chemists who are interested in more environmentally benign organic processes, or who are searching for new opportunities in synthesis.

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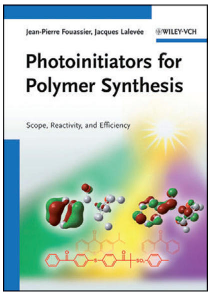
Photoinitiators for Polymer Synthesis

During the last two decades, photoinitiation processes have become increasingly important for specific applications in industry and academia, due to their temperature independence as well as the associated temporal and spatial resolution opportunities. Most of these applications require a photoinitiator with properties that are suitable for the particular application. Thus, the main challenges are to synthesize new photoinitiator molecules and to characterize their decay mechanisms, decay rates, and cleavage products. A further important aspect is the need for analytical methods to determine the molecular structures of the final reaction products, which in most cases are polymers or radiation curing materials.



Photoinitiators for Polymer Synthesis
Scope, Reactivity, and Efficiency. By Jean-Pierre Fouassier and Jacques Lalavée. Wiley-VCH, Weinheim, 2012. 476 pp., hardcover, € 149.00.—ISBN 978-3527332106

The book *Photoinitiators for Polymer Synthesis* describes the basic principles and applications of photopolymerization reactions in the areas of polymer science and materials science, and covers all currently available photoinitiating systems. The book provides a nearly complete overview of the photoinitiators and mechanisms involved. Furthermore, it discusses the latest developments in all fields of photoinitiator research.

The handbook is divided into four parts. Part I consists of seven chapters presenting the basic concepts of photopolymerization, such as light sources, experimental devices, applications, possible photopolymerization reactions, photosensitive systems, analytical techniques for elucidating the photochemical and chemical reactive behavior, and the efficiency of photopolymerization reactions (Chapters 1–7). All in all, Part I summarizes fundamental aspects for scientists working with photoinitiators.

The main part of the book is Part II, which consists of four chapters on free-radical photoinitiating systems. In Chapters 8 and 9, the most important one-component and two-component photoinitiation systems are highlighted. Part II also describes multicomponent photoinitiating systems (Chapter 10) as well as special photoinitiation systems (e.g., self-assembled photoinitiator monolayers, Chapter 11). Unfortunately, Part II does not contain much information about the mass-spectrometric post-mortem analysis of photolytically generated polymers to obtain qualitative data about initiation by individual radical fragments.

In Part III, all non-radical photoinitiating systems, including cationic photoinitiating systems (Chapter 12), anionic photoinitiators (Chapter 13), and photoacid and photobase generator systems (Chapters 14 and 15) are discussed.

Part IV provides a general discussion of the reactivity and efficiency of photoinitiating systems. Chapter 16 describes the influences of various experimental conditions on the performance of free-radical photoinitiators. The reactive properties and efficiency of free-radical photoinitiators in various reaction media are discussed in Chapter 17. Chapters 18 and 19 summarize the reactivity of free-radical photoinitiators towards oxygen, hydrogen donors, monomers, additives, and the oxidation process.

In summary, it can be stated that *Photoinitiators for Polymer Synthesis* is very well structured and is an important—albeit not fully complete—information resource for both experienced scientists and post-graduate students, and also, in part, for undergraduate students, who can use the book as a valuable resource to support their fundamental lectures in polymer chemistry.

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