



Book review

Characterisation of Polymers by Thermal Analysis

W.M. Groenewoud (Ed.), Elsevier, The Netherlands, 2001, Regular price Euro 188.32/USD 204.50, 392 pp., Hardbound, ISBN: 0-444-50604-7[☆]

The book aims to provide its readers with ‘tools and hints to support their own interpretation of ‘raw’ thermal analysis (TA) results’. In addition, ‘it is written from a materials characterisation rather than from a TA point of view’.

The reader probably wonders what this book adds to the existing TA literature focusing on polymers, which can be divided into two categories: textbooks that systematically and with a high degree of consistency present the state of the art in thermal analysis and/or calorimetric techniques, and books that discuss applications of these techniques in relation to the vitrification, crystallisation and melting of polymers and polymeric materials.

The book under review here illustrates how the author has used TA in materials’ development and improvement throughout his long industrial career. The book gives an excellent impression of the wide variety of research topics encountered by the author, who worked for a multinational and had ample resources at his disposal. He was clearly allowed scope for making his own contribution to the modification of equipment and the development of methods, and was duly appreciated for this work. The book, moreover, shows that he built up a position in the broader context of materials research within his company, transcending the boundaries of ‘pure TA’. It is also clear that despite the breadth of the subject matter, the author has succeeded in giving his book the depth that one might expect from such a work. The current job rotation schemes in industrial companies, no doubt breed researchers with a broad expertise and a broad

range of skills, but at the same time they make it almost impossible for researchers to deepen their knowledge.

The book passes in review the applications of a wide range of TA techniques, including modified versions of these techniques and combinations thereof. The author also pays attention to techniques that are seldom found in other books, such as thermodilatometry and its variants: length dilatometry (TMA) and the almost extinct volume dilatometry technique. In addition, the book has a large section on the correlations between chemical structure and physical properties, which gives it an added dimension. Several applications are specific to the company the author worked for. Chapter 9, for example, contains a 41-page section on how the author’s TA work supported the development of polyketone. Although there are probably few researchers who are interested in this material, this section contains a lot of interesting information. Apart from this chapter, the reader will have little difficulty in translating the possibilities outlined in the book to his own applications. Those who read the book with this purpose in mind may well find it very stimulating as it contains many useful ideas, tips and tricks and helps them select the TA technique that best suits their purpose. A case in point is the final chapter, ‘Thermal-analytical case studies’. One would wish that all experienced TA specialists, who have been part of the rise of TA and have helped turn it into a success story, would give their hints in such a concise format, thus preventing the wheel from being reinvented over and over again. By publishing cases in the TA bulletin issued by TAWN (the Dutch TA Association), the author has set an example that is worth following.

The author’s notational conventions are sometimes a little unusual: he persistently uses the term “values” (T_m-value; H_f-value, etc.), for example. The book lacks an explanatory list of symbols; page 185 contains a peculiar reference, Ref. 25: ‘Illers (water effect in nylons)’; the author uses both the terms mass and