

Matrix Isolation. A Technique for Study of Reactive Inorganic Species; by S. Cradock and A.J. Hinchcliffe, Cambridge University Press, 1975, vii + 144 pp., \$18.00.

On reading this book one immediately wonders to whom the book is directed. If it is to graduate students and potential research workers, then the lack of a bibliography is a very serious flaw. Considering this book was published in 1975 then the appearance of no individual reference beyond 1971 and only one review in 1973 does not aid the reader in investigating further. Certainly the bibliography should have been updated at least to include references to the reviews and books published up to mid-1975 and include a larger selection of important papers dating up to 1974-75. If the book was intended as an easy reading monograph the lack of bibliography is more understandable but still should be considered a flaw.

More specifically, the text covers matrix materials and their properties, matrix effects and the conditions for isolation, matrix diffusion and its applications, the cryogenic, vacuum, high temperature, discharge and photochemical techniques involved in the generation and isolation of matrices containing reactive species as well as the various forms of spectroscopy that can be subsequently applied to the study of the matrix-isolated species.

In this context one finds that the matrix Raman technique is very poorly handled, considering that reviews and articles on it were published in the early 70's.

With respect to the discussions of actual matrix chemistry, mention is made of molecular fragments and unusual metal compounds generated by high temperature, discharge and photochemical techniques. This coverage tends to be somewhat like a listing of species. When contradictory data are cited it is particularly frustrating that the interested reader cannot study the arguments involved in more detail because of the lack of a reasonable bibliography.

In a number of cases the work referred to is very out of date. For example, the purported alkali metal disuperoxides $M(O_2)_2$, were corrected and published in 1973 as $M(O_4)$ species containing a five-membered, puckered ring. $Pt(CO)_4$ is cited as the only carbonyl to form in the Pt atom-CO cocondensation reaction, yet all four species $Pt(CO)_n$ (where $n = 1$ to 4) were shown to form in 1973.

As a quick introduction to cryochemical methods of studying highly reactive species, the book will certainly be of interest to the advanced undergraduate student. However, it is likely to be of little value to graduate students and research workers intent on entering this still young and fascinating field.

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