

ABSTRACT

Cement-aggregate reactions were first reported in the 1940's. Depletion of quality aggregate, changes in cement and the use of fly ash make cement-aggregate reactions a problem still today. This latest research into alkali-aggregate reactivity was initiated to evaluate the new ASTM style test containers and evaluate the effect of Class C fly ash on the expansive reaction.

Three aggregates were tested in combination with three cements and three fly ashes available in Iowa. Thirty-six combinations were made and tested over a six-month period. The conclusions were:

1. The new style ASTM containers were much more effective than the containers used by the Iowa DOT in the past.
2. Some mixes with 15 percent Class C fly ash had increased expansion over comparative mixes without fly ash.
3. The Oreapolis #8 pit did not appear to have an alkali-silica reaction problem based on this testing and earlier reported testing.