Preface

Over the years, we have found thermoanalytical techniques to be powerful, highly versatile tools for conducting research projects in the fields of thermoplastic, thermoset and elastomer processing, practical development and testing, tribology and bonding technology, electronics and material composites, materials testing and materials failure testing. By virtue of the vast number of experiments we conducted over this period and the fact that we employed instruments from different manufacturers as well as complementary techniques, we have gained major insights into both the advantages and the daily tribulations associated with thermoanalytical methods. These span all aspects of thermal analysis: the techniques themselves, the preparation of samples, performance of experiments and interpretation of results as well as the practicability of the techniques in real life and the scientific explanations of the relationships involved.

Such work calls for seamless, across-the-board cooperation between production technicians, mechanical engineers, materials scientists, chemical engineers, physicists and chemists, scientists, project engineers and laboratory staff, whether they be specialists or non-specialists. For these people, thermal analysis is first and foremost a working tool and not an end in itself. And it is for these people and the many others facing similar problems that we have written this book – to serve firstly as an aid to practical work, to handling instruments, preparing samples, estimating settings, interpreting results, assessing accuracy and reproducibility, warning against over-estimation, and critically assessing the interpretations. The second goal is to acquaint them with the many advantages and vast potential that thermoanalytical techniques have to offer.

There will undoubtedly be inadvertent omissions in the book – as well as room for improvement. Your feedback is always welcome. We would like to express our appreciation to the many friends, colleagues and assistants who offered us helpful comments and encouragement, to whom we are indebted for their suggestions and advice and without whom this book would never have contained the wealth of information that it does. Our sincere gratitude is extended to Prof. Dr. Tim Osswald, Prof. Dr. Jozef Varga, Prof. Helmut Vogel, Dr. Eva Bittmann, Prof. Dr. Erich Kramer, Dr. Klaus Könnecke, Dr. Jens Rieger, Dr. Herbert Stutz, Dr. Ingolf Hennig, and from the Lehrstuhl für Kunststofftechnik, to Dr. Sonja Pongratz, Dr. Johannes Wolfrum, Prof. Dr. Michael Schemme and Juditha Hudi – all of whom assisted, advised and positively criticized our work in some form or another. We would also like to thank Raymond Brown for the translation and Dr. Duncan M. Price for the critical review of the work. Last but by no means least, we would like to thank the "Grand Old Lady of Thermal Analysis", Prof. Edith Turi, for encouraging us unremittingly and endorsing our approach to the subject matter.

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