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Book reviews

Gmelin handbook of inorganic chemistry, 8th edition, *Th — Thorium, Supplement Volume C3: Compounds with Nitrogen*, Springer-Verlag, Berlin, Heidelberg, New York, Tokyo, 1987, xvi + 125 pages, DM351. ISBN 3-540-93554-1.

This is the eighth volume which the Gmelin Institute has published concerning the chemistry of thorium (System No. 44), and is the fourth to deal with the 'simple' compounds of thorium (the invaluable volume on coordination compounds, Supplement Volume E, was published in 1985).

This volume (C3) is concerned exclusively with compounds containing both thorium and nitrogen, principally the nitrides and the nitrates. The first section (43 pages) describes the preparation and properties of the binary nitrides, including ThN and Th_3N_4. The second section (14 pages) describes the ternary nitrides of thorium with other metals (including the metals of Groups 1, 2, 3, 4, 5, 6, and 7, the lanthanides and other actinides (U, Pu, Np and Am)), and is followed by short sections concerning thorium hydride nitrides (4 pages) and thorium amides and imides (3 pages). The final three sections describe the thorium nitride oxides (8 pages), thorium(IV) nitrates (39 pages), and nitrato complexes (17 pages). The penultimate section includes, along with thorium(IV) nitrate and its hydrates, the oxide nitrate, the peroxide nitrate, and the hydroxide nitrate systems and their hydrates, and the final section discusses, inter alia, salts of $[Th(NO_3)_6]^{2-}$.

Although thorium nitride (ThN) is no longer as important as it once was (with the decreasing technological importance of the nuclear thorium fuel cycle), it is useful to have all the relevant data accumulated in one volume. Of more interest to the coordination chemist is the section describing the complex nitrates. Apart from their obvious importance in the extractive chemistry of reprocessed nuclear fuels, the structural chemistry of the nitrato complexes of thorium is fascinating in its own right. Indeed, it is somewhat out of place in this volume, and might have been more appropriately placed in Supplement Volume E.

It is an invaluable feature of this volume that so many of the references are to non-standard sources, often of difficult availability. This book, intelligently and clearly written by R. Benz, A. Naoumidis and D. Brown, will clearly remain the definitive text for many years. It is a model of quality production, and impressive use is made of clear and relevant figures (38, in total). However, although an important part of the set of volumes describing the compounds of thorium, this volume is of limited interest to the organometallic chemist. Nevertheless, it is clearly a volume which must be acquired by all libraries attached to atomic research establishments, and the final section is of great interest to coordination chemists.

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