

Thermoplastic Materials: Properties, Manufacturing Methods, and Applications

By Christopher C. Ibeh



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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.

Among many topics related to thermoplastic resins, this seminal work:

- Provides micro and quasi-macro perspectives on their behavior
- Evaluates major manufacturing methods

- Discusses crystallinity and permeability
- Elaborates on the properties that make them useful barrier and packaging materials

Written by Christopher Ibeh, professor of plastics engineering technology and director of the Center for Nanocomposites and Multifunctional Materials at Pittsburg State University, this book goes beyond current practices to look at emerging materials, including nanocomposites, and discusses sustainability as it relates to plastics. It also includes a chapter on functionalized thermoplastics, written by Andrey Beyle.

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Editorial Review

About the Author

Christopher Ibeh is a professor of plastics engineering technology at Pittsburg State University in Kansas. He is also director of the Center for Nanocomposites and Multifunctional Materials. Dr. Ibeh holds a doctorate from the Department of Chemical Engineering at Louisiana Tech University. He is a member of the Society of Plastics Engineers, the American Society for Engineering Education, National Collegiate Inventors and Innovators Alliance, American Chemical Society, the American Composites Manufacturers Association, and the Consortium for Upgrading Educational Standards. His research interests include fuel cells, biodegradable blends, fracture toughness of composites, and polymeric nanocomposites. Dr. Ibeh is the organizer of the Nanotechnology Entrepreneurship Forum.

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Lee Rutledge:

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