# ABRASION RESISTANCE OF AIR-ENTRAINED CONCRETE MADE INCORPORATING VARIOUS SOURCES OF FLY ASH

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## ABSTRACT

This investigation was performed to establish the effects of the source and amount of fly ash on abrasion resistance of concrete. A reference concrete was proportioned to have a 28-day age strength of 41 MPa. Three sources of Class C fly ash were used in this research. From each source, three levels of fly ash to total cementitious materials content (40, 50, and 60%) were used in producing the concrete mixtures. The water to cementitious materials ratio was kept constant at 0.30 for all mixtures. An accelerated abrasion testing method, a modified ASTM C 944 test, was used to measure the abrasion resistance of this high-strength concrete. The effects of both the source and the amount of fly ash on abrasion resistance of concrete were noticeable. All concrete mixtures with and without fly ash exhibited high abrasion resistance in accordance with the ASTM requirement. The abrasion resistance of the concretes with 40% fly ash was comparable to the reference concrete without fly ash. However, when the fly ash content was increased above 50%, the abrasion resistance slightly decreased compared to the reference mixture.