

Ceramics :-

Definition :-

Ceramic is an inorganic non-metallic solid made up of clay. It is shaped and hardened by heating it to high temperature.

Examples: It is all around us. It includes things like tiles, bricks, plates, utensils. It is also found in products like watches, automobiles, space shuttles, appliances, etc.

Properties of Ceramics :-

Due to the wide range of ceramics properties it has diverse applications.

- Ceramics are hard and strong material
- They are wear resistant and durable.
- They are corrosion-resistant
- They are oxidation-resistant
- Ceramics are brittle and little elasticity
- Ceramics are non-magnetic.

Classification of Ceramics:

Ceramics are attributed in two main categories

1. Application Based Classification

This classification further divide Ceramics into two types:

- a) Traditional Ceramics
- b) Advance Ceramics

a) Traditional Ceramics:

Traditional Ceramics include Whitewares, structural Clay products, Brick and tile, Abrasives, refractories, and cement.

(b) Advanced Ceramics:

Advance Ceramics include electroceramics and Advance structural ceramics. Various Ceramics like magnetic, optical, conductive, nuclear Bioceramic, Auto motive Ceramics are part of this type.

2. On the Basis of Composition

Date: _____

Ceramic can be divided into 3 material categories:

- a) Oxides
- b) Non-oxides
- c) Composites

Applications of Ceramics :-

Ceramics have a wide range of properties which facilitates its use in different products.

• **Aerospace :-**

Ceramics are used in formation of parts of space shuttle, rockets etc.

• **Medical field :**

Ceramics are used in medical field especially in dental and bone filling.

• **Electronic materials :**

Computer parts like insulator, resistor capacitor are also made up of ceramics.

• Construction materials :

Manufacturers use ceramics to make tiles, pipes and other construction material.

• Auto mobile industry :

Ceramics are also used in automobile industry for making different parts like catalytic converter, filters and rotors etc.

Daily uses :

Ceramics have greatly used in homes like pottery, dinner sets, home electronics etc.