

AN INVESTIGATION OF THE CHEMICAL METHOD OF DETERMINING
THE CEMENT CONTENT OF HARDENED CONCRETE

1.0 Introduction

The Iowa State Highway Commission Laboratory is called upon to determine the cement content of hardened concrete when field problems relating to batch weights are encountered.

The standard test for determining the cement content is ASTM C-85. An investigation of this method by the New Jersey State Highway Department involving duplicate samples and four cooperating laboratories produced very erratic results, however, the results obtained by this method have not been directly compared to known cement contents of concrete made with various cements and various aggregates used in Iowa.

2.0 Purpose

The purpose of this study was to establish the accuracy of ASTM C-85, and establish a correlation between chemical determinations and actual cement contents.

7.0 Conclusions

This investigation was an attempt to establish the accuracy of determining the cement content of hardened concrete using the procedure given in ASTM C85 and to establish a correlation between these chemical determinations and known cement contents.

It was shown that the ASTM C85 procedure yields consistently low and erratic results which cannot be correlated with known cement contents. In order to produce results of reasonable accuracy it would be necessary to devise a method of breaking down the concrete that would prevent the loss of dust, which is rich in cement.