

Book Review

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**Modern polyesters: chemistry and
technology of polyesters and
copolyesters**

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The progression of polyester technology and the diverse applications of these polymers is described in this book and reinforces the synopsis of this title: 'polyesters are ubiquitous materials in modern life'. Indeed, the wide range of applications of polyesters and their associated copolymers is detailed within this well-written book and includes utilization of polyesters in coatings, glass-fibre-reinforced polyesters, which were first employed during the Second World War, films and 'tuneable' fibres that exhibit strengths and flexibilities comparable to nylon. Further coverage is provided that outlines the use of polyesters as recyclable bulk materials in injection moulding, and as fibres with applications in textiles and as surgical absorbable sutures.

The book is divided into seven main sections (Historical Overview,

Polymerisation and Polycondensation, Types of Polyester, Fibres and Compounds, Depolymerisation and Degradation, Liquid Crystal Polyesters and Unsaturated Polyesters), each comprising several chapters written by experts in the fields. The chapters are comprehensive in nature and provide practical guides for polyester synthesis/processing. Furthermore, each chapter has an excellent bibliographic subsection, thereby rendering this title an excellent starting point for key literature and patent references for chemists embarking on projects in the polyester chemistries. The book begins with a historical overview of polyesters and their related copolymers, and describes the first commercially important class of polyesters that were derived initially from phthalic anhydride and glycerol. The seminal work of Carothers and coworkers in 1928 on aromatic polyesters derived from the polycondensation of dicarboxylic acids with dihydroxy alcohols also receives appropriate coverage, which reflects the key role that poly(ethylene terephthalate) has in a wide range of modern applications. Other key developments, such as polycarbonates formed from aromatic diols and a carbonic acid source, are also highlighted. The wide variety of monomers

and catalysts that have been used to date are discussed, although limited mechanistic detail of the catalysed polymerization processes has been described. This omission, however, does not detract from the substantial body of information on polyester chemistries, which is of interest to the academic and industrial sectors alike. There is an interesting economic discussion on the infrastructure needed for recycling of polyesters and the potential financial impact of such an undertaking.

The book was informative from the outset, with excellent provision of high-quality figures, schemes and tables. The editors have ensured that the text is written clearly in a consistent style and supplemented with a comprehensive set of references to enable the reader, if he/she so desires, to research the subject in more detail. In summary, this book should be a key acquisition for any research chemist seeking to investigate polyesters, both in terms of their synthesis and resultant properties.

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