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BOOK REVIEWS

Metal–Support Interactions in Catalysis, Sintering and Redispersion. Edited by S. A. STEVENSON, J. A. DUMESIC, R. T. K. BAKER, AND E. RUCKENSTEIN. Van Nostrand–Reinhold, New York, 1987. Pp. xii + 315, $62.95.

This book consists of two parts, the connection between which is not particularly close. The first part is a review, 129 pages in length, of metal–support interactions, mainly written by the Exxon scientists who discovered and explored SMSI; the second part, written entirely by Ruckenstein, and some 160 pages in length, concerns the sintering and redispersion of supported metal particles.

As to the first part, it is beyond question that the discovery of the SMSI effect was one of those rare seminal observations that initiated a gold rush of work, not only on the effect itself, but on supported metal catalysts in general. About 360 references are cited, and even this is not an exhaustive list, as this reviewer can judge from the citations to his own work. The first part comprising nine chapters does however give a quite complete and almost up-to-date overview of the state of play on SMSI and on metal–support interactions in general. There is minimal duplication or overlap between chapters, the style is generally clear and vigorous, and all those working in this area of catalysis will find this an invaluable compendium of information and ideas.

In passing, an objection to the indication of references in the text by the authors' names and year of publication must be registered: this gravely obstructs the easy flow of reading and contributes nothing more than a simple numeral would contribute. While on typographical matters, the oversized portions of the periodic table that are used symbolically to show variations and trends in properties are also much regretted: a simple tabular presentation would have been much more effective.

In the second part, the full title of which is "The Role of Interactions and Surface Phenomena in Sintering and Redispersion of Supported Metal Catalysts," Professor Eli Ruckenstein surveys in a quantitative fashion the physical factors responsible for interactions between metal particles and their supports, and their relationship to sintering and redispersion. This is a field to which Ruckenstein has made a great personal contribution, and the nine chapters, backed by some 220 references, all carry the stamp of authority. The only other comment which might be made here is that there is some danger of forgetting that a correct chemical description of the state of the catalyst must come before the application of physical concepts. Thus, for example, it is by no means clear that model catalysts prepared by metal evaporation correctly simulate those made by chemical means, in that the chemical glue at the interface may be altogether lacking.

In conclusion, it must be emphasized that everyone working with supported metals will wish to have ready access to this extremely useful and informative book.

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