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Book reviews

Gmelin Handbuch der Anorganischen Chemie, 8th Edition. Hauptwerk, System Nr. 61. Silber, Teil B, Die Verbindungen, Lieferung 4, Verbindungen mit Phosphor, Arsen, Antimon, Wismut und Metallen, R. Keim, editor-in-chief, Gmelin Institut für Anorganische Chemie der Max Planck Gesellschaft zur Förderung der Wissenschaften e.V., Springer-Verlag, Berlin/Heidelberg/New York, 1974, xxiii + 493 pages, DM 674, \$259.50.

Since inorganic chemists make up a large percentage of the readers of the "Journal of Organometallic Chemistry", we will briefly review selected new Gmelin volumes on inorganic compounds in addition to those of the new Gmelin series on organometallic compounds. The present volume treats compounds of silver containing the Main Group V elements, as well as silver compounds containing metals with Gmelin System numbers 20 (Li) through 60 (Cu); included are silver compounds containing the metals of Periodic Groups Ia and Ib, IIa and IIb, IIIa and the lanthanides, IIIb, IVa and IVb, Va, VIa, Mn, Ni, Co, Fe, Ac, Pa and U. Some of the many silver compounds listed find useful application in synthetic chemistry (e.g., AgPF_6 , AgAsF_6 and AgSbF_6 ; $\text{Ag}_2\text{Cr}_2\text{O}_7$, which in concentrated H_2SO_4 medium is a stronger oxidizing agent than $\text{CrO}_3/\text{H}_2\text{SO}_4$; AgMnO_3 , which oxidizes CO to CO_2 quantitatively; silver salts of various phosphate esters, which are alkylated by organic halides). Some are curious and may intrigue the organometallic chemist (e.g., " $\text{Ag}[\text{Co}(\text{CO})_4] \cdot 0.5\text{CO} \cdot 0.5\text{H}_2\text{O}$ "). But most compounds in this volume do not appear to have been used in reactions of chemical utility. Binary systems (e.g., Ag/As and Ag/Sb) also are covered, as are $\text{AgM}^{\text{V}}\text{M}^{\text{VI}}$ and $\text{AgM}^{\text{III}}\text{M}^{\text{VI}}$ compounds, such as Ag_3AsS_3 , AgSbS_2 , AgGaSe_2 and AgInTe_2 , some of which have interesting electrical and optical properties. Discussed in detail is Ag_2HgI_4 , whose temperature-dependent structural changes are accompanied by color changes which are the basis for this compound's use as a temperature indicator and as a component of invisible ink.

This volume is written in German, with marginal chapter and section headings and a table of contents being provided in English. There is no index; this presumably will not be available until a cumulative index to all silver compounds is provided in the next (and final) volume devoted to silver compounds. The literature coverage is complete through 1972, but some 1973 references are given.

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