

Compressive Behavior Of Basalt Fiber Reinforced Composite

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~~BASALT WORLD CORP 01-07-2020~~ Buckling of fibre-steered composite structures Reflecting on Ductile Concrete: A Perspective from Zone 0 Earths Many Voices a Unified Theory for Pre-Earthquake Signals Compressive Behavior Of Basalt Fiber
In this study, a composite material consists of basalt fiber-reinforced polymer (BFRP) tube-encased coconut fiber-reinforced concrete (CFRC) is developed. The 28-day compression strength of the plain concrete is about 15% \times 2009;MPa, which represents the low strength and poor-quality concrete widely existing in a large number of old buildings.

Compressive Behavior of Basalt Fiber-Reinforced Polymer ...

The effect of volume fraction of basalt fibers on compressive strength, and the compressive stress-strain curve has been examined for ultimate strength up to 0.02% strain. The stress strain curve has been determined experimentally for optimal 0.5% volume fraction of basalt fiber reinforced composite and compared with that of unreinforced mix.

Compressive behavior of Basalt Fiber Reinforced Composite ...

Scanty literatures are available for generalizing the effect of basalt fiber on compressive strength behavior. In the present studies, basalt compressive behavior has been characterized for a composite for four different volume fraction Vf of 0.3%, 0.5%, 1% and 2%.

Compressive behavior of Basalt Fiber Reinforced Composite

This paper investigated the dynamic behavior of basalt fiber reinforced concrete (BFRC) after elevated temperatures by using a 100-mm-diameter split Hopkinson pressure bar apparatus. Changes in weight and ultrasonic pulse velocity (UPV) were also studied.

Dynamic compressive behavior of basalt fiber reinforced ...

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Compressive behavior of Basalt Fiber Reinforced Composite ...

Compressive behavior of Basalt Fiber Reinforced Composite. Author(s) : NAGESH R.IYER, SMITHA GOPINATH, SMRITI RAJ . Abstract . The development of basalt fiber reinforced composite is an important milestone in improving the mechanical performance and durability of concrete construction. Basalt fiber is environmentally safe, non toxic, non ...

Compressive behavior of Basalt Fiber Reinforced Composite

The effects of basalt fibers on the strength and deformation of rubberized recycled concrete are related to compositions and properties of concrete. Besides, the toughening effect of basalt fibers on rubberized recycled concrete is very obvious.

Mechanical and stress-strain behavior of basalt fiber ...

Compressive behaviour of basalt fiber reinforced composite August 2013 Conference: Proc. Intl Conf on Advances in Civil, Structural and Mechanical engineering-CSM

Compressive behaviour of basalt fiber reinforced composite ...

Basalt fibers recently manufactured from igneous basalt rocks have been found to be extensively employed in concrete constructions around the world. The aim of this paper is designed to cover a comprehensive plan for examining the behavior of basalt fiber reinforced concrete (BFRC) beams under bending effect using finite element analysis, and introducing new BFRC constitutive relationships or models.

Flexural behavior of basalt fiber reinforced concrete ...

A volume fraction of 0.5% of basalt fibers had an insignificant effect on the flexural performance of the specimens, and therefore 1% of basalt fibers were recommended as a minimum dosage. Increasing the fiber volume fraction led to a noticeable increase in the ductility of the slab strips at all stages of loading.

Flexural Behavior of Basalt Fiber-Reinforced Concrete Slab ...

This paper analyzes the compressive stress-strain behavior of three mix types of high-strength fiber-reinforced concrete (HSFRC) having compressive strengths of 70-85 MPa and containing 1-3% volume fractions of basalt fibers. In the first mix of HSFRC, 100% cement content was utilized whereas 10% cement content was replaced by silica fume and metakaolin as replacement materials in the remaining two mixes.

Compressive Stress-Strain Behavior of HSFRC Reinforced ...

Basalt fiber is a material made from extremely fine fibers of basalt, which is composed of the minerals plagioclase, pyroxene, and olivine. It is similar to fiberglass, having better physicomechanical properties than fiberglass, but being significantly cheaper than carbon fiber. It is used as a fireproof textile in the aerospace and automotive industries and can also be used as a composite to produce products such as camera tripods.

Basalt fiber - Wikipedia

This article studies the compressive behavior of concrete columns confined by different basalt fiber-reinforced polymers. A total of 30 columns were divided into 10 groups according to section shapes (circular and square), basalt fiber-reinforced polymer types (unidirectional basalt fiber-reinforced polymer, bidirectional basalt fiber-reinforced polymer, and hybrid basalt fiber-reinforced polymer/carbon fiber-reinforced polymers), and number of layers (0, 1, and 2).

Compressive behavior of circular and square concrete ...

Test results showed that the addition of the Basalt fibers significantly increased the tensile splitting strength and the flexural strength of the HPFRC, while there was slight improvement in the compressive strength with the addition of Basalt fibers.

Effect of Chopped Basalt Fibers on the Mechanical ...

This study evaluates the static and fatigue bond behavior in basalt fiber-reinforced polymer (BFRP) bars embedded in concrete. For bond behavior under a mono-tensile load, BFRP bars with four types of surface patterns (round, rectangular, cross-winding, and spiral-winding) were adopted, and 20 groups of rib parameters were introduced for round-type BFRP bars.

Bond Behavior of Basalt Fiber-Reinforced Polymer Bars ...

Campione et al. studied the behavior of concrete cylinders externally wrapped by basalt fiber under both monotonic and cyclic compression. Due to very thin bi-axially woven BF sheet used by the authors, the specimens confined with one or two layers of BF showed strain softening behavior with small increases in resistance and a significant increase in ultimate strain.

Behavior of Small-Scale Concrete Cylinders in Compression ...

The compressive, splitting tensile, and beam flexural properties of the concrete composites were studied after 28 days of as-made sample curing. The reason for reduced cracks growing from basalt fiber grilles was analyzed to reveal the mechanism of increased strength and toughening of concrete composites.

Influence of stacking sequence of basalt-fiber grilles on ...

The effects of five different fibers of SFs, CFs, polypropylene fibers (PFs), BFs and polypropylene-basalt hybrid fibers (HFs) on fiber-reinforced RAC were compared. Basic mechanical properties such as compressive strengths, splitting tensile strengths and elastic modulus were measured and compared with those of CC.