

**MICROSTRUCTURE EVALUATION OF CONCRETE FROM HVFA
PAVEMENTS**

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ABSTRACT

Portions of six different types of cores of high-volume fly ash concrete pavements that had been tested in compression were evaluated using petrographic examination. SEM, BSE, and transmitted light photomicrographs were studied. EDS showing composition and chemistry of fly ash and chemistry of C-S-H were also studied.

The pavements were constructed in Wisconsin in 1984, 1990, and 1991. Six different concrete mixtures contained up to 70% Class C and 67% Class F fly ash. The current long-term compressive strength of pavements was in the range of 45 to 60 MPa. The concrete indicated very low to negligible penetration of chloride ions.

The petrographic analysis showed that the core samples were all firm, densified concretes that had a somewhat finer cementitious paste microtexture with increasing fly ash content. Parameters of the air-void system in the samples are considered satisfactory for durability in a freezing and thawing environment.