

## Foreword

I consider the *Handbook of GC-MS* as a great contribution in the field of analytical chemistry. Dr. Hans-Joachim Hübschmann's vast hands-on knowledge and experience in handling with the GC-MS technology is well reflected throughout the book, and I strongly feel that it will offer a comprehensive support to the students, researchers, and practitioners of GC and GC-MS to deal with various routine and innovative applications in the field of food and environmental chemistry. Importantly, it endeavors to bridge the gap between theory and practice.

In food and environmental analyses, the chemists routinely face numerous challenges starting from sample preparation to optimization of the instrumentation method. Every stakeholder demands a rapid turnaround time for analysis with an expectation that a sample be tested across the laboratories with comparable proficiency. With every new set of sample matrix, the analytical issues and challenges seem to get compounded. Furthermore, analysis of any food or environmental samples for contaminant residues is a challenging task because the residues are often present in minute trace levels, typically at sub-ppm concentrations. Hence, a laboratory chemist needs to have a thorough understanding of the facets of the instrumentation technology so that it can be effectively utilized for measurements with satisfactory precision and accuracy. This consideration places a great importance on scientific reliability of analysts' technical skills, and this fundamental aspect is well tackled throughout this Handbook.

While operating a GC-MS instrument, the chemists routinely face diverse kinds of problems, which include lack of repeatability in analyte response, matrix effect, and so on. As a ready manual for the users of GC and GC-MS, this Handbook provides an answer to all such problems. The book has explained the fundamental concepts of sample preparation and provides an in-depth description of sample introduction to the GC system, column selection, and various advanced aspects, for example, 2D GC separations. The detection techniques described include the relatively simple detectors such as FID with a gradual transition to the complicated mass spectrometers, thus covering almost every single aspect of the GC and GC-MS technology with befitting explanatory examples.

It is a pleasure to commend this well-conceived book that is topical and contributes to the body of analytical methodologies involving GC and GC-MS technology. This is the kind of one-stop reference book that should be on the shelf of every laboratory that works with GC or GC-MS.

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