

Preface

In the last fifty years, polymer science, both fundamental and applications, has developed in coordination with advances in analytical apparatus equipped with new computational systems. When a single crystal of polyethylene was found in a dilute xylene solution 40 years ago, scientists were impressed by the beautiful architecture of the single crystal showing folded lamellae structure measured by electron microscopy. At the same time, thermal analyzers equipped with automatic heating systems were introduced and the melting behaviour of polymers was observed. The most astonishing feature of melting pattern of polymers at the time was that the melting peak was not always observed as a single peak but as multiple peaks. It was found that the thermal history of polymers affects the thermal properties of polymers. During these 40 years, thermogravimetry (TG), differential thermal analysis (DTA), differential scanning calorimetry (DSC) and viscoelastic measurement apparatus have widely been used in academic and industrial laboratories focusing on polymer science in Japan. A large number of scientific papers and technical data including thermal data have been published. Recently, the thermal properties of polymers showing special functions have received particular attention.

In this Special Issue, two research fields were focused on synthetic polymers with a special character and biocompatible polymers. Two review papers were invited for each of the above fields. 'Thermoanalytical studies on speciality polymers in Japan' by Dr. Y. Maeda and 'Thermal analysis of environmentally compatible polymers containing plant components in the main chain' by Professor H. Hatakeyama. In addition to the above two review papers, 17 contributed papers are included in this special issue. I would like to express my sincere thanks to the authors of the above papers and reviews and at the same time thank the referees who eagerly carried out their voluntary work. I hope that fruitful discussion and exchange of information will take place between readers and authors of this Special Issue.

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