

# **PERMEABILITY OF FLOWABLE SLURRY MATERIALS CONTAINING WOOD ASH**

By Tarun R. Naik, Rudolph N. Kraus, and Rafat Siddique

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## **ABSTRACT**

This research was carried out to study the effects of wood ash on the permeability of flowable slurry (a.k.a. CLSM) mixtures. Three series of flowable slurry mixtures were made with five different sources of wood ash. The mixtures were: low-strength slurry (0.3 to 0.7 MPa), medium-strength slurry (0.7 to 3.5 MPa), and high-strength slurry (3.5 to 8 MPa). Slurry mixtures contained wood ash as a main component, between 85 to 95%, 65 to 90%, and 50 to 75% by weight for low-strength, medium-strength, and high-strength slurry, respectively. Tests were performed for flow, density, compressive strength, and permeability. Ambient air and slurry temperatures were recorded.

Test results indicate that permeability of the low-strength slurry mixtures were between  $1.5$  to  $11 \times 10^{-5}$  cm/sec at the age of 28 days, whereas it was between  $0.5 \times 10^{-5}$  and  $4.1 \times 10^{-5}$  cm/sec for medium-strength and  $0.2 \times 10^{-5}$  and  $1.9 \times 10^{-5}$  cm/sec for high-strength slurry. In general, permeability values for slurry mixtures decreased with an increase in age due to increase in strength leading to improved micro-structure for these slurry mixtures.

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