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A NOVEL TECHNOLOGY FOR NEW GENERATION USING MODIFIED THERMOCOL WASTE AS AGGREGATES IN CONCRETE

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ABSTRACT

Thermocol is a commercial name of Expanded Polystyrene (EPS) which is widely used as equipments production tools to absorb vibration during handling and transportation process. After this process, the EPS serves as disposal waste. Disposal is difficult as EPS is non-biodegradable and due to its light weight characteristics, it has the capacity to serve as aggregates in concrete by modifying it by Heat Treatment. The EPS waste was kept in a closed hot air oven at 130^0 C for 15 minutes resulted in Modified EPS aggregates (MEPS). Total 22 series specimens of cubes, cylinders and beams were casted by replacing natural coarse aggregate (NCA) & natural fine aggregates (NFA) with MEPS aggregates individually and jointly. At 28-d, the overall density, compressive strength, split tensile strength and the flexural strength decreased from 2640 kg/m^3 to 846 kg/m^3, 58.51 MPa to 15.85 MPa, 3.72 MPa 1.94 MPa and 4.90 MPa to 2.04 MPa & the pre-wetted MEPS aggregates exhibited retarding action which increased the overall workability.

KEYWORDS: Thermacol (EPS) Waste Recycling Techniques, LWC, ULWC, Artificial Sand, MEPS Concrete