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Atlas of Plastics Additives
Analysis by Spectrometric Methods

With 62 tables and 772 FTIR spectra

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Twenty years ago the 2nd edition of the text and spectra volume of Friedrich Scholl on the analysis of plastics additives was published, it can be found in most laboratories. He deceased shortly after his retirement, and my coworkers and I took over his heritage. Collecting samples of additives of all kind as well as the measurement of their FTIR spectra was done by Sigrun Wittmann, Liu Min, Mark Amberg, Vera Brunne, Astrid Baum and myself; my wife Doris digitised the structures. 752 spectra of the more important additives were selected from a total of 1630. To facilitate access for the analyst, the “triplets” (spectrum with peak table, structure, legend) were arranged according to a decimal system (technological class, chemical composition). Registers (chemical and trade name, empirical formula) help one to find the desired spectrum.

Literature on (predominantly) spectroscopic methods in the analysis of plastics additives was evaluated until 2001. Methods and experiments were critically reported; wherever possible the results were compressed in tables. In order to keep the volume of the book within limits only elementary methods for the separation of additives and matrices were described (2nd chapter). The chromatographic separation of mixtures had to be omitted; it is amply described in the book of Scholl and in later monographs. The reason why chapters 3 and 7 are so large is very simple: (FT)IR and mass spectrometries are by far the most important methods for identification and quantitative determination of additives. They are also suitable for combination with chromatographic and other analytical methods.

I owe gratitude to my coworkers for their zeal as well as to Stiftung Industrieforschung for generous support of our research, to many chemical companies for providing samples and to numerous colleagues sending reprints. Many thanks go to my colleagues B. Schrader (Uni. Essen), K.-W. Brzezinka (BAM, Berlin-Adlershof), K.-J. Eichhorn and D. Fischer (IPF Dresden) for measuring the Raman spectra of problematic samples. Finally, many thanks go to the editorial staff of Springer Verlag and to medio Technologies (producer) for skill and carefulness and for their patience with the author.

Dietrich O. Hummel
Summer 2002
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