

**SOME CHARACTERISTICS OF THE CERAMIC SUPERCONDUCTORS
PHYSICS PROPERTIES AND CHEMICAL ASPECTS**

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ABSTRACT

The ceramic high transition temperature superconducting materials present many interesting characteristics that will be analysed from two points of view: physical behavior, and chemical aspects. From the first point of view, these materials display an enormous variety of different physical properties. At low doping levels the normal state shows antiferromagnetism and insulating behavior. At intermediate doping levels, an anomalous metallic state appears and, the optimum T_c in the superconducting state is generated. With increasing doping, a normal metallic state develops and superconductivity starts to disappear. Many of the physical phenomena that describe the overall behavior when doping levels are changed will be discussed. From the point of view of the chemical aspects, we will discuss some of the problems involved in the methods of preparation with particular emphasis on defects, crystal structures, critical currents, and applications in technology.