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MICRO-STRUCTURAL BEHAVIOUR OF INTERFACIAL TRANSITION ZONE OF THE POROUS SINTERED FLY ASH AGGREGATE

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Abstract

The interfacial transition zone (ITZ) has a significant influence on the hardened concrete behaviour. The behavior of ITZ is not well established in the case of sintered fly ash aggregate (SFA) concrete compared to normal aggregate concrete. The present study emphasizes to quantify the characteristics of ITZ of the SFA concrete. To understand the influence of water-cement ratio on the ITZ behavior, various water-cement ratios ranging from 0.25 to 0.75 were employed and the ITZ characteristics were assessed both at 28 and 90 days through various experimental methods such as microhardness test, SEM-EDX and impedance spectroscopy. Also, a comparison is made with the ITZ of the normal granite aggregate concrete. The results indicate that the ITZ formed in the SFA aggregate concrete is denser than the normal aggregate concrete.

Keywords: ITZ; SFA; SEM; microhardness; Impedance spectroscopy.

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