

Book review

Advances in Molten Salt Chemistry, Volume 5; edited by G. Mamantov, Elsevier, Amsterdam, Oxford, New York, Tokyo, 1983, x + 280 pages, Dfl. 200.00. ISBN 0-444-42238-2.

One important function of a book review is to bring to the attention of a general reader a book which he might otherwise ignore, and I find it hard to believe that a book entitled "Advances in Molten Salt Chemistry, Volume 5" would attract even a cursory glance from any respectable organometallic chemist. However, this would be a mistake, as this volume contains within it an extensive review of anhydrous room temperature molten salt systems, written by one of the leading experts in the field (Prof. C.L. Hussey, University of Mississippi). Although minor (selective) reviews have appeared previously, this is the first to tackle the whole subject in a comprehensive manner. These novel solvents are ideally suited for studying inorganic and organometallic complexes (as well as organic solutes), and are to be compared in excitement and scope with the impact which liquid ammonia created when first investigated as a solvent for inorganic chemistry. Although little exploited by organometallic chemists to date, these ionic liquids have been used to study, inter alia, the redox series $[\text{Fe}(\text{C}_5\text{Me}_5)_2]^{2+/+/0}$, $[\text{Ni}(\text{C}_5\text{H}_5)_2]$, $[\text{Ti}(\text{C}_5\text{H}_5)_2\text{Cl}_2]$, $[\text{M}(\text{CO})_6]$ ($\text{M} = \text{Cr}, \text{Mo}$ or W), $[\text{Fe}(\text{CO})_5]$, $[\text{Mn}_2(\text{CO})_{10}]$ and $[\text{Re}_2(\text{CO})_{10}]$, and it is of interest that polycyclic arenes (e.g. anthracene) dissolve in "acidic" $[\text{C}_5\text{H}_5\text{NBu}][\text{Al}_2\text{Cl}_7]$ to generate radical cations. The review is written in a scholarly style, and is to be highly recommended to all chemists who have an interest in extending the scope of organometallic chemistry. The volume also contains three other excellent reviews, concerning structural investigations of molten salts by diffraction methods (J.E. Enderby and S. Biggin), vibrational spectroscopy of molten salts and related glasses and vapours (M.H. Brooker and G.N. Papatheodorou) and the extraction of metals by molten salt electrolysis of sulphides (N.Q. Minh and N.P. Yao), but these will be of little interest to the organometallic chemist. The volume is reasonably priced and, within the limitations of camera-ready-copy, well produced. It is worth purchasing as an isolated volume, as it stands apart from the earlier books in the series.