1. Record Nr. UNINA9910463799903321 Autore Ibeh Christopher C. Titolo Thermoplastic materials: properties, manufacturing methods, and applications / / by Christopher C. Ibeh Boca Raton, FL:,: CRC Press, an imprint of Taylor and Francis,, 2011 Pubbl/distr/stampa **ISBN** 0-429-15096-2 1-4200-9384-3 1-62870-642-2 Edizione [First edition.] Descrizione fisica 1 online resource (626 p.) Disciplina 668.4/23 Soggetti **Thermoplastics** Electronic books. Lingua di pubblicazione Inglese **Formato** Materiale a stampa Livello bibliografico Monografia Description based upon print version of record. Note generali Nota di bibliografia Includes bibliographical references at the end of each chapters. Nota di contenuto Front Cover; Contents; Preface; Author; Chapter 1: Introduction and History of the Plastics Industry; Chapter 2: Raw Materials and Their Sources: "The Plastics Tree"; Chapter 3: Basic Structures and Characteristics of Polymers and Plastics; Chapter 4: Molecular Weight of Polymers; Chapter 5: Polymerization (Resinification) Methods; Chapter 6: Crystallinity and Crystallization in Polymers and Plastics; Chapter 7: Classification of Thermoplastics; Chapter 8: Permeability and Environmental-Stress-Cracking Resistance of Thermoplastics: Barrier Properties and Packaging Applications of Polymers Chapter 9: Polyolefins: Polyethylene, Polypropylene, and Their CopolymersChapter 10: Polypropylene; Chapter 11: Olefin Copolymers of Ethylene and Propylene; Chapter 12: The Vinyls: PVC and Copolymers; Chapter 13: Polystyrene and Copolymers; Chapter 14: Acrylic (Acrylate) Family; Chapter 15: Polyester Family; Chapter 16: Nylon (Polyamide) Family: Chapter 17: Polycarbonates: Chapter 18: Polyacetals; Chapter 19: Polyphenylene Sulfides; Chapter 20: Fluorocarbons (Teflon Family); Chapter 21: Liquid Crystalline Polymers; Chapter 22: Polysulfones; Chapter 23: Polyimide Family; Chapter 24: **PEEK** 

Chapter 25: Polyphenylene OxideChapter 26: Cellulosics; Chapter 27: Functionalized Thermoplastic and Elastomers; Chapter 28: Plastics

## Sommario/riassunto

Nanocomposites; Chapter 29: Plastics and Sustainability: A Life Cycle Cost Analysis Approach; Back Cover

Practical and affordable, thermoplastics account for more than 90 percent of all plastic materials manufactured. That so many varieties are now available, speaks to the idea that while there is no one perfect material, it is possible to find a material that fits for every application. However, selecting that right material is no small challenge. Answering the needs of manufacturers and product developers. Thermoplastic Materials: Properties, Manufacturing Methods, and Applications provides all the information required to confidently select the right thermoplastic for any application. Based on a course taught to engineering students, the book starts with an overview of the plastics industry, looking at the major companies involved and how their products influence society. It then discusses various topics essential to the understanding and manufacturing of thermoplastics before getting to the core of the book, more than 400 pages of consistently formatted entries, organized according to 19 thermoplastics families and groupings. Each chapter covers raw materials, manufacturing methods, properties, costs, and applications.