1. Record Nr. UNINA9910830473803321

Autore	Papaspyrides Constantine D
Titolo	Solid state polymerization [[electronic resource] /] / Constantine D. Papaspyrides, Stamatina N. Vouyiouka
Pubbl/distr/stampa	Hoboken, NJ, : Wiley, c2009
ISBN	1-282-13738-7 9786612137389 0-470-45183-1 0-470-45182-3
Descrizione fisica	1 online resource (314 p.)
Classificazione	UV 2100 VE 8000 VK 8000 VN 5900
Altri autori (Persone)	VouyioukaStamatina N
Disciplina	660 668.9/2 668.92
Soggetti	Polymerization Solid state chemistry
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Includes index.
Nota di contenuto	SOLID STATE POLYMERIZATION; CONTENTS; Contributors; Preface; 1 Fundamentals of Solid State Polymerization; 1.1 Introduction; 1.1.1 Polymers and Plastics; 1.1.2 Polymerization Processes; 1.1.3 Introduction to Solid State Polymerization; 1.2 Solid State Polymerization of Chain-Growth Polymers (Solid State Polyaddition); 1.3 Solid State Polymerization of Step-Growth Polymers (Solid State Polycondensation); 1.3.1 Monomer Solid State Polymerization (Direct SSP); 1.3.2 Prepolymer Solid State Polymerization (Post-SSP, Solid State Finishing); 1.4 Solid State Polymerization Apparatus and Assemblies 1.5 Solid State Applications in the Polymer Industry1.5.1 Solid State Polymerization Advantages; 1.5.2 Post-Solid State Polymerization Application in Polyamides; 1.6 Conclusions; 2 Solid State Polymerization Chemistry and Mechanisms: Unequal Reactivity of End Groups; 2.1 Introduction; 2.2 Special Characteristics of Solid State

Polymerization; 2.3 Classical Kinetic Equations in Solid State Polymerization; 2.4 Model of Molecular Morphology and Chain-End Movement; 2.4.1 Definition of Chain-End Length in the Amorphous Phase; 2.4.2 How End Groups Move During Solid State Polymerization
2.4.3 How Chain-End Length Affects the Movement of End Groups2.5 Reactivity of End Groups; 2.5.1 Principles of Equal Reactivity of End Groups in Melt Polymerization; 2.5.2 Principles of Unequal Reactivity of End Groups in Solid State Polymerization; 2.5.3 Sources of Low Reactivity of End Groups; 2.6 Why Intrinsic Viscosity Levels Off During Solid State Polymerization; 2.6.1 Definition of Residual Average Radius and Residual End-Group Concentration; 2.6.2 Relationship Between (r) and; 2.6.3 Relationship Between C(r), (r), and Ultimate IV
2.6.4 Explanation of Temperature Effect on Solid State Polymerization2.6.5 Explanation of Initial IV Effect on Solid State Polymerization; 2.7 Solid State Polymerization Kinetics; 2.7.1 Kinetic Equation of Ideal Solid State Polymerization; 2.7.2 Empirical Kinetic Equation of Real Solid State Polymerization; 2.8 Conclusions; 3 Kinetic Aspects of Polyester Solid State Polymerization; 3.1 Introduction; 3.2 Phenomena Involved in Solid State Polymerization of Polyesters; 3.2.1 Possible Reactions in Solid State Polymerization of Polyesters
3.2.2 Chain Mobility and Diffusion of Low-Molecular-Weight By-Products3.2.3 Kinetic and Diffusion Equations; 3.3 Modeling Solid State Polymerization of Polyesters; 3.3.1 Effects of Variables and Predictions Based on Kinetic Models; 3.4 Solid State Polymerization of Typical Polyesters; 3.4.1 Poly(ethylene terephthalate); 3.4.2 Poly(butylene terephthalate); 3.4.3 Poly(ethylene naphthalate); 3.4.4 Poly(trimethylene terephthalate); 3.4.5 Poly(L-lactic acid); 3.5 Conclusions; 4 Kinetic Aspects of Polyamide Solid State Polymerization; 4.1 Introduction
4.2 Simple Kinetic Models of Solid State Polyamidation

Sommario/riassunto

The most current guide to solid state polymerization Solid State Polymerization (SSP)is an indispensable tool in the design, manufacture, and study of polymers, plastics, and fibers. SSP presents significant advantages over other polymerization techniques due to low operating temperatures, inexpensive equipment, and simple and environmentally sound procedures. Combining fundamentals of polymer science, chemistry, physical chemistry, and engineering, SSP also offers many research applications for a wide range of students and investigators. Gathering and filtering the latest literature on SS