

Modern Ceramics



Modern ceramics are advanced ceramics that are engineered to have specific properties. They are made from inorganic, non-metallic materials by the action of heat. They are metal oxides, carbides, and nitrides. They are used in applications such as the wear plates of crushing equipment in mining operations have also been developed to be used in electronic, computer, communication, biomedical and aerospace applications. Ceramics are made of clay, earthen elements, powders, and water. These components are combined, molded into the desired shape, and then fired or heated.

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Magnetic Ceramics



Permanent magnets composed of Barium or Strontium Ferrite, aside from good resistance to demagnetization, has the advantage of low cost.

1. Ferrite magnets are very hard and brittle, and require specialized machining techniques. Moreover, they should be machined in an unmagnetized state.
2. Anisotropic grades are oriented in the manufacturing direction, and must be magnetized in the direction of orientation. Isotropic grades are not oriented and can be magnetized in any direction; although some degree of greater magnetic strength will be found in the pressing dimension.

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Bio-Ceramics



Bio-Ceramics, like Bio-Glasses, are ceramic materials compatible with living tissues and are a type of Bio-Materials. Bio-Ceramics range from ceramic oxide which is an inert substance in the body, to species that are absorbed into the body after the formation of the tissues with which they have been replaced. Bio-Ceramics are used in many medical processes. Ceramics today are used in dentistry and as orthopedic implants. Artificial teeth and bones are proliferating and artificial joints are often surrounded by Bio-Ceramic materials to reduce the potential for wear and inflammation.

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Piezoelectric Ceramics



Piezoelectric ceramics possess a unique property where they generate an electric charge when mechanically stressed. This phenomenon, called the piezoelectric effect, finds broad applications. From sensors in medical ultrasound devices to pressure sensors in industrial machinery, their versatility is remarkable; they're integral in piezoelectric actuators, converting electrical energy into precise mechanical motion, used in inkjet printers. Piezoelectric ceramics play a crucial role in modern technology due to their ability to convert between electrical and mechanical energy.

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