

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202341051374 A

(19) INDIA

(22) Date of filing of Application :31/07/2023

(43) Publication Date : 01/09/2023

(54) Title of the invention : PRODUCTION OF RECYCLED PLASTIC AGGREGATES AND ITS UTILIZATION IN CONCRETE

(51) International classification :C12Q0001684400, A61K0041000000, C04B0040000000, C04B0018020000, B29B0017000000

(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)St. Martin's Engineering College, Sy No. 98, 100, Dhulapally Road Dhulapally, Kompally Secunderabad Telangana India 500100 -----

Name of Applicant : NA
Address of Applicant : NA

(72)Name of Inventor :

1)V.Rajesh Assistant Professor, CE& SMEC.

Address of Applicant :St.Martin's Engineering College, Dhulapally Kompally Secunderabad -----

2)Gopidi Nikith Student CE

Address of Applicant :St.Martin's Engineering College, Dhulapally Kompally Secunderabad -----

3)Laishetti Manideep Student CE

Address of Applicant :St.Martin's Engineering College, Dhulapally Kompally Secunderabad -----

4)Surabhi Eswar Student CE

Address of Applicant :St.Martin's Engineering College, Dhulapally Kompally Secunderabad -----

5)Kardas Santosh Student CE

Address of Applicant :St.Martin's Engineering College, Dhulapally Kompally Secunderabad -----

6)Putta.Ajaykumar Student CE

Address of Applicant :St.Martin's Engineering College, Dhulapally Kompally Secunderabad -----

7)Racha.Vamsi Krishna Student CE

Address of Applicant :St.Martin's Engineering College, Dhulapally Kompally Secunderabad -----

8)Mididhodi.Shivacharan Student CE

Address of Applicant :St.Martin's Engineering College, Dhulapally Kompally Secunderabad -----

9)D.Vamsi Student CE

Address of Applicant :St.Martin's Engineering College, Dhulapally Kompally Secunderabad -----

10)K.Anitha Student CE

Address of Applicant :St.Martin's Engineering College, Dhulapally Kompally Secunderabad -----

11)T.Yogeshwar Student CE

Address of Applicant :St.Martin's Engineering College, Dhulapally Kompally Secunderabad -----

12)Ch.Prakash Student CE

Address of Applicant :St.Martin's Engineering College, Dhulapally Kompally Secunderabad -----

(57) Abstract :

Plastic represents an environmental issue, as only 7% of it is recycled. The plastic remaining is either burned, disposed of in an uncontrolled manner, or land filled. Thus, to reduce the quantity of plastic that is disposed of, there is a need to increase the amount of the material that enters various product streams. This includes its use in the construction industry, and more particularly in concrete, which uses large quantities of aggregate. A novel aggregate (RPA) comprising recycled plastic was developed. The aggregate produced was lightweight, with a density ranging from 510 to 750 kg/m³ and absorption of from 2.7 to 9.81%. Other properties were comparable to aggregates of similar densities. Various composition RPA was used in concrete, and the resulting properties of both fresh and cured concrete were measured. For a given water to cement (w/c) ratio, it was possible to achieve slump of between 40 and 220 mm and fresh density of between 1,827 and 2,055 kg/m³. Further, 28-day strengths of between 14 and 18 MPa were achieved. Flexural strength was also measured. SEM analysis was undertaken to view the structure of the aggregate and the interface between the RPA and the cement matrix.

No. of Pages : 9 No. of Claims : 7