

Discussion

A discussion of the paper “Study on the pozzolanic properties of rice husk ash by hydrochloric acid pretreatment” by Q. Feng, H. Yamamichi, M. Shoya, S. Sugita[☆]

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The results of this paper are very informative and very important for design of durable concrete. The authors have studied the pozzolanic properties of rice husk ash (RHA) by hydrochloric acid pretreatment. The particle size of RHA as a supplementary cementitious material influences pozzolanic properties of concrete. RHA has a considerable microporous structure which consists essentially of ultrafine spherical or amorphous particles. Very high surface area of RHA increases its pozzolanic activity to compete with those of much finer admixtures.

I think the chemical effects of pozzolanic materials on crystal formation and developing during the hydration should be expanded by the authors. The RHA was obtained by heating hydrochloric-acid-treated rice husk and it was shortened as ADR by the authors. The paper can add little new information in the area of porosity. What is the effect of hydrochloric acid pretreatment on porosity of the ADR? The authors would likely have observed a better performance by heating the ADR to higher specific surface particles.

However, the heating would have been lengthy and unpractical for industrial purposes.

The porosity of ADR is seemed to be less than that of normal Portland cement. The results obtained by the authors should be supported by SEM and TEM micrographs of ADR and RHA.

The authors have claimed that the effect the hydrochloric acid pretreatment on the pozzolanic properties of hydrochloric acid-treated RHA has not been systematically investigated. Whereas, this subject was extensively investigated and the properties of hydrochloric-treated RHA were given as following: porosity (0.0045 μm), specific pore volume (4.7297 cm^3/g) and purity (99.66% SiO_2) in a previously study [1].

Reference

- [1] N. Yalçın, V. Sevinç, Studies on silica obtained from rice husk, *Ceram. Int.* 27 (2001) 219–224.

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