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CONCRETE

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THERMAL RESISTANCE OF FLY ASH BASED RUBBERIZED GEOPOLYMER CONCRETE

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ABSTRACT:-

This research paper presents the first scientific attempt of a comparative study of thermal resistance of fly ash-based geopolymer concrete and rubberized geopolymer concrete. In this study, rubberized fly ash-based geopolymer concrete has been prepared using waste rubber tire fibres as a partial substitute for natural river sand, providing an efficient solution to the disposal problems of both fly ash and waste rubber. The changes in the weight, compressive strength, density, and microstructure of control and rubberized fly ash-based geopolymer concrete at room temperature and after thermal treatment at 200°C, 400°C, 600°C and 800°C for two hours have been investigated using X-ray diffraction (XRD), Fourier transform spectrometry (FTIR) and Thermo-gravimetric analysis (TGA-DTA). The results show that the loss in strength for rubberized geopolymer concrete at elevated temperatures is only slightly more than that of the control Geopolymer concrete because of the probable mismatch between the coefficients of thermal expansion of the constituent materials.

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