

Book Review

Coordination Polymerization, by C. C. Price and E. J. Vandenberg, Plenum Press, New York and London, US\$ 42.50

In the 19th volume of the Polymer Science and Technology series skilled researchers, actively involved in the rapidly expanding field of the polymerization of unsaturated hydrocarbon and heteroatomic monomers, present results of their recent work and provide a state-of-the-art review of the synthesis, characterization and properties of these classes of polymers.

The topics deal with a number of aspects having both theoretical and synthetic significance. They include two works on oxirane monomer polymerization through organozinc compounds, and two illuminating studies on the stereochemistry of dimethylthiiranes and alkyl-vinyl ether polymerization.

New polymers and copolymers of ω -epoxyalkanoates esters are presented, that can be hydrolyzed to polyelectrolytes of high molecular weight.

A catalyst of the "second generation", extremely active for high temperature polymerization of ethylene, is reported. Theoretically attractive are a π -allyl derivative of scandium (as an example of a catalyst that does not need a co-catalyst for olefin polymerization), and a soluble vanadium system for the "living" coordination polymerization of propylene. Some concepts on the mechanism of Ziegler-Natta olefin polymerization by "in bulk" and supported type catalysts are discussed. References covering the scientific literature up to 1980 and sometimes 1981 are listed, but their number does not seem adequate to give a comprehensive view of the many important contributions existing in this field.

The book can provide specialist support to researchers involved in the fascinating area of polymer chemistry.

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Extended Linear Chain Compounds, by J. S. Miller, Plenum Press, New York and London, US\$ 55.—.

The book deals with a wide class of linear chain compounds, both organic and inorganic, with emphasis on their conducting properties.

A novel class of polymers based on Hg chains characterized by a very unusual electrical behaviour is described, along with crystallographic measurements and chemical and physical characterization. Electron paramagnetic resonance, nuclear magnetic resonance and other magnetic techniques are discussed to provide precise and extensive information about paramagnetic solids, thereby suggesting the starting point for more complete analyses of their optical and transport properties.

The physicochemical properties of 7,7,8,8-tetracyano-p-quinonedimethane or its adducts, whose practical importance arises from their possible applications as ion-selective electrodes, junction devices and transducers, are discussed.

A chapter is devoted to polypyrrole, a polymer showing particularly attractive features for the preparation of conducting films, without the necessity of oxidative post-treatments.

The chemistry of 1,2-dithiolene complex, as well as their crystal structures and electrical and magnetic properties, are reviewed and discussed.

A survey of synthetic routes utilized to prepare mono-dimensional substances is also provided.

Each chapter is supplied with an up-to-date, thorough list of the pertinent literature up to 1980, and in several cases 1981 and 1982. This book contributes to modern knowledge of the solid-state-physics in its various aspects, and will be especially useful to all those involved in the chemistry and physics of conducting chain substances, and even to scientists concerned with material science and technology.

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