

GROUTING ADMIXTURE - NON SHRINKING (INTRACRETE)

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VERMONT DEPARTMENT OF HIGHWAYS

John T. Gray, Commissioner

R. H. Arnold, Chief Engineer

A. W. Lane, Materials Engineer

Report Prepared By

Structural Concrete Sub Division

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## INTRODUCTION

This test was performed to determine if a product met Vermont Specifications relative to a non-shrinking grout as required under Item 409. The contractor requested the use of an admixture manufactured by SIKA Chemical Corporation of New Jersey under the trade name of "Intracrete" (nitrogen-generating grouting aid). The Highway Laboratory test was instigated for the purpose of establishing the effectiveness of the admixture since it contains no aluminum powder as the expansive agent described in the Vermont Specifications. This admixture was originally designed for Pre-Stress Concrete and produces controlled expansion by generating nitrogen gas.

## MATERIALS

Mortar Sand supplied by Carrara's Clarendon plant was used with Iron Clad, Type I Cement. They were blended in proportions suggested by SIKA Chemical of three parts of sand to four parts of cement. One pound of the admixture (Intracrete) was then added for each sack of cement. Water was required only as necessary to obtain workability.

The Laboratory tests were made using 1% admixture relative to the cement.

## PROCEDURE

Cement and sand were added to the water and mixed to a uniform, thoroughly blended grout. The "Intracrete" was then added. Nine mortar cubes were molded and wet cured for four days. They were all broken in compression since early strength was the only result desired.

TEST RESULTS

The mortar cubes showed considerable expansion within the first five hours of curing, and when measured, averaged approximately 17%. This indicates that 1% admixture is probably too large an amount for this method of testing.

The compressive strengths averaged 4245 psi, which show that reasonably good strengths can be expected after a few days of curing.

CONCLUSION

The results of this test proved that we do get expansion as well as good strength when incorporating this admixture in our grout. Any further conclusions such as 28 day strengths and effects of varied addition rates of admixture would require more extensive testing.

It should be noted that the shelf life of this admixture is 3 to 6 months, and the inspector should see that it be freshly ordered for each application.