



Fundamentals of Composites Manufacturing: Materials, Methods and Applications, Second Edition

By A. Brent Strong

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Fundamentals of Composites Manufacturing: Materials, Methods and Applications, Second Edition By A. Brent Strong

Whether in college or in the workplace, students and practitioners have relied on the first edition of *Fundamentals of Composites*; for years to learn about the basics of composites manufacturing. Building upon the solid foundation of the first edition, this revised and expanded book describes recent advances, adding key information, case studies, and examples that will broaden your knowledge of composites materials and manufacturing methods.

The first focus of this text is on materials. Several major chapters are devoted to describing the basic materials that are put together to create composite structures. You'll learn about matrix properties, polyesters, epoxies, specialty and high-performance resins, thermoplastics, ceramic and metal matrix composites, reinforcements, reinforcement forms, testing and properties, design, and sandwich structures, joints, and finishing. The book simply and clearly presents the details of why composite materials behave the way they do. Thus composites designers will gain an understanding of the causes of material performance, allowing them a wider choice of materials than might otherwise be possible.

Secondly, the book describes composites manufacturing methods, providing tips for getting the best results that weigh the required material properties against cost and production efficiency. You'll find chapters on: the open molding of engineering and advanced composites, compression molding, resin infusion technologies, filament winding and fiber placement, pultrusion, thermoplastic molding, damage prevention and repair, factory issues, the business of composites, and composites applications. Fully illustrated, this comprehensive text and reference presents material in an easily understandable format. Many features are provided to make learning easier.

* Each chapter begins with an overview of the key points to be addressed.

* A case study discusses specific application of one or more principles discussed in the chapter.

* A chapter summary is provided so that key learning points can be reviewed.

- * Each chapter has a laboratory experiment to provide grounding in key concepts.
- * Questions at the end of the chapter are provided to assess learning.
- * A bibliography details additional resources for the chapter.
- * A glossary provides definitions of the terms used in the book.
- * The Composites Manufacturing Video series complements this text. It offers excellent visual representations of the materials and manufacturing methods addressed. Use the set of eight videos to supplement learning, lectures, and laboratories. The Composites Manufacturing sampler DVD, which contains selected clips from the series, is now bundled with the book to complement individual study.

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Editorial Review

About the Author

A. Brent Strong Ph.D. is a manufacturing engineering technology faculty member at the Ira A. Fulton College of Engineering and Technology at Brigham Young University (BYU). Dr. Strong is the founding director of the Advanced Composite Manufacturing and Engineering (ACME) Center, the Creativity Laboratory, the Manufacturing Leadership Forum, and the Rapid Product Realization Center, all at BYU. Prior to his position at Brigham Young University, Dr. Strong had a successful career in industry. He held the positions of president of Hardie Irrigation Systems, vice president for market development for the Eyring Research Institute, and senior research chemist and manufacturing engineer for the DuPont Company. Dr. Strong's technical research interests are in composites and plastic materials and in processing of those materials. He teaches and lectures widely in the fields of plastics and composites. He was elected International President of the Society for the Advancement of Materials and Process Engineering (SAMPE) and was named SAMPE Fellow. Dr. Strong is also a member of the Society of Manufacturing Engineers (SME). He has participated as an author, co-author, or editor of 12 books, over 100 peer-reviewed and invited papers, and is the inventor or co-inventor of 12 patents. In addition to his full-time university work, Dr. Strong continues to be active in business, serving on boards of directors and consulting for a number of companies.

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