



# POLYMER DEGRADATION AND STABILITY

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### DESCRIPTION

*Polymer Degradation and Stability* deals with the **degradation reactions** and their **control** which are a major preoccupation of practitioners of the many and diverse aspects of modern **polymer technology**.

Deteriorative reactions occur during processing, when polymers are subjected to heat, oxygen and mechanical stress, and during the useful life of the materials when oxygen and sunlight are the most important degradative agencies. In more specialised applications, degradation may be induced by high energy radiation, ozone, atmospheric pollutants, mechanical stress, biological action, hydrolysis and many other influences. The mechanisms of these reactions and stabilisation processes must be understood if the technology and application of polymers are to continue to advance. The reporting of investigations of this kind is therefore a major function of this journal.

However there are also new developments in polymer technology in which degradation processes find positive applications. For example, **photodegradable plastics** are now available, the recycling of polymeric products will become increasingly important, degradation and **combustion studies** are involved in the definition of the fire hazards which are associated with polymeric materials and the microelectronics industry is vitally dependent upon **polymer degradation** in the manufacture of its circuitry. Polymer properties may also be improved by processes like curing and grafting, the chemistry of which can be closely related to that which causes physical deterioration in other circumstances.

Radiation of various kinds is used to initiate many of these modern technological processes so that **polymer photochemistry** has come to a new prominence and finds a major place in this journal.

The study of all these processes has made extensive use of modern instrumental analytical methods and the various spectrometric, chromatographic and thermal analysis techniques have been particularly prominent.

There is clearly a strong common bond between investigations in various parts of the field. *Polymer Degradation and Stability* provides a forum for the publication of their work.

### AUDIENCE

Polymer Scientists and Technologists.

## IMPACT FACTOR

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### *INTRODUCTION*

*Polymer Degradation and Stability* deals with the degradation reactions and their control which are a major preoccupation of practitioners of the many and diverse aspects of modern polymer technology.

Deteriorative reactions occur during processing, when polymers are subjected to heat, oxygen and mechanical stress, and during the useful life of the materials when oxygen and sunlight are the most important degradative agencies. In more specialised applications, degradation may be induced by high energy radiation, ozone, atmospheric pollutants, mechanical stress, biological action, hydrolysis and many other influences. The mechanisms of these reactions and stabilisation processes must be understood if the technology and application of polymers are to continue to advance. The reporting of investigations of this kind is therefore a major function of this journal.

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3. Ratner BD, Yoon SC, Kaul A, Rahman R. In: Planck H, Syre I, Dauner M, Egbers G, editors. *Progress in biomedical engineering, Vol. 3: Polyurethanes in biomedical engineering II*. Amsterdam: Elsevier, 1987. p. 213.
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