

BOOK REVIEWS

Catalyst Design: Progress and Perspectives. By L. L. HEGEDUS *et al.*, Wiley, New York, 1987.

This is an interesting book which I enjoyed reading—but one that lives up to the title only in parts. Although catalyst design is in its infancy, a book on design should surely indicate how to go about designing a catalyst or, through examples, describe the process of design. Although interesting, this book only occasionally reaches this objective.

The text contains a series of essays by the authors. Somorjai describes a molecular surface approach to building of catalysts, a valuable essay in what goes on at the surface. There is little, however, to guide a catalyst design for a new reaction. Gates, discussing organometallic catalysts, comes closer to design by discussing the role of metals, of the number of metal atoms, of the oxidation state, and of the ligands in determining reactivity. There is information that could be used for a predictive design.

Bell covers metal-support interactions, but focuses mainly on chemical interactions. Mass transfer must, surely, be the most important property associated with the support. Boudart, on kinetics-assisted design, presents a useful summary of the role of kinetics—but

with little predictive power. Haag and Chen cover catalyst design with zeolites and come close to giving information useful to catalyst design—how acidity and pore size can be chosen to favor different types of reaction.

Aris, covering mathematical models in catalyst design, produces something which is almost understandable. However, a final section on multiplicity, for example, fails to recognize that industrial use demands the avoidance of such effects where possible.

Wei, in contrast, gives an excellent discussion of the design of hydrodemetallation catalysts and shows, by example, what a design is all about.

This is a useful book and one that deserves attention. The reader should, however, take the title with a grain of salt.

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