
CHROMATOGRAPHIC METHODS

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PREFACE

In recent years the techniques of chromatography have progressed rapidly. However, the aims and objectives of the First Edition, as quoted below, are just as relevant today as they undoubtedly were in 1963.

'The various methods of separating mixtures which are grouped under the general name *chromatography* are now well known and widely used. Since the inception of chromatography as a column technique in 1903, the principal landmarks in its progress have been its virtual rediscovery in the 1930s, the invention of synthetic resins in 1935, the introduction of paper chromatography in the early 1940s and finally, the development of gas solid and gas liquid chromatography in the late 1940s and early 1950s.

Subsequent expansion in the use of chromatographic methods has been rapid and continuous, with the result that in the last 15 years a substantial volume of literature on the subject has appeared, dealing not only with particular separations but also in much specific detail with improvements in technique.

Many specialist books have been published. Some are concerned only with particular aspects of the subject. Others are essentially literature surveys which are usually very comprehensive (though somewhat uncritical) and hence rather formidable to someone seeking an introduction to chromatography. The present book aims to present a short account of the techniques in current use.'

The new edition of *Chromatographic Methods* reflects the many changes that have occurred right across the field of chromatography. Development of new materials, for instance adsorbents and polymers, and advances in electronic instrumentation and computing techniques have radically changed the practice and implementation of the various chromatographic techniques.

The principles of chromatography remain the same however, and therefore several aspects of the earlier editions have been retained, but with a new emphasis. Thus, there is an updated but more condensed coverage of plane

chromatography; an expanded chapter on gas chromatography to reflect the developments of the past ten years, particularly those advances in column and detector design; a new substantial chapter on high performance liquid chromatography, currently the most rapidly expanding analytical technique. Developments in spectroscopic instrumentation have enabled combination techniques such as GC-MS, GC-IR, HPLC-MS, HPLC-IR to increase in importance and these are discussed in Chapter 7.

The march of technology has included rapid developments in both analog and digital electronics, which is reflected in the changes in instrument design and capabilities. This includes control of instrument parameters and collection and processing of data. Chapter 8 presents an overview of the subject to assist the analyst's understanding and evaluation of modern instruments and data processing techniques. The final chapter comprises a considerably extended and modified series of experiments which reflect the current practice of chromatography.

The individual chapters have been written, in general, to be self-contained so that readers may dip into the text and pursue the study of particular topics without necessary reference outwith the particular chapter.

Although the chromatographic instrument capable of totally automated method development is now available in, for instance HPLC, there is no substitute for a sound understanding of the principles and practice of chromatography. The role of the chromatographer may have changed in recent years but his expertise is still a valuable essential in the analytical laboratory.

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