

# **Gmelin Handbook of Inorganic Chemistry**

8th Edition

# Gmelin Handbook of Inorganic Chemistry

**8th Edition**

**Gmelin Handbuch der Anorganischen Chemie**

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**Formula Index**

**1st Supplement Volume 7**

**Ca-I**

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## Foreword

The Gmelin Formula Index published between 1975 and 1980 covered all volumes of the Eighth Edition of the Gmelin Handbook that had appeared up to the end of 1974 in the case of Main Volumes and up to the end of 1973 in the case of Supplement Volumes. The Gmelin Formula Index, First Supplement, continues from there and covers the handbook volumes published up to the end of 1979.

This First Supplement will consist of eight volumes, which will appear at intervals of four to six months. The basic structure of the Formula Index has been fully retained in the First Supplement: The index lists all elements, compounds, ions, and systems having definite composition that are described in the handbook text. The first column gives the empirical formula, while the second gives the conventional formula. The third column lists the pertinent pages. (The details are available in "Instructions for the Formula Index", on the next pages.)

This First Supplement was prepared and printed with extensive use of computers. In the future this will allow publication of cumulative indexes. The procedures were worked out together with the Technical Section of the *Gesellschaft für Information und Dokumentation mbH (GID)*, Frankfurt, and I take this occasion to thank them for their generous help. I would also like to thank our printers, *Universitätsdruckerei H. Stürtz AG*, Würzburg, for their advice and cooperation.

Frankfurt am Main  
September 1983

Rudolf Warncke



## Instructions for the Formula Index

The formula index consists of three columns. The first gives the empirical formula, the second gives the conventional formula, as well as any supplementary information or subdivisions, and the third gives the pertinent volume and page numbers.

### First Column (Empirical Formula)

In the empirical formula the symbols of the elements are arranged alphabetically; C and H are not placed first. The list of empirical formulas is arranged alphabetically and by the magnitude of the subscripts. Any indefinite subscripts are placed last. Ions are always placed after the neutral species, positive ions preceding the negative.

The unsubscripted symbol is used for the element unless a specific diatomic or polyatomic species is meant (e.g., Br<sub>2</sub>, Br<sub>3</sub>). Transuranium elements that do not yet have an internationally recognized symbol are listed under their atomic number and placed at the end of the index. Special superscripted symbols are not used for isotopes.

H<sub>2</sub>O is included in the empirical formula only if it is an integral part of a complex as written in the second column. Polymers of the type (AB)<sub>n</sub> are listed under AB. Multicomponent systems (mixed crystals, melts, etc.) are found under the empirical formulas of their components. However, solutions are found only under the solute.

### Second Column (Conventional Formula)

The formula is written as it appears in the handbook text. However, in many cases another form is shown if there is adequate space and if it presents additional structural details. If this is not possible for isomers, then they are numbered consecutively. For elements the name is given in the second column.

Entries having the same empirical formula are arranged as follows: compounds, isotopic species, polymers, hydrates, multicomponent systems. Elements are treated in the same way.

For multicomponent systems the components are arranged in the sequence "inorganic components — organic components — water." The inorganic components are arranged alphabetically; the organic components are arranged by number of carbon atoms. If an element is a component, it is always represented by its unsubscripted symbol. Isotopic species are listed immediately after the normal species.

The concept *system* is used in its restricted sense in this index: it represents equilibrium mixtures described in phase diagrams. Ionic systems are included under their parent compounds.

The location of solubility data for compounds mentioned only briefly in the text is included under the main empirical-formula entry.

Entries for elements and compounds treated extensively in the handbook are subdivided by topics, e.g., geochemistry, preparation, or toxicity.

The concepts *solubility*, *solutions*, and *systems* partially overlap, and in these cases the user should always look at all three places. That is also true for the concepts *diffusion* and *systems* and for the concepts *sorption* and *system*.

In referrals to another entry in the index both the empirical and conventional formula are given. For example, "see  $\text{Al}_2\text{Na}_2\text{O}_4 \dots \text{Na}_2\text{O} \cdot \text{Al}_2\text{O}_3$ ." For referrals within the topics of a particular compound, then only the topic is given. For example "see Deposits."

### Third Column (Volume and Page Numbers)

The first symbol is that of the element to which the volume belongs. Next is the abbreviated form of the type of volume followed usually by the Part or Section. The page numbers are given after a hyphen. The following abbreviations are used for type of volume:

MVol.	Main Volume (Hauptband)
SVol.	Supplement Volume (Ergänzungsband)
Org.Comp.	Organic Compounds
Org.Verb.	Organische Verbindungen
PerFHalOrg.	Perfluorhalogenoorgano Compounds of Main Group Elements
SVol.GD	Gmelin-Durrer, Metallurgy of Iron
TrU.	Transuranium Elements
Wat.Desalt.	Water Desalting

For example, the entry "Ag: MVol.B7-237/9" indicates that the information is to be found on pages 237 to 239 of the Silver Main Volume B 7. The entry "Fe: Org.Comp.C3-89" indicates that the desired information is to be found on page 89 of "Organic Compounds C 3" for the element iron (Fe).

### Comments on System Numbers and Element Symbols

In the Formula Index itself the volume and page number citation was based on the traditional System Number (Main Volume Series) or the New Supplement Series Volume number. Today the volumes are usually arranged by the symbols of the elements. However, the symbols can be deduced easily from the system numbers. Most citations have the element symbol immediately after the system number. For example, 61 (Ag) refers to the silver volumes. The exceptions are

1 (EG)	is now	He
8 (J)	is now	I
39 (SE)	is now	Sc
69 (Ma)	is now	Tc

The old abbreviation for MVol was Hb (Hauptband), and the old abbreviation for SVol was Eb (Ergänzungsband). The volumes of the New Supplement Series are associated with the symbols of the elements as follows:

Erg.W. 1	He
Erg.W. 2	V
Erg.W. 3	Cr
Erg.W. 4, 7 a, 7 b, 8	Np
Erg.W. 5, 6	Co
Erg.W. 9, 12	F
Erg.W. 10	Zr
Erg.W. 11	Hf

The New Supplement Series Volumes 2 and 3 and the Volumes 10 and 11 are bound together as double volumes.