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Patent Search

Invention Title	INTENSIFICATION OF MECHANICAL PROPERTIES OF CEMENT COMPOSITES USING CARBON MATERIALS
Publication Number	29/2021
Publication Date	16/07/2021
Publication Type	INA
Application Number	202141006514
Application Filing Date	16/02/2021
Priority Number	
Priority Country	
Priority Date	
Field Of Invention	CHEMICAL
Classification (IPC)	B82Y0040000000, C10M0125020000, C01B0032194000, C01B0032198000, C01B0032230000

Inventor

Name	Address	Country	Nat
: Mr. JAYACHANDRA	Maruthi Nilaya, Adarsha Nagara, Tumkur, India, 572103	India	Inc
Dr. Y. RAMALINGA REDDY	406, Faculty quarters, REVA University, Bangalore, Karnataka, india, 560064	India	Inc
: Dr. HAREESH K	D-301, Silver Oak Residences, T. Dasarahalli, Bengaluru, Karnataka, India 560057,	India	Inc
Mr. YASHWANTH H J	No 15, Halenahally, Hassan, karnataka, India, 573212	India	Inc

Applicant

Name	Address	Country	Nat
: Mr. JAYACHANDRA	Maruthi Nilaya, Adarsha Nagara, Tumkur, India, 572103	India	Indi
Dr. Y. RAMALINGA REDDY	406, Faculty quarters, REVA University, Bangalore, Karnataka, india, 560064	India	Indi

Abstract:

Carbon nano materials have huge impact on mechanical properties of cement composites due to their distinct physical and chemical properties offering significant a improve the bonding nature with cement. Herein we reported preparation of carbon quantum dots by hydrothermal method using glucose, Further cement mortar encompassing carbon quantum dots. Addition of CQD from 0.005wt% to 0.030wt% in cement mortar obtained increase in compressive strength of cement mortar by Maximum strength achieved at 0.025wt% addition of CQD in cement mortar, The developed carbon quantum dot cement structures are having good dispersibility th conventional compounds. The compressive strength of the carbon quantum dot cement mortar mix is shown better performance.

Complete Specification

DESC:1. Synthesis of carbon quantum dots.

Carbon quantum dots are prepared by using hydrothermal method. 1gram of Glucose dissolved in 100ml of DI water and stirred it for 30min then solution is transf hydrothermal auto claves and heated at 1800c for 12hours in an hot air oven than obtained solution was centrifuged at 15000rpm for 10min to remove unreacted product Finally, supernant was collected and dialysis experiment was performed using 1kDa dialysis membrane for 3 days obtained transparent yellow colored liqu was stored for preparation of cement mortar.

2. Preparation of CQDs/cement mortar.

Ordinary Portland Cement of 53grade is used in preparing the cement mortar along with fine aggregates of locally available then in the ratio of 1:3mix was prepare adding 0.005wt% to 0.030wt% of carbon quantum dots to the water maintaining 0.5 water cement ratio for the dry mix of mortar. Fig 1 shows the schematic representation of prepare CQD/Cement mortar specimen.

,CLAIMS:1. We claim that preparation Carbon Quantum Dots (CQDs)/cement mortar mix by adding synthesized carbon quantum dots.

2. We claim that in claim-1 CQDs/cement matrix consisting of pozzolonic substance, liquid, and essentially evenly distributed Carbon quantum dots, without the ad dispersion,

surfactant, or stabilizing agents, that when cured creates a matrix material which enhanced the compressive strength.

3. We claim that in claim 1 and 2 introduction of 0.01Wt% to 0.025wt% of carbon quantum dots in of the cementitious material increases its compressive strength b

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Page last updated on: 26/06/2019