



METADATA

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Abstract

Traditional Ceramics covers the basic principles of ceramic science and technology. It presents the classification and application of materials engineering and deals with the structure and properties as well as design and production process of ceramic materials. The book contains four major chapters. The first chapter starts with a classification of materials and provides general techno economic data on ceramics industry. It contains the prerequisite knowledge of correlation between molar and crystal structure with the properties and performance of materials. Traditional silicate and aluminosilicate are extensively studied in the second chapter, in combination with case studies referring to the production of cement, porcelain and silicate materials. Glass science and technology are separately presented in the third chapter, focusing at models and factors controlling glass formation, mechanical properties

as well as chemical and mechanical corrosion resistance. Industrial production of glass and its formation techniques are presented as case study. Refractory oxides are studied in the last chapter with detailed description of physical, chemical and mechanical properties essential for upgraded properties of the refractory materials. Special interest is drawn to Al_2O_3 , ZrO_2 , MgO , as well as spinels and ferrites exhibiting special technological interest introducing the field of advanced ceramics. Industrial production process of alumina and silica refractory is examined as case study. The book aims to be a reference resource for materials scientists providing fundamental theoretical knowledge coupled with practical perspectives in ceramics science and technology. It addresses to undergraduate and postgraduate students, researchers, scientists and engineers working in the development of ceramic materials.

