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पेटेंट कार्यालय का एक प्रकाशन
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(54) Title of the invention : INTENSIFY CONCRETE COMPOSITES WITH OPTIMIZED COPPER SLAG FOR IMPROVED MECHANICAL PROPERTIES"

(51) International classification :C04B0028020000, C04B0111000000, C04B0028000000, C04B0111200000, C04B0018140000 (86) International Application No :NA (86) International Application Filing Date :NA (87) International Publication No : NA (61) Patent of Addition to Application Number :NA (61) Patent of Addition to Filing Date :NA (62) Divisional to Application Number :NA (62) Divisional to Application Filing Date :NA	(71)Name of Applicant : 1)Chethan Kumar N T Address of Applicant :Chethan Kumar N T Assistant Professor Department of Civil Engineering Malnad college of engineering Hassan 573202 ----- 2)Dr. K E Prakash 3)R Jayaram 4)Mr. Hemanth R 5)Brunda B N 6)Supriya M J 7)Dakshayini R S 8)Indumathi C 9)Amrutha D S 10)Sumana Jayaprakash Name of Applicant : NA Address of Applicant : NA (72)Name of Inventor : 1)Chethan Kumar N T Address of Applicant :Assistant Professor & Research Scholar Department of Civil Engineering Malnad College of Engineering, Hassan – 573 202 Visvesraya Technological University, Belagavi–590018 Hassan ---- 2)Dr. K E Prakash Address of Applicant :Professor and Principal Department of Civil Engineering Shree Devi Institute of Technology, Mangalore–574 142 Visvesraya Technological University, Belagavi–590018 Mangalore ----- 3)R Jayaram Address of Applicant :Associate Professor (Retired) Civil engineering Sahyadri College of Engineering and Management Mangalore ----- 4)Mr. Hemanth R Address of Applicant :Assistant Professor Department of Civil Engineering Malnad College of Engineering, Hassan – 573 202 Hassan ----- 5)Brunda B N Address of Applicant :Assistant Professor Department of Civil Engineering Malnad College of Engineering, Hassan – 573 202 Hassan ----- 6)Supriya M J Address of Applicant :Assistant Professor Department of Civil Engineering Malnad College of Engineering, Hassan – 573 202 Hassan ----- 7)Dakshayini R S Address of Applicant :Assistant Professor Department of Civil Engineering Malnad College of Engineering, Hassan – 573 202 Hassan ----- 8)Indumathi C Address of Applicant :Assistant Professor Department of Civil Engineering Malnad College of Engineering, Hassan – 573 202 Hassan ----- 9)Amrutha D S Address of Applicant :Assistant Professor Department of Civil Engineering Malnad College of Engineering, Hassan – 573 202 Hassan ----- 10)Sumana Jayaprakash Address of Applicant :Assistant Professor Department of Civil Engineering Malnad College of Engineering, Hassan – 573 202 Hassan -----
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(57) Abstract :
This invention introduces an innovative approach to reinforcing conventional concrete with copper slag, aimed at enhancing its mechanical properties for broader application in construction. By optimizing copper slag within the concrete matrix, the invention achieves significant improvements in compressive strength, contributing to more durable, sustainable, and economically viable construction materials. Due to this, landfilling problem and other pollution factors can be minimised to a greater extent. This invention introduces a concrete composite material incorporating strategically oriented copper slag to enhance mechanical properties significantly. Through rigorous testing, it was demonstrated that conventional concrete reinforced with copper slag inclusion achieved a 23 % increase in compressive strength at 28 days of curing, reaching 41.2 N/mm², compared to 33.5 N/mm² for conventional concrete. These empirical enhancements, underpinned by detailed graphical analyses, establish this invention's potential to revolutionize concrete reinforcement with a focus on sustainability, durability, and mechanical performance.