

The Beneficial Effects of Calcium Chloride Treated Roadways Containing Fly Ash

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ABSTRACT

The use of Calcium Chloride as a means of dust control for unsurfaced roadways has been well established. When this treatment is employed for roadbase and subgrade stabilization a fines content (e.i. -#200 mesh) of between 10 and 15% was required. When these fines were satisfied by the use of clays, it was shown that strength development was even further enhanced. The use of clays, because of cost and availability considerations in some areas of the country may not always be a cost-effective option. The paper will show that the use of fly ash because of its extremely high surface area characteristics represents an economical alternative to clay. In this approach, calcium chloride, normally used for dust abatement on unsurfaced roadways, when used in conjunction with fly ash is shown to provide excellent strength characteristics while extending service life beyond the 90-days normally expected in most dust-control treatments. A mathematical model which predicts strength development as a function of such parameters as particulate specific surface area and surface tension following chloride treatment will also be discussed.

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