

**PROPERTIES OF FLOWABLE SELF-COMPACTING SLURRY USING
QUARRY BY-PRODUCTS AND PONDED CCPs**

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ABSTRACT

This paper reports the properties of two series of flowable self-compacting slurry (SCS). In Series 1, a limestone quarry by-product, fine crushed sand (FCS), and ponded-CCPs were used. For Series 2, standard concrete sand and ponded-CCPs were used. For Series 1, five mixtures and for Series 2, six mixtures of flowable SCS were made. Ponded-CCPs and limestone quarry FCS content of the mixtures was expressed as a percentage of total fines. For Series 1 SCS mixtures, ponded-CCPs content was 100, 67, 53, 35, and 0%, and limestone quarry FCS content was 0, 33, 47, 65, and 100%, respectively. In Series 2 SCS mixtures, ponded-CCPs content was 100, 81, 60, 40, 20, and 4%, and standard concrete sand content was 0, 19, 40, 60, 80, and 96%, respectively. For both series of flowable SCS mixtures, tests were performed for flow, density, settlement, compressive strength, and permeability. Setting and hardening, bleeding, and ambient air and CLSM temperatures were also recorded.

Compressive strength of both Series 1 and Series 2 Self-Compacting Slurry mixtures increased with age. Compressive strength of Series 1 mixture was higher than Series 2 mixtures. It was also observed that the permeability of flowable SCS mixtures decreased with increase in age due to increase in strength and improvement in microstructure of the SCS mixtures. Flowable SCS mixtures made with fine crushed sand (Series 1) achieved better compressive strength probably due to increased density than those made with standard concrete sand (Series 2). Mixtures containing FCS were also less permeable.