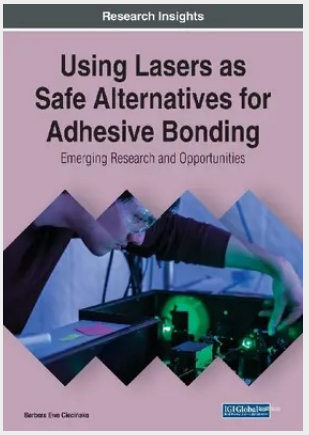
Engineering Science Reference

Using Lasers as Safe Alternatives for Adhesive Bonding

Emerging Research and Opportunities



Technology has brought about the age of convenience, but at a hefty cost. As a result of a growing production demand on a global scale, adhesive bonding operations also generate a huge amount of hazardous waste. Adhesive bonding, an integral step in manufacturing across several sectors, is one of many culprits of the unprecedented overproduction and environmental burden of municipal, industrial, and hazardous waste. If a cleaner, greener bonding process is formulated, hazardous waste production can be reined in and the world can be safer. Using Lasers as Safe Alternatives for Adhesive Bonding: Emerging Research and Opportunities is a pivotal reference source that analyzes the new conditions for laser processing in the context of adhesive bonding. The book includes the results of experimental research, giving grounds to believe that laser technology has a future in the preparation of products for bonding. From this research, the book presents conclusions for eliminating poisonous chemicals, a threat to humans and the environment, and the burden of liquid and solid waste. It further outlines limitations and requirements imposed on people, such as the need to use personal protective equipment, to establish specific work procedures to ensure the safety of working with lasers, with a view to the future implementation of laser technology in manufacturing facilities. Featuring coverage of a wide range of topics including static strength, surface preparation, and beam impact, this book is ideally designed for engineers, policymakers, researchers, academicians, and students.

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154,00 €
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Lieferfrist: bis zu 10 Tage

Artikelnummer: 9781799853374
Medium: Buch
ISBN: 978-1-7998-5337-4
Verlag: Engineering Science Reference
Erscheinungstermin: 15.05.2020
Sprache(n): Englisch
Auflage: Erscheinungsjahr 2020
Produktform: Kartoniert
Gewicht: 511 g
Seiten: 248
Format (B x H): 178 x 254 mm

Kundenservice Verlag Dr. Otto Schmidt KG
Neumannstraße 10, 40235 Düsseldorf | kundenservice@otto-schmidt.de | 0221-93738-997 (Inland)