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BOOK REVIEW

Ziegler–Natta Catalysts and Polymerizations. By JOHN BOOR, JR. Academic Press, New York, San Francisco, London, 1979. 670 pp. $65.00.

This book provides a comprehensive and structured discussion of the chemistry of Ziegler–Natta polymerization catalysis, written by an investigator who made significant contributions to the field. Extensive amounts of literature are reviewed, but the author has exercised judgment in selecting the most important results, and has added his own critical assessments of their significance. Being a single author text, rather than a collection of symposium papers or contributed chapters, it has more coherence than most books in this area. Its usefulness is further enhanced by careful cross-referencing and by compilation of earlier reviews. The author's background has enabled him to present the scientific results within the context of the commercial development of the field.

After three introductory chapters, which provide an overview and historical survey, six chapters are devoted to the chemical nature and physical state of Ziegler–Natta catalysts and related transition metal salt catalysts. The physical state of the polymer and growth of the polymer particle are discussed in two additional chapters. Mechanisms for initiation, propagation, stereochemical control, and termination or transfer are considered in detail (six chapters). Chapters on kinetics, details of the polymerization of varied monomers, copolymerizations, block polymerizations, and other uses of these and related catalysts follow.

It appears that this will be a very useful book both to the student and for the practicing polymer or catalysis chemist. Generally, the material is logically and clearly presented, and it interrelates the many disciplines which have been brought to bear in the study of Ziegler–Natta polymerizations. Occasionally, sections discussing the mechanism appear somewhat less lucid than some other recent reviews of more limited scope; in part, this is a consequence of Dr. Boor's more comprehensive approach. The dust jacket suggests that the book was written especially for graduate chemistry and engineering students. Unfortunately, at the listed price, most graduate students will be using library rather than personal copies.

One unfortunate factor detracts from the potential impact of this book. Publication was delayed until 1979 from the time of Dr. Boor's tragic death in an automobile accident at the end of 1974. In part, the gap has been spanned by a supplementary computer-generated bibliography which includes additional literature published from 1972 through October 1978. However, in a fast-moving field, concepts of value are inevitably missed. (One obvious area of loss is an obsolete discussion on olefin metathesis.) Despite this limitation, the book will undoubtedly be an important one by virtue of its breadth and Dr. Boor's insight in the area.

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