

Porous Silica

Its Properties and Use as Support in Column Liquid Chromatography

By K. K. Unger, *Journal of Chromatography Library* Vol. 16, Elsevier Scientific Publishing Company, 1979, pp. 336, price \$ 52.25.

Silica in all its various forms has been used in most types of chromatography and porous silica (often called silica gel) is probably the most important particulate material used in modern liquid chromatography, either as a support or as a stationary phase in its own right.

Active solids like porous silica are by their nature difficult substances to produce with consistent properties and it is probably true to say that the development of HPLC has depended in no small measure on the commercial availability of silicas with well defined properties. Such properties include particle shape and size, pore size distribution, surface area and surface structure. All of these are important aspects of surface chemistry. The connection between surface chemistry and chromatography has always been obvious and chromatographic methods are available for measuring adsorption isotherms and hence the calculation of thermodynamic data, more importantly for physical adsorption but also for chemisorption. However, no book previously published has so thoroughly investigated the surface properties of a material in relation to its uses in chromatography as the one under review. Such an approach has long been needed. We are often reminded that the most important part of a chromatograph is the column. By the same token, the most important part of the column is the packing and this book very effectively underlines that statement.

The book is a mine of information and the table of contents, which is very detailed in the contemporary style, reflects the amount of information condensed between the covers. There are nine chapters: Chapter 1 deals briefly with the general chemistry of silica but Chapters 2, 3 and 4 which deal with the pore structure, surface chemistry and particle structure respectively take up some 50% of the book. Chapters 5 to 9 deal with the essentially chromatographic aspects, including packing procedures and performance; liquid-solid chromatography; silica as a support, silica in ion-exchange and finally, silica in size-exclusion

chromatography (gel permeation). Each chapter is fully referenced — 720 references in all, and there is a comprehensive index. About 150 commercially available silica-derived packings are listed with their properties in an appendix — a very useful feature.

Although a relatively small book it must be regarded as a reference work and as such should find its way into every laboratory using liquid chromatography. It is very unlikely to be superseded in the foreseeable future.

R. Stock

Recent Developments in Chromatography and Electrophoresis

Chromatography Symposia Series — Volume I

Edited by A. Frigerio and L. Rénoz, Elsevier Scientific Publishing Company, 1979, price \$ 58.50.

This book, which is the first of a new series, contains the 34 papers presented at the 9th International Symposium on Chromatography and Electrophoresis held at Riva del Garda, Italy, in May, 1979.

The full spectrum of chromatographic techniques is represented but the applications show a strong bias towards biomedical analysis. In the main, the papers are of a research nature and therefore could be of very restricted interest. On the other hand, the review articles, such as that on isoelectric focussing, could find a wider appeal.

These proceedings have been produced with admirable speed but have suffered in terms of the quality of printing and in particular the reproduction of figures and diagrams.

In recent years, there has been a tendency to publish papers presented at symposia in special editions of the established journals. There is clear evidence that this procedure maintains excellent standards of scientific content and graphical presentation through the good offices of the educational staff. On the evidence of the present text it seems to the reviewer that this apparent change of policy on the part of the publisher is a retrograde step.

M. B. Evans