(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :16/11/2022

(21) Application No.202241065829 A
(43) Publication Date : 25/11/2022

(54) Title of the invention : EFFECTS OF CURING COMPOUND ON THE STRENGTH AND DURABILITY CHARACTERISTICS OF CONCRETE WITH M-SAND

(51) International classification	:G01N0033380000, C04B0028020000, C04B0028040000, C04B0111000000, C04B0040020000
(86) International Application No Filing Date	:PCT// / :01/01/1900
(87) International Publication No	: NA
(61) Patent of Addition to Application Number Filing Date	:NA :NA
(62) Divisional to Application Number Filing Date	:NA :NA

(71)**Name of Applicant :**
1)Prof D S R MURTY
Address of Applicant :Professor, Department of Civil Engineering, Andhra University College of Engineering, Visakhapatnam, Andhra Pradesh, India. ---------- ----------
2)PRUDVI KUPPILI
Name of Applicant : NA
Address of Applicant : NA
(72)**Name of Inventor :**
1)Prof D S R MURTY
Address of Applicant :Professor, Department of Civil Engineering, Andhra University College of Engineering, Visakhapatnam, Andhra Pradesh, India. ---------- ----------
2)PRUDVI KUPPILI
Address of Applicant :PhD Scholar, Department of Civil Engineering, Andhra University College of Engineering, Visakhapatnam, Andhra Pradesh, India. ---------- ----------

(57) Abstract :
6. ABSTRACT 9) The scarcity of water for concrete is a significant factor, and a method has been developed to mitigate the issue. The goal of the work is to reduce the amount of building materials and enhance the qualities of concrete. Four concrete mixtures with varied W/C ratios (M20,M25,M30,M35, or 25MPa to 45MPa) were used. M-sand as a complete replacement for River sand, PPC as a binder, 1.5% Nano-silica in addition to cement, and PEG-400 to minimise the dependency of water for curing structural components for 28 days. The effects of curing and not curing on the characteristics of concrete were examined. Four distinct characteristics, including Mechanical, Durability, Pull-out, and Non-Destructive, were selected for M-sand, Nano-silica, and PEG-400. Mechanical qualities, including Compressive, Split Tensile, and Flexural strength, were evaluated at 3,7 and 28 days of age. After 28 days, tests for long-lasting characteristics such as water absorption, rapid chloride penetration, and bond strength were also done. After 28 days, nondestructive testing such as ultrasonic pulse velocity and rebound hammer. The results of pull-out tests indicate the bonding behaviour between concrete and reinforcement. By adding 100 percent M-sand and 1.5 percent Nano-silica and PEG-400, the characteristics of concrete were enhanced.

No. of Pages : 28 No. of Claims : 8