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(54) Title of the invention : PROCESS OF SYNTHESIS OF COMPOSITE MATERIAL BY UPCYCLING MILL SCALEWASTE FOR BINDER FUNCTIONALITY AND CARBON SEQUESTRATION

<p>(51) International classification :C04B0111000000, C04B0028040000, B28B0003020000, G01N0033380000, C04B0018240000</p> <p>(86) International Application No :NA Filing Date :NA</p> <p>(87) International Publication No : NA</p> <p>(61) Patent of Addition to Application Number :NA Filing Date :NA</p> <p>(62) Divisional to Application Number :NA Filing Date :NA</p>	<p>(71)Name of Applicant : 1)National Institute of Technology Karnataka Address of Applicant :Srinivasnagar PO, Surathkal, Mangaluru - 575025, Karnataka, India Mangalore -----</p> <p>Name of Applicant : NA Address of Applicant : NA</p> <p>(72)Name of Inventor : 1)T. Palanisamy Address of Applicant :Department of Civil Engineering,National Institute of Technology Karnataka, Surathkal, P.O. Srinivasnagar, Mangaluru-575 025,Karnataka,India Mangalore -----</p> <p>2)Niveditha M Address of Applicant :Department of Civil Engineering,National Institute of Technology Karnataka, Surathkal, P.O. Srinivasnagar, Mangaluru-575 025,Karnataka,India Mangalore -----</p>
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(57) Abstract :

A process (100) of manufacturing composite material for binder functionality and carbon sequestration using waste materials and carbon curing technique, according to some embodiments herein. The process (100) includes dry mixing mill-scale waste, fly ash, metakaolin, and pure limestone to obtain dry mixture. The process (100) includes adding oxalic acid diluted in water according to the water binder ratio, to dry mixture of raw material to obtain wet mixture. The process (100) includes casting wet mixture in a mold setup. The mold setup includes layered compaction and compression using mechanical compressor and ejector to mold and demold cast sample with uniform pressure distribution. The process (100) includes curing the cast sample in a curing apparatus to obtain carbon sink binder. The curing apparatus includes a hermetically sealed chamber equipped with vacuum pump and carbon dioxide cylinder. <

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