

Handbook of RAFT Polymerization. Edited by Christopher Barner-Kowollik (University of New South Wales, Sydney, Australia). Wiley-VCH GmbH & Co. KGaA: Weinheim. 2008. x + 544 pp. \$245. ISBN 978-3-527-31924-2.

Reversible addition–fragmentation chain transfer (RAFT) polymerization has only been developed over the past decade, but has quickly found wide application in polymer synthesis, spawning many new polymer compositions, architectures, and materials. The RAFT method of polymerization relies on the fast, reversible chain transfer processes of thiocarbonylthio compounds to mediate the growth of polymer chains in radical polymerization. Its use can result in significant control over molecular weight, create narrow distributions in the molecular weight of the polymer, and provide polymers with chain-end functionality that allows for a variety of postpolymerization reactions to occur, including block copolymer synthesis, peptide conjugation, (nano)particle surface modifications, and so on. Such a broad range of chemistries and materials, coupled with the fact that RAFT polymerizations are generally easily performed, means that RAFT polymerization can be utilized by many in the chemical community.

This book provides a timely overview of all aspects of RAFT polymerizations, including an excellent summary of RAFT-related mechanisms and materials. It covers a wide range of

topics, beginning with historically related thiocarbonylthio processes (e.g., Barton–McCombie deoxygenation), structure–reactivity correlations, polymerizations in a variety of media (e.g., emulsions), RAFT kinetics and mechanisms, complex polymer architectures and functionality, and finally examines the potential of RAFT polymerization in areas such as drug/gene delivery, optoelectronics, tissue engineering, alternative energy, etc.

The book contains contributions from key researchers in the field and is uniformly well written and edited. Most chapters are of a good length and depth and are correspondingly well referenced. Because RAFT polymerization is relatively new, most references are recent, including some from 2007. The authors have generally done an excellent job of making digestible specific subjects that could easily become burdensome for individuals not working in those specific fields. In all, it is an excellent book, and I suspect that workers (and students) from many fields—not just those working in the polymer area—will find this a constantly useful reference for many years to come.

Devon A. Shipp, *Clarkson University*

JA804579V

10.1021/ja804579v