

Fiber Glass Brick

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Abstract: *Fiberglass bricks are a type of refractory material used in high-temperature applications such as furnaces, kilns, and fireplaces. They are made by combining fiberglass and a binder material to create a lightweight and durable brick that is resistant to thermal shock and chemical erosion. Fiberglass bricks offer several advantages over traditional refractory bricks, including higher strength and lower thermal conductivity. They are also easy to cut and install, making them a popular choice for a wide range of industrial and residential applications.*

Keywords: Fiber Glass Brick, Compressive Test, Hardness Test, Soundness Test, Drop Test

I. INTRODUCTION

Fiberglass is commonly used material in today's world. It is mostly used as a replaced material to the plastic which have more strength and more durable than the plastic. Fiberglass is a new engineering material in which researchers take more interests to invest their time and money because it has a wide scope to enhance the usage of fiber material for different work. The properties of fiber are very unique and it can mix with every kind of material. Fiberglass also looks like plastic; it is actually not a type of plastic. The main difference between fiberglass and plastic is that fiberglass is inorganic whereas plastic is organic.

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Fiberglass brick is a type of composite material made from a combination of fiberglass and a thermosetting resin, which is molded into brick shapes. These bricks are lightweight, durable, and have excellent thermal and chemical resistance properties. They are commonly used in high-temperature applications, such as lining furnaces, kilns, and chimneys, as well as in chemical processing and power generation plants. Fiberglass brick offers several advantages over traditional brick materials, including lower installation and maintenance costs, increased insulation properties, and reduced environmental impact. The abstract of a fiberglass brick would likely summarize these key properties and benefits.

II. LITERATURE REVIEW

2.1 Experimental Studies On Glass Fiber Concrete

AUTHOR- DURGA CHAITANYA KUMAR JAGARAPU: Glass fibre has used over 30 years in several construction elements, mainly non constructional ones, like façade panels, piping for sanitation, decorative non recoverable form work and other products. Concrete is one of the most durable building materials. It provides superior fire resistance compared with wooden construction and gains strength over time. Structures made of concrete can have a long service life. Concrete is used more than any other manmade material in the world. Concrete, has relatively high compressive strength, but much lower tensile strength.

2.2 GLASS FIBRE REINFORCED GYPSUM (GFRG) BRICKS:

AUTHOR- A.SHIVA PRASAD & DR.D.V SREEKANTH: Glass fibre reinforced gypsum (GFRG) bricks are produced from gypsum and chopped glass fibres. This bricks provide an innovative solution for affordable mass housing and to reduce the use of sand, water, gravel etc. It is also a modern approach to overcome the drawbacks of existing GFRG panels. The idea of this paper is to find a use for this waste gypsum into something useful. They are

light in weight and overall cost is also low as they are made from recycled industrial waste gypsum which is obtained as byproduct from various fertilizer industries, chopped fibres are the main filler material used which act as reinforcement instead of concrete to reduce the weight of brick

2.3 DESIGN OF RAINWATER HARVESTING FOR A RESIDENTIAL BUILDING IN COPOSITE CLIMATE

AUTHOR- BATUHAN AYKANAT

Earthquake damage in many parts of the world has demonstrated that historic masonry buildings have been designed with no regard for the effects of horizontal loading produced during a seismic event. As the tensile strength of masonry may be assumed to be equal to zero, researchers have studied the use of composite materials in order to reinforce masonry and to resist seismic actions.

2.4 Study And Experimentation On A.R. Glass Fibre

AUTHOR- MR. PREMLAL & MR. AKSHIT LAMBA

“Glass fibre reinforced composite materials consist of high strength glass fibre embedded in a cementations matrix. In this form, both of them fibres and matrix retain their physical and chemical properties, yet they manufacture a combination of properties that can not be achieved with it either also with the components acting alone, General fibres are the principal load-carrying members, while the surrounding matrix keeps them in its desired locations and orientation, acting as a load transfer medium between them, and also protects them from environmental damage

III. MATERIALS

Epoxy Resin :

Epoxy is the family of basic components or cured end products of epoxy resins. Epoxy resins, also known as polyepoxides, are a class of reactive prepolymers and polymers which contain epoxide groups. The epoxide functional group is also collectively called epoxy. The iupac name for an epoxide group is an oxirane.

Epoxy resins may be reacted (cross-linked) either with themselves through catalytic homopolymerisation, or with a wide range of co-reactants including polyfunctional amines, acids (and acid anhydrides), phenols, alcohols and thiols (usually called mercaptans). These co-reactants are often referred to as hardeners or curatives, and the cross-linking reaction is commonly referred to as curing.

Hardner

A hardener is a component of certain types of mixtures. In some mixtures a hardener is used simply to increase the resilience of the mixture once it sets. In other mixtures a hardener is used as a curing component. A hardener can be either a reactant or a catalyst in the chemical reaction that occurs during the mixing process.

Cobalt :

Cobalt is a chemical element with the symbol Co and atomic number 27. It is a hard, lustrous, silver-gray metal that belongs to the transition metals group. Here's some information about cobalt:



(Cobalt)



(epoxy)

TABLE I: Font Sizes for Papers

STRENGTH OF BRICKS:

Test no	Fiber glass brick	soil brick
1	32	18
2	34	16
3	42	20
4	36	22
5	40	19

IV. CONCLUSION

In conclusion, fiber glass brick is a composite material that offers several advantages over traditional brick or concrete. Its lightweight, high strength-to-weight ratio, corrosion-resistance, and fire-resistance make it an attractive option for use in a variety of applications, including building construction and infrastructure projects.

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