

Gmelin Handbook of Inorganic Chemistry

8th Edition

Mo

Molybdenum

Supplement Volume B 4

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Mo Molybdenum

Supplement Volume B 4

With 85 illustrations

Hydrous Molybdates of Groups VA to VIB Metals
(System Nos. 18 to 52)

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IN MANY CASES MORE RECENT DATA HAVE BEEN CONSIDERED

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Preface

This volume contains the hydrous oxo compounds of the metals Sb to Cr (System Nos. 18 to 52) with molybdenum. (The corresponding anhydrous compounds have been described in the volumes "Molybdän" Erg.-Bd. B 1 and B 2.) With these metals, molybdenum forms monomolybdates, isopolymolybdates, peroxomolybdates, and molybdometalates.

Antimony forms only the compound $\text{H}_3\text{SbMo}_{12}\text{O}_{40} \cdot n\text{H}_2\text{O}$ and with bismuth no hydrous oxo compounds are known.

More than half the volume describes the monomolybdates, isopolymolybdates, and peroxomolybdates of the alkali and alkaline earth metals, including ammonium and organic cations. First, a detailed review on the structures, spectra, and other properties of the various isopolymolybdate types is given. It also contains a comprehensive description on photochromism, a property characteristic of many of the organic ammonium polymolybdates. Then follows the description of the individual alkali compounds. The large group of molybdates with organic cations is placed after the caesium molybdates. The photochromism and the photogalvanic effect are investigated at length for $(i\text{-C}_3\text{H}_7\text{NH}_3)_6[\text{Mo}_7\text{O}_{24}] \cdot 3\text{H}_2\text{O}$. The alkaline earth molybdates are treated briefly compared with the alkali molybdates, e.g., no new data are available on beryllium molybdates.

In the following chapters concerning the compounds of Mo with Zn to Cr a great variety of types can be found. Some of the metals form mainly molybdate hydrates, e.g., the rare earth metals, or peroxomolybdates; e.g., Pb. There are metals which are able to form molybdate hydrates as well as molybdometalates, e.g., Zn and In. However, for most of them the molybdometalates are the only type of compounds known and they have been investigated in detail, see e.g., Ti, Ge, V, and Cr.

Frankfurt am Main, August 1985

Hartmut Katscher

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