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Discussion

A discussion of the paper “Performance of rice husk ash produced using a new technology as a mineral admixture in concrete”

by M. Nehdi, J. Duquette, and A. El Damatty[☆]

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The authors have studied the performance of rice husk ash (RHA), produced using a new technology as a mineral admixture, in concrete. In this article, fractions of passing 45 μm (%) were given as 83.9, 98.2, 97.7, and 97.9 for the samples of cement, RHA-A, RHA-B, and RHA-C, respectively. The mean particle size was given as 13.4, 7.2, 7.6, and 7.4 μm for the same samples, respectively. I think it should be clarified to the authors that the particle size of RHA specifically influences the properties of strength, hydration, and setting of the cement.

The particle sizes of silica observed in an earlier study were within the size range (0.03–100 μm) reported [1]. These workers also reported that the structure of silica was amorphous with a purity of 99.7% SiO_2 .

The particle size of cement admixture influences its hydration rate and therefore strength development and setting behavior. The rate of hydration increases with the decrease of particle size. Typically, very fine particles increase the ability to react with water and the plasticity. Smaller particles improve the mixing characteristics and strength development of the paste. The particle size is an important factor that influences compressive strength, with phase compositions becoming significant at later ages.

Reference

- [1] A.P. Singh, B.D. Park, S.G. Wi, K.H. Lee, T.H. Yoon, Y.S. Kim, Light and electron microscopic characterization of husk from Korean rice, *Plant Resour.* 5 (2002) 93–105.

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