

## Book Reviews

*Gmelin Handbook of Inorganic and Organometallic Chemistry, 8th Edition, Thorium, Thorium Carbides, Supplement Volume C6*  
Springer Verlag, Berlin, 1992, pp. 136 + xvi. DM 788  
ISBN 3-540-93645-9

This volume discusses thorium carbides, with literature coverage to at least mid 1991. It deals with thorium monocarbide, thorium dicarbide, ternary and multicomponent carbides, thorium carbide hydrides, nitrides, oxides, and borides, and ternary carbides with halogens. The particular interest of these compounds stems from the involvement of  $^{232}\text{Th}$  in breeder reactors. There is an exhaustive discussion of preparation and properties of these compounds, and also, where appropriate, of chemical reactivity. However, the products rarely include characterisable thorium compounds of interest to synthetic organometallic chemists. The volume should be in all chemical libraries: it will not appeal directly to many organometallic chemists.

G.J. Leigh

AFRC IPSR Nitrogen Fixation Laboratory  
University of Sussex  
Brighton, BN1 9RQ  
UK

*Gmelin Handbook of Inorganic and Organometallic Chemistry, 8th Edition, Osmium Part A/1, Organosmium Compounds*  
Springer Verlag, Berlin, 1992, pp. 283 + xi. DM 1598  
ISBN 3-540-93467-5

Hitherto, no volume has been published in the Gmelin series on organosmium compounds. This is the first, and deals with the literature on some 670 mononuclear (*i.e.* containing one osmium atom though other metal atoms may be present) organosmium compounds at least to the end of 1990. It is not stated how many volumes are to follow. Several of the compounds contain more than one osmium–carbon bond, and this may involve one alkyl, aryl, acyl, or alkynyl group (120 compounds) or one carbonyl ligand, or one  $\eta^2$ -ligand where only one of the donor atoms is carbon.

The format follows the usual Gmelin style, starting with methyl and substituted methyl compounds, and

gradually moving to more bulky ligands, ethyl, phenyl, *etc.* The tabular compound by compound presentation, as well as the indices, allow easy and rapid identification of compounds. As usual, preparation, structure, and physical properties are described in detail. The references are gathered together in sections after each group of compounds, which makes the original literature easily accessible.

Of course, the treatment has the defects of a compound-based approach. However, it reaches the usual excellent Gmelin standards. It even uses somewhat disregarded IUPAC recommendations, such as “didentate” rather than “bidentate”. This volume should be accessible to anyone concerned with organosmium chemistry.

G.J. Leigh

AFRC IPSR Nitrogen Fixation Laboratory  
University of Sussex  
Brighton, BN1 9RQ  
UK

*Gmelin Handbook of Inorganic and Organometallic Chemistry, 8th Edition, Molybdenum Supplement Volume B / 7, Compounds with S*  
Springer Verlag, Berlin, 1992, pp. 351 + xiv. DM 1985  
ISBN 3-540-93650-5

The literature for this survey has been covered to the end of 1989. It deals with binary molybdenum sulfides and sulfide ions. These materials have been extensively investigated because of the industrial uses of the molybdenum–sulfur system, not the least in hydrodesulfurization and in rechargeable batteries. In addition, there has been a great deal of work on polymolybdenum ions, such as  $\text{Mo}_3\text{S}_4^{4+}$  and  $\text{Mo}_3\text{S}_9^{2-}$ , and even as far as  $\text{Mo}_7\text{S}_8^{8+}$ . The treatment differs from that of other volumes, in that the material does not lend itself to easy tabulation by compound.

I have calculated that there is a roughly linear relationship between the prices of Gmelin volumes and the number of pages. This suggests that the preparation of the content makes a relatively small contribution to the overall cost. Organometallic chemists will find relatively little of direct interest in this large volume, and, considering the price, will probably sense