Record Nr. UNINA9910139751103321 Autore Wachtman J. B. <1928-> Titolo Mechanical properties of ceramics [[electronic resource] /] / John B. Wachtman Pubbl/distr/stampa Hoboken, N.J., : Wiley, c2009 **ISBN** 1-5231-1553-X 1-282-27995-5 9786612279959 0-470-45151-3 0-470-45150-5 Edizione [2nd ed.] Descrizione fisica 1 online resource (497 p.) Classificazione **UQ 8500** ZM 6100 Altri autori (Persone) CannonW. Roger MatthewsonM. John Disciplina 620.1/40492 620.140492 Soggetti Ceramic materials - Mechanical properties Ceramic materials - Electric properties Lingua di pubblicazione Inglese **Formato** Materiale a stampa Livello bibliografico Monografia Note generali Description based upon print version of record. Nota di bibliografia Includes bibliographical references and index. MECHANICAL PROPERTIES OF CERAMICS; CONTENTS; Preface; Nota di contenuto Acknowledgments: 1 Stress and Strain: 1.1 Introduction: 1.2 Tensor Notation for Stress; 1.3 Stress in Rotated Coordinate System; 1.4 Principal Stress; 1.4.1 Principal Stresses in Three Dimensions; 1.5 Stress Invariants; 1.6 Stress Deviator; 1.7 Strain; 1.8 True Stress and True Strain; 1.8.1 True Strain; 1.8.2 True Stress; Problems; 2 Types of Mechanical Behavior; 2.1 Introduction; 2.2 Elasticity and Brittle Fracture; 2.3 Permanent Deformation; 3 Elasticity; 3.1 Introduction; 3.2 Elasticity of Isotropic Bodies 3.3 Reduced Notation for Stresses, Strains, and Elastic Constants 3.4 Effect of Symmetry on Elastic Constants; 3.5 Orientation Dependence of Elastic Moduli in Single Crystals and Composites; 3.6 Values of Polycrystalline Moduli in Terms of Single-Crystal Constants; 3.7 Variation of Elastic Constants with Lattice Parameter: 3.8 Variation of

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Sommario/riassunto

A Comprehensive and Self-Contained Treatment of the Theory and Practical Applications of Ceramic Materials When failure occurs in ceramic materials, it is often catastrophic, instantaneous, and total. Now in its Second Edition, this important book arms readers with a thorough and accurate understanding of the causes of these failures and how to design ceramics for failure avoidance. It systematically covers: Stress and strain Types of mechanical behavior Strength of defect-free solids Linear elastic fracture mechanics Measurements of elasticity, stren