
This text lives up to its name. It incorporates a broad base of chapter topics from international authors. This diversity of authorship provides an overview of technology and products from around the globe. One of the key-most factors in natural fiber composites is density (often shown as \( \rho \)) or mass per unit volume \( (m/v) \). If we consider density of information \( (\rho_i) \) per text volume, as a combination of breadth and depth, then this text is both dense and competitive. This compilation will likely see its best adoption in support of rigorous upper division undergraduate- or graduate-level work. That said, its US price appears to be relatively high as compared with other college texts and this factor may limit its broader adoption.

Two of the most salient points I noted are embedded throughout the text, the first being that wood is the most important of the natural fibers. While others are mentioned and amply described, it is clear that wood still makes up 80-90% of the source fiber for all natural composites. While the contributing factors such as cost, logistics, handling and storage infrastructure, and fiber quality are not heavily discussed, the fact that wood is in the leadership position is well presented. The various authors do an excellent job of interweaving the alternative fibers of past, present, and future while keeping a strong grasp on the various benefits and limitations of each. The second point I note is that of environmental stewardship. The environmental perception of natural fibers, forestry, and agriculture has sometimes been portrayed negatively during the past few decades. This text does an admirable job of not only mentioning the environmental benefits of natural fibers and composites as compared with synthetic, petrochemical, and inorganic materials, but also describes how environmental concerns are a major portion of the driving force behind their contemporary development. I have always observed that high-quality products need little promotion and virtually sell themselves. This text seems to make a similar case for natural fiber composites.

Topically, the contents range from fundamental basic molecular chemistry through processing theory and practice, adhesives, manufacturing, and quality and performance measures. Some of these include destructive and nondestructive testing as well as a discussion of high-severity “real-world” use factors such as dynamic loading, fatigue, impact loading, and marine applications. Throughout, mention is made to not only time-proven technologies such as panel manufacturing, but also emerging opportunities in injection and sheet moulding, fiber preparation and pretreatment, and hybridization between natural fibers and other thermoplastic and thermoset materials, bulking agents, matrices, etc. A great many opportunities with respect to products, processing, and applications are discussed with meaningful details regarding how they might be achieved. At the same time, historic and present limitations are also discussed. For example, moisture sorption and swelling remain a limiting factor for cellulosic fibers, particularly for structural automotive and aerospace applications. Recycling is covered not only with respect to technical how-to and performance, but also with discussion of social implications.

I was pleasantly surprised to see coverage of ethical concerns associated with composite products. Two decades ago, I recall my collegiate professors spending time covering with great sincerity the ethical considerations associated with composites. Their discussions were based on personal experience and observation. Little written or text-based guidance was available.
Anytime we put dissimilar materials together, with adhesives, there are opportunities to cut corners and the deleterious impacts may go undetected for years. They do however ultimately appear. Premature delamination, deterioration, creep, swelling, and other performance detractors are always of concern. Numerous companies have seen these in the form of products liability, class-action level litigation, decline of market share, and shareholder angst. I applaud the authors and editors for including a chapter on social and ethical considerations. To an increasing degree, engineers and architects must include these factors in their decisions along with more traditional factors such as cost, performance, and appearance.

For someone who enjoys ample data tables and figures that describe and compare many aspects of fibers, products, processing, and performance across a variety of materials, this text will be highly appealing. Each chapter contains an extensive reference list. Taken together, there are thousands of valuable bibliographical citations. For scientists, these have the potential of saving countless hours in pursuit of future research. On my shelves, I have a handful of well-worn reference books with pages that are dog-eared and are interspersed with sticky bookmarks that denote passages, tables, or other information that I need to call on year after year. I anticipate that this book will achieve that status in the collections of many scientists.

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