

Effect of Fly Ash on the Microstructure and Performance of Concrete as Studied by AC Impedance Spectroscopy

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Abstract

Nyquist format of AC Impedance Spectroscopy (ACIS) of concrete will show the microstructure and permeability of the specimen. Usually, at high frequency range a semicircle in Nyquist plot will show the porosity and the dimension of fractals of the specimen while at low frequency range a straightline of slope 1 will describe the diffusivity and permeability of it. Fly ash as blend will change the Nyquist plot with the result that one can see how it influences the microstructure of concrete and hence its performance. Furthermore, the mechanism of the change can be elucidated and its dynamics can be estimated.