

## Experimental Evaluation of Compressive Strength of Concrete with Several Local Sand Exposed to Freeze-Thaw Cycles

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**Abstract :** The environment protection has led to a growing interest in the use of crushed sand, which is not correctly exploited due to the high rate of fine particles that it contains and which affect concrete properties. This study will examine the variation of the compressive strength of concrete with several local areas of sand exposed to freeze-thaw cycles and chemical solutions. The experiments have been realized on crushed, river, and dune sands. We use software (MATLAB) to find the coefficient of particle shape. Finally, we have found a relationship between the reference concrete without modification and concrete modified with river and dune sands to predict the variations of resistance after curing in different environments. The results showed that the behavior of concrete is different according to the types of sand and the environment of exposition.

**Keywords :** crushed sand, compressive strength, freeze-thaw, MATLAB, dune sand, river sand

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