Preface

Since Staudinger found polymer theory in 1920, polymer chemistry has been the most active part in the field of polymer science. Early polymer chemistry was a realm of necessity. Although many useful polymer compounds have been prepared through polymer chemical reactions, only little is known about their intrinsic nature and law. For many years, polymer chemists have been working hard to find the ways to prepare polymer compounds with specific structure and molecular size. The emergence of coordination polymerization technology in the early 1950s opened a new field of stereoscopic polymerization, leading to the birth of several high-quality new materials such as linear polyethylene and stereopolypropylene, which led to the development of the entire petrochemical industry. In the mid-1950s, the development of living anionic polymerization technology provided the possibility for molecular design and synthesis of polymer materials with controllable structure and composition. Especially in the second half of the twentieth century, various new methods of polymer synthesis have been emerging to adapt to the rapid development of science and technology. Polymer chemistry is moving from the realm of necessity to the realm of freedom.

This textbook was originally a handout of the course “polymer chemistry progress” for the master’s degree students in Tongji University of China. After years of supplement, modification, and improvement, combined with the authors’ own practical experience in scientific research, the authors' understanding for the importance of new polymer synthesis technology is also deepened. They think that it is necessary to summarize and introduce these achievements of predecessors. Therefore, in 2004, the postgraduate teaching materials of New Technology of Polymer Synthesis was compiled in China to provide reference for teachers, postgraduates, and senior students in universities, researchers in scientific research institutions, and technicians in factories when they are engaged in teaching, scientific research, and technical work. After the publication of New Technology of Polymer Synthesis, it has been favored by teachers, students, and scientists. So, it was revised and republished in Tongji University Press in 2013, and renamed as The Modern Methods and Technology of Polymer Synthesis. Today, we hope this textbook can go out of China and provide help for the study of students and reference of scientists and technicians all over the world. Therefore, with the help of Tongji University Press in China and De Gruyter Press in Germany, we compile this English version of textbook.

Part of the materials used in the compilation of this textbook come from the authors' experience of teaching and scientific research and the scientific research achievements for many years, as well as many domestic and foreign documents are consulted, and relevant works are referred. We would like to express our gratitude to the authors of the works involved.

As the new methods and technologies of modern polymer chemistry involve many disciplines such as chemistry, physics, materials, electricity, biology, and medicine,

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and due to the authors' lack of talent and learning, although the authors tried to be correct and accurate in the process of compilation, there must be many omissions and fallacies in the book. We hope that readers will be free to correct them.

Authors at Tongji University in October 2019