

COMPRESSIVE STRENGTH BEHAVIOR AND CORROSION RESISTANCE OF SILICA FUME BLENDED CONCRETE FC' 35 MPa

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ABSTRACT

Under extreme (corrosive) environmental conditions, the quality of reinforced concrete structures deteriorates faster than when in a normal environment. One of the causes of decreased strength of reinforced concrete structures is corrosion of reinforcing steel. This study aims to determine the effect of using Silica fume on compressive strength, and corrosion resistance.

The method used in this test is to make concrete mixture using SNI 03-2843-2000 for concrete quality 35 MPa with silica fume as a substitute for cement. In this study, 2 variations with the highest average compressive strength have been selected for corrosion testing, the corrosion process has been carried out by the impressed current method, namely giving an electric current of 12 volts to the test object using a DC power supply,

The results showed that the use of Silica Fume had no significant effect on the compressive strength of concrete. There is a slight variation in compressive strength with the addition of Silica Fume at a certain percentage, but the difference is not significant. The use of 9% Silica Fume in concrete gives a good combination of high compressive strength and better corrosion resistance than other variations. The use of large amounts of Silica Fume can reduce the workability of concrete.

Keywords: corrosion, compressive strength, silica fume.