

## REVIEWS

**Developments in Polymer Photochemistry—2.** Edited by N.S Allen. Applied Science Publishers Ltd, London 1981. ISBN 0-85334-936-3. Price: £30.00.

This is the second book in the series, and follows swiftly on the heels of Volume 1. As in the case of its predecessor, the book deals with a diversity of polymer photochemistry topics, each written by different authors and presented with individual styles of approach. In contrast to the previous volume in the series, however, there is a greater measure of continuity throughout, and five of the seven chapters show an obvious interdependence, dealing with aspects of polymer photodegradation and photostabilisation.

The first chapter deals with the use of sulphonium salts in photoinitiated polymerisation, and is particularly useful because of the currently increasing interest in this field. The main types of sulphonium initiators and synthetic routes to these are discussed, together with such topics as photosensitisation and the mechanisms of their action. Chapter 2 is entitled 'Photografting of monomers on to synthetic polymer substrates', photografting on to cellulose having been reviewed by the same author in the previous volume. This chapter contrasts markedly with others in the book in that it is essentially a table listing the various types of grafting systems described in the literature. Whilst no doubt useful to the specialist in this field as a source text, the average reader will be disappointed in the lack of critical discussion.

The third chapter deals exhaustively with photo-oxidation reactions of phenolic antioxidants, and is a very thorough (347 references) though readable review. The fourth and fifth chapters are related, the former dealing with photocatalytic oxidation of polypropylenes and polyundecanoamides and the latter with photodegradation and photo-oxidation of cellulose. On a more general note, Chapter 6 reviews the mechanisms involved in polymer photostabilisation, whereas the final chapter is more restricted, and deals with hindered piperidine compounds.

used as photostabilisers for commercial polymers. The latter chapter provides a useful review of the currently available evidence for the mode of action of these valuable stabilisers, and concludes that the derived nitroxyl radicals are the principal stabilising entity, although these play a multifunctional role

An overall impression of this book is that it is an improvement on the previous volume in the series, and this is largely because of the higher measure of continuity of the topics dealt with. Thus the book will prove very useful to anyone concerned with polymer photodegradation and photostabilisation, and can be recommended unreservedly for the library shelf. However, the book is unlikely to attract many private buyers because of the high price

J. GRIFFITHS

**Fats and Oils: Chemistry and Technology.** Edited by R. J. Hamilton and A. Bhatl. Applied Science Publishers Ltd, London 1980. ISBN 0-85334-915-0. Price £24.00

This book is based on a symposium on recent advances in the chemistry and technology of fats and oils, held in December 1979. As could be expected, it reflects the continuing high level of activity in technological research stimulated by changing circumstances.

Changes in attitude to the design of processing equipment, whereby saving in power consumption is given preference over capital outlay, are described, covering mechanical pressing, cooking, milling and extracting. Similarly signs of change in attitude towards the processes themselves are indicated, particularly with respect to the potential value of 'physical' refining.

The constant demands for new modifications of existing natural products are illustrated by the examples of the continuing search for cocoa butter substitutes and extenders and of the ingenious *in vivo* transformation of lamb, beef and bovine milk fats to forms unsaturated to a fashionably high degree. Contrarywise, the spur to utilise to best advantage a raw material suddenly appearing on the market in greatly enhanced quantity is demonstrated by an account of the production and utilisation of Malaysia's palm oil.

A review of problems solved and unsolved in the edible oil industry portrays the contribution of basic scientific research to technological development and the early chapters of the book reveal that outposts of activity in this field still persist.

Recent developments in analytical techniques with reference to fats and oils are outlined and a particularly useful description is given of the application of broad band NMR, in both continuous wave and pulsed forms. Brief but comprehensive accounts are given of natural oxygenated fatty acids and their kindred, the prostaglandins and thromboxanes, representing developments in the biochemistry of the lipids and a somewhat lengthy chapter on the synthesis of triglycerides shows that this time-honoured activity still thrives.