

Book reviews

Gmelin handbook of inorganic chemistry, 8th edition, *Mo — Molybdenum, Supplement Volume B4: Compounds — Hydrous Molybdates of Groups VA to VIB Metals (System Nos. 18 to 52)*, Springer-Verlag, Berlin, Heidelberg, New York, Tokyo, 1985, xxiv + 359 pages, DM 1410. ISBN 3-540-93518-5.

This is only the sixth volume which the Gmelin Institute has published concerning the chemistry of molybdenum (System No. 53), and the third describing its compounds (Vol. B1, 1975, described the compounds of molybdenum with the noble gases, hydrogen and oxygen, and the anhydrous antimony, bismuth and alkali molybdates; Vol. B2, 1976, described the anhydrous compounds of molybdenum oxides with the oxides of other metals). Unfortunately we are still awaiting the crucially important volumes describing the coordination and organometallic compounds of molybdenum, and will have to be content with the current volume, which describes, according to the sub-title, the hydrous molybdates of "Groups VA to VIB metals". This is, perhaps, one of the most misleading and uninformative titles to be published this year—which is a great shame given the excellent quality of the text and illustrations. In fact, the volume describes the hydrous molybdates and peroxomolybdates of the metals of Groups 1, 2, 3, 4, 5, 6, 12, 13, 14, 15, the lanthanides, and thorium, as well as their ammonium salts and the salts of many organic cations (including $[\text{NR}_x\text{H}_{4-x}]^+$, pyridinium, bipyridinium, quinolinium, piperidinium and its derivatives, and substituted phosphonium derivatives). A reader would need second sight to predict that the phrase "Groups VA to VIB metals" included the alkali metals, ammonium salts and the lanthanides!—it is indeed fortunate that the subtitle is appended with the Gmelin System numbers for the elements, although this is unlikely to be immediately informative to the average reader.

Remarkably, given the sub-title, over half the volume is dedicated to the monomolybdates, polymolybdates and peroxomolybdates of Groups 1 and 2. The text describes, in detail, the synthesis, structure, and physical and spectroscopic properties (including photochromism) of this important class of compounds. The authors (K.-H. Tytko, W.-D. Fleischmann, D. Gras and E. Warkentin) have written a lucid and scholarly text, which is amply illustrated with clear structural diagrams. The literature coverage is complete up to 1982, and this definitive specialist volume should be in all major chemistry libraries; it is well up to the high standard expected for the volumes issued by the Gmelin Institute.