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Working Mechanism on the Salt Scaling of Concrete

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Summary

Concrete deterioration due to scaling of surface became harder with increase of scattering deicer (sodium chloride) for concrete road structure. This kind of deterioration is well known as salt scaling of concrete. Recently our laboratory proposed new test method with small sized sample which has a good correlation between ASTM C 672 and other test methods. With using this test method, influence of the lowest temperature of freezing, concentration of deicer (sodium chloride) and mix proportion of mortar on salt scaling deterioration of concrete are studied in this research. There is no appearance of scaling deterioration in case of using pure water at any lowest temperature of freezing. Salt scaling of concrete was more generated under deicer concentration of 0.1% to 10%, and -7 degree centigrade or lower of lowest temperature of freezing. Water cement ration of less than 0.25 is effective to decrease salt scaling. Sand cement ration from 1 to 3 is not effective.