

Refractory Materials Types, Properties and Applications

Introduction

Insulations are defined as those materials or combinations of materials which retard the flow of heat energy by performing different functions.

Thermal Insulating materials are used in wide range of temperature therefore the term "thermal insulation" will apply. They can be used from -75°C to 815°C . All materials used below -75°C are termed "cryogenic", and the materials that are used above 815°C are termed "refractory".

Characteristics

1. They Conserve energy by reducing heat loss or gain.
2. They Control surface temperatures
3. Prevent or reduce damage to equipment from exposure to fire or corrosive atmospheres.
4. Increases operating efficiency of heating/ cooling,
5. Reduce emissions of pollutants to the atmosphere.
6. They are chemically inert.
7. They can be used at wide range of temperature.

Glass wool

It is made up of sand and recycled glass. It consists of flexible glass fiber.

Properties of Glass wool

1. It is light in weight.
2. It is non-combustible.
3. It is chemically inert and has high thermal stability.
4. It has low thermal conductivity.
5. It is fire proof.

Uses of Glass wool

1. It can be used as filler or insulator in buildings
2. It can be used in soundproofing.
3. It can be used for making speakers, woofer etc.
4. It is also used in furnaces as insulating material.

Cork**Properties of cork**

1. It is elastic in nature
2. It is sound proof and vibration proof.
3. It is also impermeable to moisture.
4. It is fire resistant.
5. It is durable.

Uses of cork

1. Used in sound proofing.
2. It is used in fire proofing.
3. It is also used in cork flooring.
4. It is used in laboratories in many chemical apparatus like dropper, cork plug etc.

Thermo wool**Properties of thermo wool**

1. It is shock proof.
2. It is superior thermal insulating material.
3. It has good fire resistant property.
4. It is sound proof.

Uses of thermo wool

1. It is widely used in manufacturing of warm cloths.
2. It is used as thermal insulating material.
3. It is used in thermos and furnaces.

Thermacoal

Properties of Thermacoal

1. It is light in weight.
2. It is shock proof.
3. It is sound proof.
4. It is bad conductor of heat and electricity.

Uses of Thermacoal

1. It is widely used in packaging industries.
2. It is used as thermal insulating material.
3. It is used in thermos and furnaces.
4. It is also used in speakers and sound instruments.