Book Reviews

Gmelin Handbuch der Anorganischen Chemie
(Gmelin Manual of Inorganic Chemistry)
Tin, Part D, Alloys
Springer-Verlag, Berlin–Heidelberg–New York, 1974; 468 pp. (in German)

This volume of the well-known Gmelin series reviews the alloys of tin formed with antimony, bismuth, alkali metals, earth alkali metals, zinc, cadmium, mercury, aluminium, gallium, indium, thallium, rare earth metals, titanium, zirconium, hafnium, thorium and germanium.

The parts dealing with the single binary or multi-component alloys differ depending on the available literature data in volume and also in scientific level. Specially great differences can be seen in the chapters reviewing the physical properties of the alloys, which are nevertheless the most interesting and useful parts of the book.

The review of each alloy begins with the description of the diffusion properties of the components in solid and liquid state. This is followed by the phase diagrams of the systems. The formation circumstances and preparation methods are in most cases briefly discussed, but the detailed references enable the reader to find the most important original publications. In some cases special preparation methods are discussed in detail.

As already mentioned the most useful informations are collected in the chapters reviewing the physical properties of the alloys. This part of the book shows that the literature was really covered till the end of 1972. Resonance spectroscopic methods seem to gain importance in this field of structural research too. This is very well reflected in the relevant parts of the book.

The chapters reviewing the physical properties, electro-chemical behaviour and chemical reactions are written in a way to help the understanding of the bonding and structural problems of the systems.

The volume is very useful to all those working in the field of alloy chemistry or physics.

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Electronic Structure and Magnetism of Inorganic Compounds
Senior reporter P. Day, *Specialist Periodical Report, Volume 3,* The Chemical Society, London, 1974; ix + 433 pp.; price £ 14.

This book is the third part of an extremely useful series of "Specialist Periodical Reports" published by the Chemical Society dealing with the application of the various kinds of spectroscopy of electronic excited states to investigate the electronic structures of inorganic compounds.

The authors are the same of the previous volumes. The topics covered are reported in four different chapters: Electronic Spectra by P. Day, Natural and Magnetic Optical Activity by R. G. Denning, Magnetic Susceptibility Measurements by K. Gregson and Photoelectron Spectroscopy by A. Hamnett and A. F. Orchard.

There are some changes with respect to the scheme of the previous volumes. In particular there is no longer a separate chapter devoted to theoretical calculations whereas that on Photoelectron Spectroscopy is rather more extensive especially for the parts concerning the "Advances in Experimental Technique" "The Theoretical Aspects" and the spectra of Continuous Solids.

The book is excellent for the clear style and above all for the critical elaboration of the literature. The chapter on photoelectron spectroscopy is substantially improved over the corresponding ones of the previous volumes.

The report is extremely useful and must be recommended to any chemist who intends to investigate the electronic structure of inorganic compounds by means of spectroscopic techniques.

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