  
 $KAl(SO_4)_2 \cdot 2H_2O$  Potassium aluminum sulfate—2-Water  
(c) C: fab  
 $KAl(SO_4)_2 \cdot 3H_2O$  Potassium aluminum sulfate—3-Water  
(c) C: fab  
 $KAl(SO_4)_2 \cdot 12H_2O$  Potassium aluminum sulfate—12-Water  
(c, II) C: eaj fbb fbc  
E-XI: eaj fbb  
(c, I) C: eah fbf fbq  
E-XI: fac fae(-t)  
(c) C: faa fab fac fad fae  
E-XIII: fae  
 $K_2O \cdot 3Al_2O_3 \cdot 4SO_3 \cdot 6H_2O$  Potassium oxide—3-Aluminum oxide—4-Sulfur trioxide—6-Water  
(c, natural) E-XI: fac fae(-t)  
E-XIII: fae(t) fai(t) fal(t)  
(c, synthetic) E-XI: fac fae(-t)  
E-XIII: fae(t) fai(t) fal(t)  
(c) E-XI: fac fae(-t)  
E-XIII: fae(t) fai(t) fal(t)

100-29-18-10-2

$KCl \cdot AlCl_3 \cdot 6NH_3$  Potassium chloride—Aluminum chloride—6-Ammonia  
(c) C: fab

100-29-24-1

$KAlSiO_4$  Potassium aluminum orthosilicate  
(c, *kaliophilite*) E-XIII: fae  
 $KAlSi_2O_6$  Potassium aluminum dimetasilicate  
(c, *leucite*) E-XIII: fae  
(c, II) C: eaj  
(c, I) C: eah  
 $KAlSi_3O_8$  Potassium aluminum octaoxotrisilicate  
(c, *microcline and orthoclase*)  
E-XIII: fae(t) fai(t) fal(t)  
(gl) E-XIII: fae(t) fai(t) fal(t)  
 $K_2O \cdot Al_2O_3 \cdot 4SiO_2$  Potassium oxide—Aluminum oxide—4-Silicon oxide  
(c, *leucite*) C: fab  
(gl) C: fab  
 $K_2O \cdot Al_2O_3 \cdot 6SiO_2$  Potassium oxide—Aluminum oxide—6-Silicon oxide  
(c, *microcline*) C: fab  
(c, *adularia*) C: fab  
(gl) C: fab

**POTASSIUM**  
100-32 K-Tl

**100-32**  
K-Tl Potassium-Thallium  
(liq) F: fca(x) fcb(x) fcc(x) fcd(x) fcv(x) fcw(x)  
KTl Potassium thallide  
(c) C: eah

**100-33-10**  
K<sub>2</sub>ZnCl<sub>4</sub> Potassium tetrachlorozincate  
(c) E-XIII: fae

**100-33-14-1**  
K<sub>2</sub>SO<sub>4</sub>·ZnSO<sub>4</sub> Potassium sulfate–Zinc sulfate  
(c) C: fab  
K<sub>2</sub>SO<sub>4</sub>·ZnSO<sub>4</sub>·2H<sub>2</sub>O Potassium sulfate–Zinc sulfate–2-Water  
(c) C: fab  
K<sub>2</sub>SO<sub>4</sub>·ZnSO<sub>4</sub>·6H<sub>2</sub>O Potassium sulfate–Zinc sulfate–6-Water  
(c) C: fab  
K<sub>2</sub>Zn(SO<sub>4</sub>)<sub>2</sub>·6H<sub>2</sub>O Potassium zinc disulfate–6-Water  
(c) E-XIII: fae

**100-33-23-18**  
K<sub>2</sub>Zn(CN)<sub>4</sub> Potassium tetracyanozincate  
(c) E-XIII: fae  
2KCN·Zn(CN)<sub>2</sub> 2-Potassium cyanide–Zinc cyanide  
(c) C: fab

**100-34**  
Kcd Potassium cadmide  
(c) C: eah

**100-34-10**  
KCl·CdCl<sub>2</sub> Potassium chloride–Cadmium chloride  
(c) E-V: eah fbi fbq

**100-35**  
K-Hg Potassium-Mercury  
(c) F: fcl(x)  
(liq) F: fca(x) fcb(x) fcc(x) fcd(x) fcf(x) fcg(x)  
fcl(x) fcm(x) fcn(x) fco(x) fcv(x) fcw(x)  
KHg Potassium mercuride  
(c) C: fab  
KHg<sub>2</sub> Potassium dimercuride  
(c) C: fab  
KHg<sub>12</sub> Potassium dodecamercuride  
(c) C: faa fab fac fad  
KHg<sub>50</sub>  
(liq) C: fab  
KHg<sub>100</sub>  
(liq) C: fab  
KHg<sub>200</sub>  
(liq) C: fab  
KHg<sub>1000</sub>  
(liq) C: fab

**100-35-10**  
KHgCl<sub>3</sub> Potassium trichloromercurate(II)  
(c) C: fab  
(aq) C: fab  
KHgCl<sub>3</sub>·H<sub>2</sub>O Potassium trichloromercurate(II)–Water  
(c) C: fab

K<sub>2</sub>HgCl<sub>4</sub> Potassium tetrachloromercurate(II)  
(c) C: fab  
(aq) C: fab  
K<sub>2</sub>HgCl<sub>4</sub>·H<sub>2</sub>O Potassium tetrachloromercurate(II)–Water  
(c) C: fab  
4KCl·3HgCl<sub>2</sub> 4-Potassium chloride–3-Mercury(II) chloride  
(c) C: fab  
4KCl·3HgCl<sub>2</sub>·3H<sub>2</sub>O 4-Potassium chloride–3-Mercury(II) chloride–  
3-Water  
(c) C: fab

**100-35-11**  
KHgBr<sub>3</sub> Potassium tribromomercurate(II)  
(c) C: fab  
(aq) C: fab  
KHgBr<sub>3</sub>·H<sub>2</sub>O Potassium tribromomercurate(II)–Water  
(c) C: fab

**100-35-12**  
KHgI<sub>3</sub> Potassium tri-iodomercurate(II)  
(c) C: fab  
KHgI<sub>3</sub>·H<sub>2</sub>O Potassium tri-iodomercurate(II)–Water  
(c) C: fab  
K<sub>2</sub>HgI<sub>4</sub> Potassium tetraiodomercurate(II)  
(c) C: fab  
(aq) C: fab

**100-35-23-18**  
KHg(CN)<sub>3</sub> Potassium tricyanomercuate(II)  
(aq) C: fab  
K<sub>2</sub>Hg(CN)<sub>4</sub> Potassium tetracyanomercuate(II)  
(c) C: fab  
(aq) C: fab  
KCN·2Hg(CN)<sub>2</sub> Potassium cyanide–2-Mercury(II) cyanide  
(aq) C: fab

**100-35-23-18-10**  
KCl·Hg(CN)<sub>2</sub> Potassium chloride–Mercury(II) cyanide  
(c) C: fab  
KCl·Hg(CN)<sub>2</sub>·H<sub>2</sub>O Potassium chloride–Mercury(II) cyanide–  
Water  
(c) C: fab

**100-35-23-18-11**  
KBr·Hg(CN)<sub>2</sub> Potassium bromide–Mercury(II) cyanide  
(c) C: fab  
(aq) C: fab  
KBr·Hg(CN)<sub>2</sub>·1½H<sub>2</sub>O Potassium bromide–Mercury(II) cyanide–  
1½-Water  
(c) C: fab

**100-35-23-18-12**  
KI·Hg(CN)<sub>2</sub> Potassium iodide–Mercury(II) cyanide  
(c) C: fab  
(aq) C: fab  
KI·Hg(CN)<sub>2</sub>·¼H<sub>2</sub>O Potassium iodide–Mercury(II) cyanide–¼-  
Water  
(c) C: fab

**100-36-10**  
KCl·CuCl<sub>2</sub> Potassium chloride–Copper(II) chloride  
(c) C: fab

$2KCl \cdot CuCl$  2-Potassium chloride—Copper(I) chloride  
(c) C: fab  
 $2KCl \cdot CuCl_2$  2-Potassium chloride—Copper(II) chloride  
(c) C: fab  
 $2KCl \cdot CuCl_2 \cdot 2H_2O$  2-Potassium chloride—Copper(II) chloride—2-Water  
(c) C: fab  
 $K_2CuCl_4 \cdot 2H_2O$  Potassium copper(II) tetrachloride—2-Water  
(c) E-XIII: fae

100-36-14-1

$K_2Cu(SO_4)_2$  Dipotassium copper(II) sulfate  
(c,  $\alpha$ ) C: fab  
(c,  $\beta$ ) C: fab  
(c, fused) C: fab  
 $K_2Cu(SO_4)_2 \cdot 2H_2O$  Dipotassium copper(II) sulfate—2-Water  
(c) C: fab  
 $K_2Cu(SO_4)_2 \cdot 6H_2O$  Dipotassium copper(II) sulfate—6-Water  
(c) C: fa:

100-36-23-1

$K_2Cu(CO_3)_2$  Dipotassium copper(II) carbonate  
(c, V) C: fab  
(c, IV) C: fab  
(c, II) C: fab

100-37-10

$KCl \cdot AgCl$  Potassium chloride—Silver chloride  
(c) C: fab

100-37-11

$KBr \cdot AgBr$  Potassium bromide—Silver bromide  
(c) C: fab  
 $3KBr \cdot AgBr \cdot \frac{1}{2}H_2O$  3-Potassium bromide—Silver bromide— $\frac{1}{2}$ -Water  
(c) C: fab

100-37-12

$KI \cdot AgI$  Potassium iodide—Silver iodide  
(c) C: fab  
 $KI \cdot AgI \cdot \frac{1}{4}H_2O$  Potassium iodide—Silver iodide— $\frac{1}{4}$ -Water  
(c) C: fab  
 $2KI \cdot AgI \cdot \frac{1}{2}H_2O$  2-Potassium iodide—Silver iodide— $\frac{1}{2}$ -Water  
(c) C: fab  
 $3KI \cdot AgI$  3-Potassium iodide—Silver iodide  
(c) C: fab  
 $3KI \cdot AgI \cdot \frac{1}{2}H_2O$  3-Potassium iodide—Silver iodide— $\frac{1}{2}$ -Water  
(c) C: fab  
 $3KI \cdot 2AgI \cdot H_2O$  3-Potassium iodide—2-Silver iodide—Water  
(c) C: fab

100-37-23-18

$KAg(CN)_2$  Potassium dicyanoargentate  
(c) C: fab  
(aq) C: fab  
 $K_2Ag(CN)_3$  Potassium tricyanoargentate  
(aq) C: fab

100-38-23-18

$KAu(CN)_2$  Potassium dicyanoaurate(I)  
(aq) C: fab

100-39-10

$K_2PtCl_4$  Potassium tetrachloroplatinate(II)  
(c) C: fab  
(aq) C: fab  
 $K_2PtCl_6$  Potassium hexachloroplatinate(IV)  
(c) C: faa fab fac fad fae  
E-XI: fac fae(-)  
E-XIII: fae  
(aq) C: fab

100-39-11

$K_2PtBr_4$  Potassium tetrabromoplatinate(II)  
(c) C: fab  
(aq) C: fab  
 $K_2PtBr_6$  Potassium hexabromoplatinate(IV)  
(c) C: fab  
(aq) C: fab

100-40-10

$K_2IrCl_6$  Potassium hexachloroiridate(IV)  
(c) C: fab  
(aq) C: fab  
 $K_3IrCl_6$  Potassium hexachloroiridate(III)  
(c) C: fab  
(aq) C: fab

100-41-10

$K_2OsCl_6$  Potassium hexachloro-osmate(IV)  
(c) C: fab

100-42-10

$K_2PdCl_4$  Potassium tetrachloropalladate(II)  
(c) C: fab  
(aq) C: fab  
 $K_2PdCl_6$  Potassium hexachloropalladate(IV)  
(c) C: fab  
(aq) C: fab

100-42-11

$K_2PdBr_4$  Potassium tetrabromopalladate(II)  
(c) C: fab  
(aq) C: fab

100-43-10

$K_3RhCl_6$  Potassium hexachlororhodate(III)  
(c) C: fab

100-45-14-1

$K_2Ni(SO_4)_2 \cdot 6H_2O$  Dipotassium nickel(II) sulfate—6-Water  
(c) E-XIII: fae

100-45-23-18

$K_2Ni(CN)_4$  Potassium tetracyanonickelate(II)  
(aq) C: fab

100-46-14-1

$K_2SO_4 \cdot 2CoSO_4$  Potassium sulfate—2-Cobalt(II) sulfate  
(c) C: eah

100-46-23-1

$K_2CO_3 \cdot CoCO_3$  Potassium carbonate—Cobalt(II) carbonate  
(c) C: fab

**POTASSIUM**

100-46-23-1  $K_2CO_3 \cdot CoCO_3 \cdot 4H_2O$

$K_2CO_3 \cdot CoCO_3 \cdot 4H_2O$  Potassium carbonate—Cobalt(II) carbonate—  
4-Water  
(c) C: fab

**100-46-23-18**

$K_3Co(CN)_6$  Potassium hexacyanocobaltate(III)  
(c) E-XIII: fae

**100-47-14-1**

$KFe(SO_4)_2$  Potassium iron(III) sulfate  
(aq) C: fab  
 $KFe(SO_4)_2 \cdot 12H_2O$  Potassium iron(III) sulfate—12-Water  
(c) C: eah  
 $K_2Fe(SO_4)_2$  Dipotassium iron(II) sulfate  
(aq) C: fab  
 $K_2Fe(SO_4)_2 \cdot 4H_2O$  Dipotassium iron(II) sulfate—4-Water  
(c) C: fab  
 $K_2Fe(SO_4)_2 \cdot 6H_2O$  Dipotassium iron(II) sulfate—6-Water  
(c) C: fab

**100-47-23-18**

$K_3Fe(CN)_6$  Potassium hexacyanoferrate(III)  
(c) C: fab  
E-XIII: fae  
(aq) C: fab  
 $K_4Fe(CN)_6$  Potassium hexacyanoferrate(II)  
(c) C: fab fae  
E-XIII: fae  
(aq) C: fab  
 $K_4Fe(CN)_6 \cdot 3H_2O$  Potassium hexacyanoferrate(II)—3-Water  
(c) C: fab  
E-XIII: fae

**100-47-23-18-1**

$K_3FeCO(CN)_5$  Potassium pentacyanocarbonylferrate(II)  
(c) C: fab  
(aq) C: fab  
 $K_3FeCO(CN)_5 \cdot 3\frac{1}{2}H_2O$  Potassium pentacyanocarbonylferrate(II)—  
 $3\frac{1}{2}$ -Water  
(c) C: fab

**100-47-23-18-2**

$KH_2Fe(CN)_6$  Potassium dihydrogen hexacyanoferrate(III)  
(aq) C: fab  
 $KH_3Fe(CN)_6$  Potassium trihydrogen hexacyanoferrate(II)  
(aq) C: fab  
 $K_2HFe(CN)_6$  Dipotassium hydrogen hexacyanoferrate(III)  
(aq) C: fab  
 $K_2H_2Fe(CN)_6$  Dipotassium dihydrogen hexacyanoferrate(II)  
(aq) C: fab  
 $K_3HFe(CN)_6$  Tripotassium hydrogen hexacyanoferrate(II)  
(aq) C: fab

**100-48-1**

$KMnO_4$  Potassium permanganate  
(c) C: faa fab fac fad fae  
E-XI: fac fae(-t)  
E-XIII: fae  
(aq) C: fab(x)

**100-48-10**

$KCl \cdot MnCl_2$  Potassium chloride—Manganese(II) chloride  
(c) C: eah

**100-48-14-1**

$K_2Mn(SO_4)_2$  Dipotassium manganese(II) sulfate  
(c) C: fab  
 $K_2Mn(SO_4)_2 \cdot 2H_2O$  Dipotassium manganese(II) sulfate—2-Water  
(c) C: fab  
 $K_2Mn(SO_4)_2 \cdot 4H_2O$  Dipotassium manganese(II) sulfate—4-Water  
(c) C: fab  
 $K_2SO_4 \cdot 2MnSO_4$  Potassium sulfate—2-Manganese(II) sulfate  
(c) C: eah

**100-50-1**

$KReO_4$  Potassium perrhenate  
(c) C: eah ead fab fbf fbg fbn  
fbo  
E-XIII: fae  
(aq) C: fab

**100-51-1**

$K_2CrO_4$  Potassium chromate  
(c, II) C: eaj fbb fbc  
(c, I) C: eah fbf fbg  
E-V: eah fbf fbg  
(c) C: fab  
E-XIII: fae  
(aq) C: fab(x)  
 $K_2Cr_2O_7$  Potassium dichromate  
(c, II) C: eaj  
(c, I) C: eah fbf fbg fbh  
E-V: eah fbf fbg  
(c) C: fab  
E-XIII: fae(t) fai(t) fal(t) fbf  
(liq) E-XIII: fae fai(t) fal(t)  
(aq) C: fab(x)  
 $K_2Cr_2O_7 \cdot CrO_3$  Potassium dichromate—Chromium(VI) oxide  
(c) C: fab

**100-51-10-1**

$KCl \cdot CrO_3$  Potassium chloride—Chromium(VI) oxide  
(c) C: fab

**100-51-14-1**

$KCr(SO_4)_2$  Potassium chromium(III) sulfate  
(c) C: fab  
(aq) C: fab  
 $KCr(SO_4)_2 \cdot H_2O$  Potassium chromium(III) sulfate—Water  
(c) C: fab  
 $KCr(SO_4)_2 \cdot 2H_2O$  Potassium chromium(III) sulfate—2-Water  
(c) C: fab  
 $KCr(SO_4)_2 \cdot 6H_2O$  Potassium chromium(III) sulfate—6-Water  
(c) C: fab  
 $KCr(SO_4)_2 \cdot 12H_2O$  Potassium chromium(III) sulfate—12-Water  
(c) C: fab  
E-XIII: fae

**100-51-18-2-1**

$KNH_4CrO_4$  Potassium ammonium chromate  
(c) C: fab  
(aq) C: fab

**100-52-1**  
 $K_2MoO_4$  Potassium tetroxomolybdate(VI)  
 (c, IV) C: eaj  
 (c, III) C: eaj  
 (c, II) C: eaj  
 (c, I) C: eah fbf fbg  
 E-V: eah fbf fbg  
 (aq) C: fab

$K_2Mo_2O_7$  Potassium heptaoxodimolybdate (VI)  
 (c) C: eah

$K_2O \cdot 3MoO_3$  Potassium oxide-3-Molybdenum(VI) oxide  
 (c) C: eah

**100-53-1**  
 $K_2WO_4$  Potassium tetroxotungstate(VI)  
 (c, II) C: eaj  
 (c, I) C: eah fbf fbg  
 E-V: eah fbf fbg

$K_2W_2O_7$  Potassium heptaoxiditungstate(VI)  
 (c) C: eah

**100-54-1**  
 $KVO_3$  Potassium trioxovanadate(V)  
 (c) C: eah  
 (aq) C: fab

$KVO_4$  Potassium vanadium tetroxide  
 (c) C: fab  
 (aq) C: fab

$KVO_5$  Potassium vanadium pentoxide  
 (aq) C: fab

**100-57-1**  
 $K_2TiO_3$  Potassium titanium(IV) trioxide  
 (c) E-V: eah fbf fbg

**100-88-10-1**  
 $2KCl \cdot UO_2Cl_2 \cdot 2H_2O$  2-Potassium chloride-Uranyl(VI) chloride-2-Water  
 (c) C: fab

**100-90-10**  
 $KCl \cdot ThCl_4 \cdot 9H_2O$  Potassium chloride-Thorium chloride-9-Water  
 (c) C: fab

$2KCl \cdot ThCl_4$  2-Potassium chloride-Thorium chloride  
 (c) C: fab

**100-92-14-1**  
 $K_2SO_4 \cdot BeSO_4$  Potassium sulfate-Beryllium sulfate  
 (c) C: eah

**100-93-9**  
 $KF \cdot MgF_2$  Potassium fluoride-Magnesium fluoride  
 (c) C: eah

**100-93-10**  
 $KCl \cdot MgCl_2$  Potassium chloride-Magnesium chloride  
 (c) C: eah fab fbf fbg

$KCl \cdot MgCl_2 \cdot 6H_2O$  Potassium chloride-Magnesium chloride-6-Water  
 (c) C: fab

$2KCl \cdot MgCl_2$  2-Potassium chloride-Magnesium chloride  
 (c) C: eah fab

$4KCl \cdot MgCl_2$  4-Potassium chloride-Magnesium chloride  
 (c) C: fab

$KMgCl_3$  Potassium magnesium chloride  
 (c) E-XIII: fae(t) fai(t) fal(t) fbf  
 (liq) E-XIII: fae fai(t) fal(t)

**100-93-14-1**  
 $K_2SO_4 \cdot MgSO_4$  Potassium sulfate-Magnesium sulfate  
 (c) C: fab  
 (c, fresh melt) C: fab

$K_2SO_4 \cdot MgSO_4 \cdot 2H_2O$  Potassium sulfate-Magnesium sulfate-2-Water  
 (c) C: fab

$K_2SO_4 \cdot MgSO_4 \cdot 4H_2O$  Potassium sulfate-Magnesium sulfate-4-Water  
 (c) C: fab

$K_2SO_4 \cdot MgSO_4 \cdot 5H_2O$  Potassium sulfate-Magnesium sulfate-5-Water  
 (c) C: fab

$K_2SO_4 \cdot MgSO_4 \cdot 6H_2O$  Potassium sulfate-Magnesium sulfate-6-Water  
 (c) C: fab

$K_2Mg(SO_4)_2 \cdot 6H_2O$  Potassium magnesium sulfate-6-Water  
 (c) E-XIII: fae

$K_2SO_4 \cdot 2MgSO_4$  Potassium sulfate-2-Magnesium sulfate  
 (c) C: eah fab

**100-93-14-10-1**  
 $KCl \cdot MgSO_4$  Potassium chloride-Magnesium sulfate  
 (c) C: fab

**100-93-29-24-9-1**  
 $KMg_3AlSi_3O_{10}F_2$  Potassium trimagnesium aluminum trisilicon decaoxide difluoride  
 (c) E-XIII: fae(t) fai(t) fal(t) fbf  
 (liq) E-XIII: fae fai(t) fal(+t)

**100-94-10**  
 $KCl \cdot CaCl_2$  Potassium chloride-Calcium chloride  
 (c) C: eah fab

**100-94-14-1**  
 $K_2SO_4 \cdot CaSO_4 \cdot H_2O$  Potassium sulfate-Calcium sulfate-Water  
 (c) C: fab

$K_2SO_4 \cdot 2CaSO_4$  Potassium sulfate-2-Calcium sulfate  
 (c, II) C: eaj  
 (c) C: eah

$K_2SO_4 \cdot 5CaSO_4 \cdot H_2O$  Potassium sulfate-5-Calcium sulfate-Water  
 (c) C: fab

**100-94-19-1**  
 $KCaPO_4$  Potassium calcium phosphate  
 (c, II) C: eaj

**100-94-24-1**  
 $K_2O \cdot CaO \cdot SiO_2$  Potassium oxide-Calcium oxide-Silicon oxide  
 (c) C: eah

$K_2O \cdot 3CaO \cdot 6SiO_2$  Potassium oxide-3-Calcium oxide-6-Silicon oxide  
 (c) C: eah

**POTASSIUM**  
**100-94-24-1**  $2K_2O \cdot CaO \cdot 3SiO_2$

$2K_2O \cdot CaO \cdot 3SiO_2$  2-Potassium oxide—Calcium oxide—3-Silicon oxide  
 (c) C: eah

$2K_2O \cdot CaO \cdot 6SiO_2$  2-Potassium oxide—Calcium oxide—6-Silicon oxide  
 (c) C: eah

$4K_2O \cdot CaO \cdot 10SiO_2$  4-Potassium oxide—Calcium oxide—10-Silicon oxide  
 (c) C: eah

**100-94-47-23-18-1**

$KCaFeCO(CN)_5 \cdot 5H_2O$  Potassium calcium pentacyanocarbonyl-ferrate(II)—5-Water  
 (c) C: fab

**100-95-11**

$KBr \cdot 2SrBr_2$  Potassium bromide—2-Strontium bromide  
 (c) C: eah

$2KBr \cdot SrBr_2$  2-Potassium bromide—Strontium bromide  
 (c) C: eah

**100-95-14-1**

$K_2SO_4 \cdot SrSO_4$  Potassium sulfate—Strontium sulfate  
 (c) C: fab

$K_2SO_4 \cdot 2SrSO_4$  Potassium sulfate—2-Strontium sulfate  
 (c, II) C: eaj

**100-96-11**

$2KBr \cdot BaBr_2$  2-Potassium bromide—Barium bromide  
 (c) C: eah

**100-98**

$KLi$  Potassium lithide  
 (g) E-XI: fac  
 E-XIII: fae(+t) fal(t) fal(+t)

**100-98-12-10**

$KI \cdot LiCl$  Potassium iodide—Lithium chloride  
 (c) C: fab

**100-98-14-1**

$K_2SO_4 \cdot Li_2SO_4$  Potassium sulfate—Lithium sulfate  
 (c) C: eah

**100-98-52-1**

$K_2MoO_4 \cdot Li_2MoO_4$  Potassium tetroxomolybdate(VI)—Lithium tetroxomoybdate(VI)  
 (c, II) C: eaj  
 (c, I) C: eah

**100-98-53-1**

$K_2WO_4 \cdot Li_2WO_4$  Potassium tetroxotungstate(VI)—Lithium tetroxotungstate(VI)  
 (c) C: eah

**100-99**

$K-Na$  Potassium-Sodium  
 (c) F: eah fca fcb fcf fch fcl  
 fcm fcp fcr(-t,t) fct(-t,t)  
 (liq) F: fca(x) fcb(x) fcc(x) fcd(x) fcf(x) fch  
 fcl(x) fcm(x) fcp fcr(t) fct(t) fcv(x)  
 fcw(x)

$KNa$  Potassium sodide  
 (liq) C: fab  
 (g) C: fab

E-XI: fac  
 E-XIII: fae

$KNa_2$  Potassium disodide  
 (liq) C: fab  
 E-XIII: fae

$K_2Na$  Dipotassium sodide  
 (liq) C: fab

$K_3Na$  Tripotassium sodide  
 (liq) C: fab

**100-99-10**

$KCl \cdot NaCl$  Potassium chloride—Sodium chloride  
 (c) C: fab

**100-99-12-10**

$KI \cdot NaCl$  Potassium iodide—Sodium chloride  
 (c) C: fab

**100-99-19-1**

$KNa_2PO_4$  Potassium disodium phosphate  
 (aq) C: fab

**100-99-23-18-14**

$3KCNS \cdot NaCNS$  3-Potassium thiocyanate—Sodium thiocyanate  
 (c) C: fab

**101 — Rubidium — Rb**

**101**

$Rb$  Rubidium  
 (c, II) C: eaj  
 (c, I) C: eah eai fac fae fbf fbj  
 fbn fbo  
 D: eah fac(t) fae(t) faf(t) fai(t) fbf  
 E-V: eah fbf fbj  
 (c) E-III: fbm(t) fbn(t)  
 E-XI: fac  
 E-XIII: fae fai fal fbf  
 (liq) C: eaq fbj fbk  
 D: eaq fac(t) fae(t) faf(t) fai(t) fbj  
 E-III: eaq eal(t) fbi(t) fbj(t) fbk  
 E-XIII: fae fai(t) fal(t)  
 (g) C: faa fab fac fad fae  
 D: faa(t,+t) fab(t,+t) fac(t,+t)  
 fad(t,+t) fae(t,+t) fai(t,+t)  
 fal(t,+t)  
 E-XI: fac  
 E-XIII: fae fai(t,+t) fal(t,+t)

$Rb^+$

(g) C: fab  
 (aq) C: fab  
 E-XI: fac

$Rb^{2+}$

(g) C: fab

$Rb^{3+}$

(g) C: fab

Rb<sub>2</sub> Dirubidium  
(g) C: fab  
D: faa(t) fab(t) fac(t) fad(t) fae(t) faf(t)  
fai(t)  
E-III: fac  
E-XIII: fae(t) fai(t) fal(t)

**101-1**  
RbO<sub>2</sub> Rubidium hyperoxide  
(c) E-XII: faa(t) fab(t)  
(liq) E-XII: faa(t) fab(t)

Rb<sub>2</sub>O Rubidium oxide  
(c) C: fab  
E-IV: fan  
E-XII: faa(t) fab(t)  
(liq) E-XII: faa(t) fab(t)

Rb<sub>2</sub>O<sub>2</sub> Rubidium peroxide  
(c) C: fab  
E-XII: faa(t) fab(t)  
(liq) E-XII: faa(t) fab(t)

Rb<sub>2</sub>O<sub>3</sub> Dirubidium trioxide  
(c) C: fab  
E-XII: faa(t) fab(t)  
(liq) E-XII: faa(t) fab(t)

Rb<sub>2</sub>O<sub>4</sub> Dirubidium tetroxide  
(c) C: fab

**101-2**  
RbH Rubidium hydride  
(g) C: fab  
E-XI: fac  
E-XIII: fae(t) fai(t) fal(t)

**101-2-1**  
RbOH Rubidium hydroxide  
(c, ll) C: eaj fab fbb fbq  
(c, l) C: eah fbf fbq  
(aq) C: faa fab(x) fac fad

RbOH·H<sub>2</sub>O Rubidium hydroxide-Water  
(c) C: fab

RbOH·2H<sub>2</sub>O Rubidium hydroxide-2-Water  
(c) C: fab

**101-9**  
RbF Rubidium fluoride  
(c) C: eah fab fae fbf fbq  
E-V: eah fbf fbq  
E-XIII: fae(t)  
(liq) C: eaq fbj fbk  
E-III: eaq eal(t) fbi(t) fbj(t) fbk  
(g) E-XI: fac  
(aq) C: faa fab(x) fac fad

RbF· $\frac{1}{2}$ H<sub>2</sub>O Rubidium fluoride- $\frac{1}{2}$ -Water  
(c) C: fab

RbF· $1\frac{1}{2}$ H<sub>2</sub>O Rubidium fluoride- $1\frac{1}{2}$ -Water  
(c) C: fab

**101-9-2**  
RbF·HF Rubidium fluoride-Hydrogen fluoride  
(c) C: eah

RbF·2HF Rubidium fluoride-2-Hydrogen fluoride  
(c) C: eah  
RbHF<sub>2</sub> Rubidium hydrogen difluoride  
(c) C: fab  
(aq) C: fab

**101-10**  
RbCl Rubidium chloride  
(c) C: eah fab fae fbf fbq  
E-V: eah fbf fbq  
E-XIII: fae(t)  
(liq) C: eaq fbj fbk  
E-III: eaq eal(t) fbi(t) fbj(t) fbk  
(g) E-XI: fac  
E-XII: fae(t) fad(t) fal(t)  
(aq) C: faa fab(x) fac fad  
(in methanol) C: fab

**101-10-1**  
RbClO<sub>3</sub> Rubidium chlorate  
(c) C: faa fab fac fad fae  
E-XI: fac fae(-)  
E-XIII: fae  
(aq) C: faa fab fac fad  
RbClO<sub>4</sub> Rubidium perchlorate  
(c, ll) C: faa fab fac fad  
(aq) C: faa fab fac fad

**101-11**  
RbBr Rubidium bromide  
(c) C: eah faa fab fac fad fae  
fbf fbq  
E-V: eah fbf fbq  
E-XIII: fae(t)  
(liq) C: eaq fbj fbk  
E-III: eaq eal(t) fbi(t) fbj(t) fbk  
(g) E-XI: fac  
(aq) C: faa fab(x) fac fad

**101-12**  
RbI Rubidium iodide  
(c) C: eah faa fab fac fad fae  
fbf fbq  
E-V: eah fbf fbq  
E-XIII: fae(t)  
(liq) C: eaq fbj fbk  
E-III: eaq eal(t) fbi(t) fbj(t) fbk  
(g) E-XI: fac  
(aq) C: faa fab fac fad

**101-14**  
Rb<sub>2</sub>S Rubidium sulfide  
(c) C: fab  
(aq) C: fab  
Rb<sub>2</sub>S<sub>2</sub> Dirubidium disulfide  
(c) C: eah  
Rb<sub>2</sub>S<sub>3</sub> Dirubidium trisulfide  
(c) C: eah  
Rb<sub>2</sub>S<sub>5</sub> Dirubidium pentasulfide  
(c) C: eah  
Rb<sub>2</sub>S<sub>6</sub> Dirubidium hexasulfide  
(c) C: eah



**RUBIDIUM**  
**101-14-1 Rb<sub>2</sub>SO<sub>4</sub>**

**101-14-1**  
**Rb<sub>2</sub>SO<sub>4</sub>** Rubidium sulfate  
*(c, II)* C: eaj  
*(c, I)* C: eah  
*(c)* C: fab  
*(aq)* C: faa fab(x) fac fad

**101-14-2**  
**RbHS** Rubidium hydrogen sulfide  
*(c, II, α)* C: eaj fbb fbc  
 E-XIII: fae fai(t) fal(t) fbb  
*(c, β)* E-XIII: fae fai(t) fal(t)  
*(c)* C: fab  
*(aq)* C: fab

**100-14-2-1**  
**RbHSO<sub>4</sub>** Rubidium hydrogen sulfate  
*(c)* C: fab  
*(aq)* C: fab

**101-14-12-1**  
**RbI·4SO<sub>2</sub>** Rubidium iodide-4-Sulfur dioxide  
*(c)* C: fab

**101-15-2**  
**RbHSe** Rubidium hydrogen selenide  
*(c, II, α)* C: eaj  
 E-XIII: fae fai(t) fal(t) fbb  
*(c, β)* E-XIII: fae fai(t) fal(t)  
*(c)* C: fab  
*(aq)* C: fab

**101-18**  
**RbN<sub>3</sub>** Rubidium azide  
*(c)* C: eah

**101-18-1**  
**RbNO<sub>3</sub>** Rubidium nitrate  
*(c, IV)* C: eaj  
*(c, III)* C: eaj  
*(c, II)* C: eaj fab  
*(c, I)* C: eah fbf fbg  
 E-V: eah fbf fbg  
*(aq)* C: faa fab(x) fac fad

**101-18-2**  
**RbNH<sub>2</sub>** Rubidium amide  
*(c)* C: fab

**101-18-2-1**  
**RbNO<sub>3</sub>·HNO<sub>3</sub>** Rubidium nitrate-Nitric acid  
*(c)* C: eah

**101-18-11-2**  
**RbBr·3NH<sub>3</sub>** Rubidium bromide-3-Ammonia  
*(c)* C: fab

**101-18-12-2**  
**RbI·6NH<sub>3</sub>** Rubidium iodide-6-Ammonia  
*(c)* C: fab

**101-23-1**  
**Rb<sub>2</sub>CO<sub>3</sub>** Rubidium carbonate  
*(c)* C: eah fab fae  
 E-IV: fam  
 E-XIII: fae  
*(g)* E-IV: fam(t) fan(t)  
*(aq)* C: fab(x)

**Rb<sub>2</sub>CO<sub>3</sub>·H<sub>2</sub>O** Rubidium carbonate-Water  
*(c)* C: fab

**Rb<sub>2</sub>CO<sub>3</sub>·1½H<sub>2</sub>O** Rubidium carbonate-1½-Water  
*(c)* C: fab

**Rb<sub>2</sub>CO<sub>3</sub>·3½H<sub>2</sub>O** Rubidium carbonate-3½-Water  
*(c)* C: fab

**101-23-2-1**  
**RbCHO<sub>2</sub>** Rubidium formate  
*(c)* C: eah

**RbHCO<sub>3</sub>** Rubidium hydrogen carbonate  
*(c)* C: fab  
 E-IV: fam(t) fan(t)  
*(aq)* C: fab

**RbC<sub>2</sub>H<sub>3</sub>O<sub>2</sub>** Rubidium acetate  
*(c)* C: eah

**3Rb<sub>2</sub>CO<sub>3</sub>·2RbHCO<sub>3</sub>·4½H<sub>2</sub>O** 3-Rubidium carbonate-2-Rubidium hydrogen carbonate-4½-Water  
*(c)* C: fab

**101-23-18-14**  
**RbCNS** Rubidium thiocyanate  
*(c)* C: eah fab  
*(aq)* C: fab

**101-23-18-14-1**  
**RbCNS·½SO<sub>2</sub>** Rubidium thiocyanate-½-Sulfur dioxide  
*(c)* C: fab

**101-24-9**  
**Rb<sub>2</sub>SiF<sub>6</sub>** Rubidium hexafluorosilicate  
*(c)* C: fab

**101-27-12**  
**2RbI·PbI<sub>2</sub>** 2-Rubidium iodide-Lead(II) iodide  
*(c)* C: fab

**2RbI·PbI<sub>2</sub>·4H<sub>2</sub>O** 2-Rubidium iodide-Lead(II) iodide-4-Water  
*(c)* C: fab

**101-28-9**  
**RbBF<sub>4</sub>** Rubidium tetrafluoroborate  
*(c)* C: eah

**101-29-9**  
**3RbF·AlF<sub>3</sub>** 3-Rubidium fluoride-Aluminum fluoride  
*(c)* C: eah

**101-29-14-1**  
**RbAl(SO<sub>4</sub>)<sub>2</sub>** Rubidium aluminum sulfate  
*(c)* C: fab

**RbAl(SO<sub>4</sub>)<sub>2</sub>·H<sub>2</sub>O** Rubidium aluminum sulfate-Water  
*(c)* C: fab

**RbAl(SO<sub>4</sub>)<sub>2</sub>·2H<sub>2</sub>O** Rubidium aluminum sulfate-2-Water  
*(c)* C: fab

RbAl(SO<sub>4</sub>)<sub>2</sub>·3H<sub>2</sub>O Rubidium aluminum sulfate-3-Water  
(c) C: fab  
RbAl(SO<sub>4</sub>)<sub>2</sub>·12H<sub>2</sub>O Rubidium aluminum sulfate-12-Water  
(c) C: fab

101-35

Ru-Hg Rubidium-Mercury  
(liq) F: fcc fcd fcv fcw

101-36-10

Rb<sub>2</sub>CuCl<sub>4</sub> Rubidium copper(II) tetrachloride  
(c) C: fab  
Rb<sub>2</sub>CuCl<sub>4</sub>·2H<sub>2</sub>O Rubidium copper(II) tetrachloride-2-Water  
(c) C: fab

101-40-10

Rb<sub>2</sub>IrCl<sub>6</sub> Rubidium hexachloroiridate(IV)  
(c) C: fab

101-50-1

RbRbO<sub>4</sub> Rubidium perrhenate  
(c) C: fab  
(aq) C: fab

101-90-10

2RbCl·ThCl<sub>4</sub> 2-Rubidium chloride-Thorium chloride  
(c) C: fab  
2RbCl·ThCl<sub>4</sub>·9H<sub>2</sub>O 2-Rubidium chloride-Thorium chloride-9-  
Water  
(c) C: fab  
4RbCl·ThCl<sub>4</sub> 4-Rubidium chloride-Thorium chloride  
(c) C: fab

101-98

RbLi Rubidium lithide  
(g) E-XI: fac  
E-XIII: fae(t) fai(t) fal(t)

101-98-18-1

RbNO<sub>3</sub>·LiNO<sub>3</sub> Rubidium nitrate-Lithium nitrate  
(c) C: eah

101-99

RbNa Rubidium sodide  
(g) E-XI: fac

101-99-2-1

RbOH·2NaOH Rubidium hydroxide-2-Sodium hydroxide  
(c) C: eah

101-100

RbK Rubidium potasside  
(g) E-XI: fac

101-100-2-1

2RbOH·KOH 2-Rubidium hydroxide-Potassium hydroxide  
(c) C: eah

102 - Cesium - Cs

102  
Cesium  
(c) C: eah eai fac fae fbf fbq  
fbn fbo  
D: eah fac(t) fae(t) fai(t) fal(t) fbf  
E-III: fbm(t) fbn(t)  
E-V: eah fbf fbq  
E-XI: fac  
E-XIII: fae fat fal fbf  
F: eah eal(t) fac fae(-t,t) fai(t)  
fai(t) fal(t) fbf fbq fbn fbo  
(liq) C: eaq fbj fbk  
D: eaq fac(t) fae(t) fai(t) fal(t) fbf  
E-III: eaq eal(t) fbi(t) fbj(t) fbk  
E-XIII: fae fat(t) fal(t)  
F: eal(t) fae(t) fai(t) fal(t) fbf  
fbk  
(g) C: faa fab fac fad fae  
D: faa(t,+t) fab(t,+t) fac(t,+t)  
fad(t,+t) fae(t,+t) fai(t,+t)  
fal(t,+t)  
E-XI: fac  
E-XII: fae fai(t,+t) fal(t,+t)  
F: fac fae(t,+t) fai(t,+t) fal(t,+t)

Cs<sup>+</sup>  
(g) C: fab  
(aq) C: faa fab fac fad  
E-XI: fac

Cs<sup>2+</sup>  
(g) C: fab

Cs<sub>2</sub>  
Dicesium  
(g) C: fab  
D: faa(t) fab(t) fac(t) fad(t) fae(t) fai(t)  
fal(t)  
E-XI: fac  
E-XIII: fae(t) fai(t) fal(t)

102-1  
Cesium hyperoxide  
(c) E-XII: faa(t) fab(t)  
(liq) E-XII: faa(t) fab(t)

Cs<sub>2</sub>O  
Cesium oxide  
(c) C: eah fab  
E-IV: fan  
E-XII: faa(t) fab(t)  
(liq) E-XII: faa(t) fab(t)

Cs<sub>2</sub>O<sub>2</sub>  
Cesium peroxide  
(c) C: fab  
E-XII: faa(t) fab(t)  
(liq) E-XII: faa(t) fab(t)

Cs<sub>2</sub>O<sub>3</sub>  
Dicesium trioxide  
(c) C: fab  
E-XII: faa(t) fab(t)  
(liq) E-XII: faa(t) fab(t)

Cs<sub>2</sub>O<sub>4</sub>  
Dicesium tetroxide  
(c) C: fab

Cs<sub>7</sub>O  
Heptacesium oxide  
(c) C: eah

	<b>102-2</b>				
CsH	Cesium hydride				
	(g) C:	faa	fab	fac	fad fae
	E-XI:	fac			
	E-XIII:	fae(t)	fai(t)	fal(t)	
	<b>102-2-1</b>				
CsOH	Cesium hydroxide				
	(c, II) C:	eaj	fab	fbf	fbg
	(c, I) C:	eah	fbf	fbg	
	(aq) C:	faa	fab(x)	fac	fad
CsOH·H <sub>2</sub> O	Cesium hydroxide—Water				
	(c) C:	fab			
	<b>102-9</b>				
CsF	Cesium fluoride				
	(c) C:	eah	fab	fbf	fbg
	E-V:	eah	fbf	fbg	
	E-XIII:	fae(t)			
	(liq) E-XIII:	eaq	eal(t)	fbi(t)	fbi(t) fbk
	(g) E-XIII:	fae(t)	fai(t)	fal(t)	
	(aq) C:	faa	fab(x)	fac	fad
CsF· $\frac{2}{3}$ H <sub>2</sub> O	Cesium fluoride— $\frac{2}{3}$ -Water				
	(c) C:	fab			
CsF· $\frac{1}{2}$ H <sub>2</sub> O	Cesium fluoride— $\frac{1}{2}$ -Water				
	(c) C:	fab			
	<b>102-9-2</b>				
CsF·HF	Cesium fluoride—Hydrogen fluoride				
	(c) C:	eah			
CsF·2HF	Cesium fluoride—2-Hydrogen fluoride				
	(c) C:	eah			
CsF·3HF	Cesium fluoride—3-Hydrogen fluoride				
	(c) C:	eah			
CsF·6HF	Cesium fluoride—6-Hydrogen fluoride				
	(c) C:	eah			
CsHF <sub>2</sub>	Cesium hydrogen difluoride				
	(c) C:	fab			
	(aq) C:	fab			
	<b>102-10</b>				
CsCl	Cesium chloride				
	(c, II) C:	eaj	fab	fbf	fbg
	(c, I) C:	eah	fbf	fbg	
	E-V:	eah	fbf	fbg	
	(c) E-XIII:	fae(t)			
	(liq) C:	eaq	fbj	fbk	
	E-III:	eaq	eal(t)	fbi(t)	fbi(t) fbk
	(g) E-XI:	fac			
	E-XIII:	fae(t)	fai(t)	fal(t)	
	(aq) C:	faa	fab(x)	fac	fad
	<b>102-10-1</b>				
CsClO <sub>4</sub>	Cesium perchlorate				
	(c) C:	faa	fab	fac	fad fae
	E-XI:	fac	fae(-t)		
	E-XIII:	fae			
	(aq) C:	faa	fab	fac	fad

	<b>102-11</b>				
CsBr	Cesium bromide				
	(c) C:	eah	faa	fab	fac fad fae
		fbf	fbg		
	E-XIII:	fae(t)			
	(liq) C:	eaq	fbj	fbk	
	E-III:	eaq	eal(t)	fbi(t)	fbi(t) fbk
	(g) E-XI:	fac			
	(aq) C:	faa	fab(x)	fac	fad
	<b>102-11-1</b>				
CsBrO <sub>3</sub>	Cesium bromate				
	(c) C:	eah			
	<b>102-12</b>				
CsI	Cesium iodide				
	(c) C:	eah	faa	fab	fac fad fae
	E-XIII:	fae(t)			
	(liq) C:	eaq	fbj	fbk	
	E-III:	eaq	eal(t)	fbi(t)	fbi(t) fbk
	(g) E-XI:	fac			
	E-XIII:	fae(t)	fai(t)	fal(t)	
	(aq) C:	faa	fab(x)	fac	fad
	<b>102-14</b>				
Cs <sub>2</sub> S	Cesium sulfide				
	(c) C:	fab			
	(aq) C:	fab			
Cs <sub>2</sub> S <sub>2</sub>	Dicesium disulfide				
	(c) C:	eah			
Cs <sub>2</sub> S <sub>3</sub>	Dicesium trisulfide				
	(c) C:	eah			
Cs <sub>2</sub> S <sub>5</sub>	Dicesium pentasulfide				
	(c) C:	eah			
Cs <sub>2</sub> S <sub>6</sub>	Dicesium hexasulfide				
	(c) C:	eah			
	<b>102-14-1</b>				
Cs <sub>2</sub> SO <sub>4</sub>	Cesium sulfate				
	(c, II) C:	eaj	fab		
	(c, I) C:	eah			
	(aq) C:	faa	fab(x)	fac	fad
	<b>102-14-2</b>				
CsHS	Cesium hydrogen sulfide				
	(c) C:	fab			
	(aq) C:	fab			
	<b>102-14-2-1</b>				
CsHSO <sub>4</sub>	Cesium hydrogen sulfate				
	(c) C:	fab			
	(aq) C:	fab			
	<b>102-14-12-1</b>				
CsI·4SO <sub>2</sub>	Cesium iodide—4-Sulfur dioxide				
	(c) C:	fab			
	<b>102-15-2</b>				
CsHSe	Cesium hydrogen selenide				
	(c) C:	fab			
	(aq) C:	fab			

**102-18**  
CsN<sub>3</sub> Cesium azide  
(c) C: eah

**102-18-1**  
CsNO<sub>3</sub> Cesium nitrate  
(c, II) C: eaj fab  
(c, I) C: eah fbf fbg  
E-V: eah fbf fbg  
(c) E-XIII: fae(t)  
(aq) C: fab(x)

CsNO<sub>3</sub>·4H<sub>2</sub>O Cesium nitrate-4-Water  
(c) C: eah

**102-18-2**  
CsNH<sub>2</sub> Cesium amide  
(c) C: eah fab

**102-18-2-1**  
CsNO<sub>3</sub>·HNO<sub>3</sub> Cesium nitrate-Nitric acid  
(c) C: eah

**102-23-1**  
Cs<sub>2</sub>CO<sub>3</sub> Cesium carbonate  
(c) C: fab  
E-IV: fab fan  
(aq) C: fab(x)

Cs<sub>2</sub>CO<sub>3</sub>·3½H<sub>2</sub>O Cesium carbonate-3½-Water  
(c) C: fab

**102-23-2-1**  
CsCHO<sub>2</sub> Cesium formate  
(c) C: eah

CsCHO<sub>2</sub>·H<sub>2</sub>O Cesium formate-Water  
(c, II) C: eaj  
(c, I) C: eah

CsHCO<sub>3</sub> Cesium hydrogen carbonate  
(c) C: fab  
(aq) C: fab

Cs<sub>2</sub>H<sub>3</sub>O<sub>2</sub> Cesium acetate  
(c) C: eah

5Cs<sub>2</sub>CO<sub>3</sub>·2CsHCO<sub>3</sub>·10H<sub>2</sub>O 5-Cesium carbonate-2-Cesium hydrogen carbonate-10-Water  
(c) C: fab

5Cs<sub>2</sub>CO<sub>3</sub>·2CsHCO<sub>3</sub>·17½H<sub>2</sub>O 5-Cesium carbonate-2-Cesium hydrogen carbonate-17½-Water  
(c) C: fab

**102-24-9**  
Cs<sub>2</sub>SiF<sub>6</sub> Cesium hexafluorosilicate  
(c) C: fab

**102-28-9**  
CsBF<sub>4</sub> Cesium tetrafluoroborate  
(c) C: eah

**102-29-9**  
3CsF·AlF<sub>3</sub> 3-Cesium fluoride-Aluminum fluoride  
(c) C: eah

**102-29-14-1**  
CsAl(SO<sub>4</sub>)<sub>2</sub> Cesium aluminum sulfate  
(c) C: fab

CsAl(SO<sub>4</sub>)<sub>2</sub>·H<sub>2</sub>O Cesium aluminum sulfate-Water  
(c) C: fab

CsAl(SO<sub>4</sub>)<sub>2</sub>·2H<sub>2</sub>O Cesium aluminum sulfate-2-Water  
(c) C: fab

CsAl(SO<sub>4</sub>)<sub>2</sub>·3H<sub>2</sub>O Cesium aluminum sulfate-3-Water  
(c) C: fab

CsAl(SO<sub>4</sub>)<sub>2</sub>·12H<sub>2</sub>O Cesium aluminum sulfate-12-Water  
(c) C: faa fab fac fad fae  
E-XI: fac fae(-t)  
E-XIII: fae

**102-35**  
Cs-Hg Cesium-Mercury  
(liq) F: fca(x) fcb(x) fcc(x) fcd(x) fcf(x) fcg(x)  
fcl(x) fcm(x) fcn(x) fco(x) fcv(x) fcw(x)

**102 36-10**  
CsCl·2CuCl Cesium chloride-2-Copper(I) chloride  
(c) C: eah

Cs<sub>2</sub>CuCl<sub>4</sub> Cesium copper(II) tetrachloride  
(c) C: fab

Cs<sub>2</sub>CuCl<sub>4</sub>·2H<sub>2</sub>O Cesium copper(II) tetrachloride-2-Water  
(c) C: fab

**102-50-1**  
CsReO<sub>4</sub> Cesium perhenate  
(c) C: fab  
(aq) C: fab

**102-57-9**  
Cs<sub>2</sub>TiF<sub>6</sub> Cesium hexafluorotitanate(IV)  
(c) C: eah

**102-90-10**  
2CsCl·ThCl<sub>4</sub> 2-Cesium chloride-Thorium chloride  
(c) C: fab

2CsCl·ThCl<sub>4</sub>·8H<sub>2</sub>O 2-Cesium chloride-Thorium chloride-8-Water  
(c) C: fab

4CsCl·ThCl<sub>4</sub> 4-Cesium chloride-Thorium chloride  
(c) C: fab

**102-98**  
CsLi Cesium lithide  
(g) E-XI: fac  
E-XIII: fae(t) fai(t) fal(t)

**102-98-12-10**  
CsLiIcI Cesium lithium iodide chloride  
(c) C: fab

**102-99**  
CsNa Cesium sodide  
(g) E-XI: fac

**102-99-12-10**  
CsNaIcI Cesium sodium iodide chloride  
(c) C: fab

**CESIUM**  
**102-100 CsK**

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**102-100**  
**CsK** Cesium potasside  
(g) E-XI: fac

**102-100-12-10**  
**CsKICl** Cesium potassium iodide chloride  
(c) C: fab

**103 – Francium – Fr**

**103**  
**Fr** Francium  
(c) D: eah fac(t) fae(t) faf(t) fai(t) fbf  
E-XIII: fae fai fal fbf  
(liq) D: eaq fac(t) fae(t) faf(t) fai(t) fbj  
E-XIII: fae fai(t) fal(t)  
(g) D: faa(t,+t) fab(t,+t) fac(t,+t)  
fad(t,+t) fae(t,+t) faf(t,+t)  
fai(t,+t)  
E-XIII: fae fai(t,+t) fal(t,+t)

# ALPHABETICAL LIST OF ELEMENTS

## WITH FINDING NUMBERS

### AND PAGE GUIDE TO CHEMICAL GROUPS

Bold face numerals in parenthesis after each element name represent the Standard Order Finding Numbers of the elements. (See xvi of the INTRODUCTION)

<i>Element</i>	<i>Symbol</i>	<i>Page Number</i>	<i>Element</i>	<i>Symbol</i>	<i>Page Number</i>
Actinium (91)	Ac	218	Cerium (75)	Ce	211
Aluminum (29)	Al	140	Cesium (102)	Cs	269
Americium (85)	Am	214	Chlorine (10)	Cl	6
Antimony (21)	Sb	29	Chromium (51)	Cr	191
Argon (5)	Ar	44	Cobalt (46)	Co	178
Arsenic (20)	As	28	Copper (36)	Cu	160
Astatine (13)	At	10	Curium (84)	Cm	none
Barium (96)	Ba	236	Dysprosium (67)	Dy	207
Berkelium (83)	Bk	none	Einsteinium (81)	Es	none
Beryllium (92)	Be	219	Erbium (65)	Er	206
Bismuth (22)	Bi	31	Europium (70)	Eu	208
Boron (28)	B	136	Fermium (80)	Fm	none
Bromine (11)	Br	7	Fluorine (9)	F	5
Cadmium (34)	Cd	154	Francium (103)	Fr	272
Calcium (94)	Ca	226	Gadolinium (69)	Gd	207
Californium (82)	Cf	none	Gallium (30)	Ga	144
Carbon (23)	C	32	Germanium (25)	Ge	128
(23-2)	C-H	33	Gold (38)	Au	169
	C <sub>1</sub> to C <sub>4</sub>	33	Hafnium (59)	Hf	203
	C <sub>5</sub>	35	Helium (3)	He	3
	C <sub>6</sub>	36	Holmium (66)	Ho	206
	C <sub>7</sub>	38	Hydrogen (2)	H	2
	C <sub>8</sub>	42	Indium (31)	In	145
	C <sub>9</sub>	47	Iodine (12)	I	8
	C <sub>10</sub>	51	Iridium (40)	Ir	173
	C <sub>11</sub>	55	Iron (47)	Fe	182
	C <sub>12</sub>	60	Krypton (6)	Kr	4
	C <sub>13</sub>	67	Lanthanum (76)	La	213
	C <sub>14</sub>	68	Lead (27)	Pb	132
	C <sub>15</sub>	69	Lithium (98)	Li	241
	C <sub>16</sub>	71	Lutetium (62)	Lu	205
	C <sub>17</sub>	71	Magnesium (93)	Mg	220
	C <sub>18</sub>	72	Manganese (48)	Mn	187
	C <sub>19</sub>	73	Mendelevium (79)	Md	none
	C <sub>20</sub> to C <sub>29</sub>	74	Mercury (35)	Hg	157
	C <sub>30</sub> to C <sub>42</sub>	76	Molybdenum (52)	Mo	194
(23-2-1)	C-H-O	78	Neodymium (73)	Nd	209
(23-9) ...	C-F ...	84	Neon (4)	Ne	3
(23-10) ...	C-Cl ...	89	Neptunium (87)	Np	215
(23-11) ...	C-Br ...	96	Nickel (45)	Ni	176
(23-12) ...	C-I ...	103	Niobium (55)	Nb	198
(23-14) ...	C-S ...	108	Nitrogen (18)	N	17
(23-18) ...	C-N ...	112	Nobelium (78)	No	none

<i>Element</i>	<i>Symbol</i>	<i>Page Number</i>	<i>Element</i>	<i>Symbol</i>	<i>Page Number</i>
Osmium (41)	Os	173	Sodium (99)	Na	246
Oxygen (1)	O	1	Strontium (95)	Sr	232
Palladium (42)	Pd	174	Sulfur (14)	S	10
Phosphorus (19)	P	23	Tantalum (56)	Ta	198
Platinum (39)	Pt	171	Technetium (49)	Tc	190
Plutonium (86)	Pu	214	Tellurium (16)	Te	15
Polonium (17)	Po	16	Terbium (68)	Tb	207
Potassium (100)	K	256	Thallium (32)	Tl	147
Praseodymium (74)	Pr	210	Thorium (90)	Th	217
Promethium (72)	Pm	209	Thulium (64)	Tm	205
Protactinium (89)	Pa	217	Tin (26)	Sn	130
Radium (97)	Ra	241	Titanium (57)	Ti	199
Radon (8)	Rn	5	Tungsten (53)	W	195
Rhenium (50)	Re	190	Uranium (88)	U	215
Rhodium (43)	Rh	175	Vanadium (54)	V	196
Rubidium (101)	Rb	266	Xenon (7)	Xe	4
Ruthenium (44)	Ru	175	Ytterbium (63)	Yb	205
Samarium (71)	Sm	208	Yttrium (61)	Y	204
Scandium (60)	Sc	203	Zinc (33)	Zn	150
Selenium (15)	Se	13	Zirconium (58)	Zr	201
Silicon (24)	Si	124	———— (77)	—	none
Silver (37)	Ag	165			

## **NATIONAL ACADEMY OF SCIENCES NATIONAL RESEARCH COUNCIL**

The National Academy of Sciences—National Research Council is a private, nonprofit organization of scientists, dedicated to the furtherance of science and to its use for the general welfare.

The Academy itself was established in 1863 under a Congressional charter signed by President Lincoln. Empowered to provide for all activities appropriate to academies of science, it was also required by its charter to act as an adviser to the Federal Government in scientific matters. This provision accounts for the close ties that have always existed between the Academy and the Government, although the Academy is not a governmental agency.

The National Research Council was established by the Academy in 1916, at the request of President Wilson, to enable scientists generally to associate their efforts with those of the limited membership of the Academy in service to the nation, to society, and to science at home and abroad. Members of the National Research Council receive their appointments from the President of the Academy. They include representatives nominated by the major scientific and technical societies, representatives of the Federal Government, and a number of members-at-large. In addition, several thousand scientists and engineers take part in the activities of the Research Council through membership on its various boards and committees.

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