

C-25: Comparative study on workability tests

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Workability is the amount of useful internal energy necessary to produce full compaction. Main factor that influences Workability is the water content of the concrete mixture. Though many test methods are available, there is no acceptable test, which will directly measure the workability, under any condition. It is necessary to know their limitations and to select a particular test for any given condition.

The objectives of this study were to determine suitable testing methods depending on degree of workability, the variation of test results with different mix proportions, and the effect of test results with the presence of superplasticizers, and quarry dust. The workability was determined by using the slump test, V-B test, flow table test, K slump test. Tests were carried out for 1:2:4 mix, 1:3:6 mix, 1:2:4 mix with superplasticizers as an admixture, and 1:2:4 mix with quarry dust as a sand replacement by varying the water content of the mixes:

According to the study, except for the quarry dust mix, V-B test is good for very low ($<200 \text{ kg/m}^3$) and low ($<225 \text{ kg/m}^3$) workability while slump, flow table and

K slump tests are suitable for medium ($<250 \text{ kg/m}^3$) and high ($<275 \text{ kg/m}^3$) workability and flow table and K slump are better for very high ($>275 \text{ kg/m}^3$) workability. The quarry dust used in this study was very fine and the results of the mix showed that, V-B test is suitable for low workability and flow table test is suitable for high workability.