

Satterfield C N. *Mass transfer in heterogeneous catalysis*.
Cambridge, MA: MIT Press, 1970. 267 p. [Massachusetts
Institute of Technology, Cambridge, MA]

This work is a comprehensive and critical treatment from both a theoretical and practical point of view of the interrelationships between mass transfer and chemical reactions. A large variety of situations from the simple to the complex are treated and a number of sample calculations are presented to show the reader how the material presented can be used in practice. [The SCI® indicates that this book has been cited over 380 times since 1970.]

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"The majority of large scale chemical and petroleum processes utilize a solid catalyst, which is usually porous. Concentration and temperature gradients frequently arise between the bulk of the reacting fluid and the outer and/or interior surfaces of the catalyst. These affect the apparent activity and selectivity of the catalyst and can be a major factor in determining the economic feasibility of a process. Clearly these effects must be understood and be more-or-less predictable in order to interpret laboratory reaction studies, to scale-up processes to an industrial size and improve upon current operations.

"Theoretical analyses and data for use in the theories began to appear rapidly in the late fifties and Professor Thomas K. Sherwood (since deceased) and I decided that it was timely to attempt to present a unified status re-

port. The result was a brief monograph of 118 pages published in 1963 and entitled *The Role of Diffusion in Catalysis*.¹ (My young son, in grammar school at the time, referred to it as *The Role of Confusion in Catalysis*. He was evidently wise beyond his years!)

"Even at the time of publication it was apparent that a more comprehensive and critical treatment was needed, but Sherwood had other writing plans in mind, and so I embarked on the project alone. My objective was to develop a clear method of presentation of the field from both a theoretical and practical point of view that could be visualized and used readily by a chemist or chemical engineer without the necessity to master involved mathematical techniques. The goal was apparently met since the resulting book was described by one reviewer as, 'A carefully documented exposition of what is known, correlated and useful in (this) domain ...rich in data, correlation and examples of value to the practitioner.'² This may well account for the frequency with which it is cited.

"The book was translated into Russian in 1976 and I have been told that 'pirated' copies of the English edition have been published in the East. Although this was done without my prior knowledge or permission, I am gratified that these actions and the citation record indicate that the book has been truly useful.

"This book is available in a paperback reprint edition from the Department of Chemical Engineering, Massachusetts Institute of Technology, Cambridge, MA 02139."

1. Satterfield C N & Sherwood T K. *The role of diffusion in catalysis*.

Reading, MA: Addison-Wesley, 1963. 118 p. \$8.50

2. Carberry J J. Book review of Satterfield's *Mass Transfer in Heterogeneous Catalysis*.

Chem. Eng. Sci. 26:261, 1971.