



Magnesium Chloride Dust Coating Evaluation

Project Title Magnesium Chloride Dust Coating Evaluation

Project Number 2008-02

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Problem Kittson County maintains over 800 miles of unpaved county and township roads. Gravel roads are typically maintained by blading with a motor grader approximately every other week and adding additional aggregate when needed, usually every other year. Rising fuel costs and restricted budgets make it difficult to support the reoccurring costs associated with such gravel road maintenance, which can approach an average of nearly \$5,000 per mile per year.

Solution The county applied magnesium chloride to a section of County Road 58 in June 2009 to help reduce material and maintenance costs. The original plan was to use a solution of calcium chloride on the section of road, but the county decided to use magnesium chloride following discussions with other counties and after discovering that magnesium chloride was less costly by 16 cents per gallon.

Procedure To achieve the best possible results, the road was bladed and reshaped to an approximate 4% grade. Gravel was then added at a rate of 200 yards per mile and the road was bladed two additional times. Dustcoating, Inc., applied a solution of magnesium chloride at a rate of .30 gallons per square yard on a 15,000-foot section of County Road 58.

Results The application of magnesium chloride provided many benefits. By eliminating the need to apply a biennial resurfacing aggregate layer and reducing the maintenance blading operations in areas of light traffic, the product provided a long-term cost savings. Additional benefits included an estimated 75% reduction in dust, improving visibility for the traveling public and giving adjacent homeowners a higher level of comfort. The magnesium chloride also provided for an improved gravel road surface, which virtually eliminated washboarding and increased the ride quality index.

Approximate Cost \$15,000 (\$10,000 approved for project)

Implementation The projected savings totaled \$420.20 per mile based on the 2008 and 2009 Kittson County Highway Department annual reports, which included consideration of special work, repairs and replacements, and routine maintenance.

Status Complete

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