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FABRICATION OF NANO-HYBRID BINDER FOR CONSTRUCTIONAL APPLICATIONS

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ABSTRACT

We have fabricated multiple nanoscale hybrid binders using TiO_2, SiO_2 and MWNTs for use in fly ash bricks. Fly Ash is a by-product at thermal power stations otherwise known as residues of fine particles that rise with flue gases. Ordinary Portland cement is selected and fly ash aggregates are prepared by incorporating the nanomaterials for hybrid binder as a composite. This is done with different ratios of nanomaterials with fly ash, gypsum, cement and water. The lower cost of these inferior materials make it an attractive alternative and adequate performance can be achieved. The compressive strength, efflorescence, water absorption and drying shrinkage strength is tested. The nanobinder provides thermal resistance and broadening the strength of the fabricated hybrid composite.

KEYWORDS: Nanotechnology, Construction, Bricks, Flyash, Tio2, Sio2, Fumed Silica, Silica, mwnt