Record Nr. UNINA9910790003303321 Autore Ashby M. F **Titolo** Materials and the environment [[electronic resource]]: eco-informed material choice / / Michael F. Ashby Waltham, MA,: Butterworth-Heinemann, 2012 Pubbl/distr/stampa **ISBN** 1-283-73507-5 0-12-385972-7 Edizione [2nd ed.] Descrizione fisica 1 online resource (628 p.) Disciplina 620.1/10286 Soggetti Materials - Environmental aspects Engineering design - Environmental aspects Lingua di pubblicazione Inglese **Formato** Materiale a stampa Livello bibliografico Monografia Note generali Description based upon print version of record. Includes bibliographical references and index. Nota di bibliografia Front Cover; Materials and the Environment: Eco-Informed Material Nota di contenuto Choice: Copyright Page: Contents: Preface and Acknowledgments: 1. Introduction: material dependence; 2. Resource consumption and its drivers; 3. The material life cycle; 4. End of first life: a problem or a resource?; 5. The long reach of legislation; 6. Eco-data: values, sources, precision; 7. Eco-audits and eco-audit tools; 8. Case studies: ecoaudits; 9. Material selection strategies; Beams with efficient shapes; Sandwich structures: 10. Eco-informed materials selection: 11. Sustainability: living within our means 12. Materials for low-carbon power 13. Material efficiency; New and improved materials; Longer life, more intense use; 14. The bigger picture: future options; 15. Material profiles; Appendix-Useful numbers and conversions; A.1 Introduction; A.2 Physical constants in SI units; A. 3 Conversion of units, general; A.4 Stress and pressure; A.5 Energy and power; A.6 Fuels; A.7 Energy prices (2011 data); A.8 Further reading;

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Sommario/riassunto

Addressing the growing global concern for sustainable engineering, Materials and the Environment, 2e is the only book devoted exclusively to the environmental aspects of materials. It explains the ways in which we depend on and use materials and the consequences these have, and it introduces methods for thinking about and designing with materials within the context of minimizing environmental impact. Along with its

noted in-depth coverage of material consumption, the material life-cycle, selection strategies, and legislative aspects, the second edition includes new case studies