1. Record Nr. UNINA9911019201303321

Autore	Bogdal Dariusz
Titolo	Microwave-enhanced polymer chemistry and technology / / Dariusz Bogda and Aleksander Prociak
Pubbl/distr/stampa	Ames, Iowa, : Blackwell Pub., 2007
ISBN	9786611450496 9781281450494 1281450499 9780470390276 0470390271 9780470390245 0470390247
Edizione	[1st ed.]
Descrizione fisica	1 online resource (288 p.)
Altri autori (Persone)	ProciakAleksander
Disciplina	668.9
Soggetti	Polymers Polymerization Microwaves - Environmental aspects Green technology
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	MICROWAVE-ENHANCED POLYMER CHEMISTRY AND TECHNOLOGY; TABLE OF CONTENTS; Preface; 1 Fundamentals of Microwaves; Interaction of Microwaves with Materials; Microwave Equipment; Microwave Generators; Transmission Lines (Waveguides); Microwave Applicators (Cavities); Microwave Reactors; Temperature Monitoring; Methods for Performing Reactions Under Microwave Irradiation; 2 Overview of Polymerization Processes Under Microwave Conditions in Comparison with Conventional Conditions; Brief Story of the Application of Microwaves in Polymer Chemistry; Characterization of Dielectric Properties of Polymers Temperature ControlSuspension Polymerization; Emulsion Polymerization; Acceleration of Polymerization Reactions Under Microwave Conditions; Solid State Polymerization; Resin Transfer Molding; Pulse Microwave Irradiation and Temperature Control; 3

Thermoplastic Polymers; Chain Polymerizations; Free Radical Polymerization; Controlled "Living" Radical Polymerization; Ring-Opening Polymerization; Step-Growth Polymerization; Polyethers and Polyesters; Polyamides; Miscellaneous Polymers; 4 Thermosetting Resins; Epoxy Resins; Polyurethanes; Polyimides; 5 Polymer Composites and Blends
Composites of Selected ResinsNanocomposites; Effects of Different Fillers; 6 Renewable Resources for the Preparation of Polymeric Materials and Polymer Modification; Vegetable Oils; Cellulose; Chitosan; Guar Gum; Starch; 7 Recycling of Plastics; Poly(vinyl chloride); Polystyrene; Poly(ethylene oxide); Polyamide; Polyesters and Polyurethanes; Poly(ethylene terephthalate); Polyurethanes (PUR); Rubber; Carbon Fiber Composites with Epoxy Resins; 8 Commercialization and Scaling-Up; Index

Sommario/riassunto

While polymer technology forms one of the largest areas of application of microwave technology, and the methods and procedures used therein are among the most developed, there is still a relative lack of published information on the subject. Microwave-Enhanced Polymer Chemistry and Technology describes novel approaches to polymer processing using microwave technologies. Coverage includes background and scientific data, analysis of processes and product properties in comparison with existing technology, applications that are being used in various approaches, and the status