

## **TRAFFIC AND SAFETY INFORMATIONAL SERIES FREQUENTLY ASKED QUESTION #19**

### **HOW DOES THE COUNTY MAKE DECISIONS ABOUT DUST CONTROL ON GRAVEL ROADWAYS?**

Road dust consists of fine particles small enough that they feel like powder when rubbed between your fingers. This dust can be an annoyance to residences along a roadway and can be a safety hazard because of the reduced visibility it can cause at intersections and curves. When these fine particles are lost (i.e., removed from the roadway in large quantities), the road begins to deteriorate with washboarding, ruts, potholes, and other problems. In Iowa, gravel roadways are typically maintained by a county secondary roads department and a county engineer.

Fugitive dust is a term defined by the Code of Iowa Section 567-20.2(455B) as any airborne solid particulate matter emitted from any source other than a flue or stack. The Iowa Administrative Code further specifies that dust generated by farming operations and dust generated by ordinary travel on unpaved roads are not considered fugitive dust.

Dust palliatives (i.e., dust control materials) may be applied to reduce dust either by wetting the roadway surface or providing a surface coat to reduce the effect of tire/surface interaction. A dust palliative is any material (e.g., water, calcium chloride, magnesium chloride, lignin sulfate, asphalt binder [MC-70], or other products such as sugar beet extract [Molex]) used to control dust on unpaved roadways. Waste oil is no longer allowed as a dust control agent because it may contain polychlorinated biphenyl (PCBs), dioxin, or other contaminants.

#### **WHAT ARE THE POLICIES ON DUST CONTROL?**

Many Iowa counties have approved dust control policies that specify procedures for public dust control applications and a permitting process for private application of dust palliatives. These policies may specify the conditions under which a county may apply dust palliatives for reasons of safety. The application of dust control materials can be expensive. Counties typically cannot afford widespread county-financed dust control application. It might absorb their entire secondary road budget. Therefore, counties do allow the general public (with proper permits) to apply dust control agents on unpaved county roads next to their property. As required by the Code of Iowa Section 319.14, a permit must be acquired from the appropriate county or counties, usually through the county engineer's office.

#### **WHAT ARE THE GUIDELINES OF THE DUST CONTROL MEASURES?**

The minimum length of dust control application varies from county to county, but it is usually between 150 and 300 feet. In addition, permit deadline dates for an application may also be part of an approved dust control policy. Two dust control applications are often recommended to ensure that the treatment lasts a full season. The county may also require the resident to mark the location with flags so the segment of application can be identified, the roadway crowned, the necessary rock material added. Some dust control applications and permits may require pavement material and grading. A permittee may be required to repair any potholes or other deterioration at their own expense. Roadways on the border of two counties will often require dust control permit approval by both counties.

## WHAT ARE THE ACCEPTABLE MATERIALS USED IN DUST CONTROL?

A list of approved dust control materials and specifications should be obtained from the county within which the roadway of interest is located. The vendor of the material used may be required to provide laboratory analysis of the material to the county, and contractors that apply dust control material may have to meet certain qualifications. Some examples of dust control materials a county could approve include the following:

*Calcium chloride.* Calcium chloride absorbs water vapor from the air and water from the roadbed. This process allows traffic to compact the roadway. Calcium chloride is usually sprayed as a water solution with a specified percentage of the chemical. The county may also specify application widths and rates.

*Magnesium chloride.* This is a chemical similar to calcium chloride, but it is applied at different percentage and rate specifications.

*Lignin sulfate (tree sap).* This material is sprayed on the roadway surface and then mixed with the top few inches of the roadway surface. It may require remixing. Specifications may also require the unmixed form of lignin sulfate to have a certain percentage of solids and residual sugars. Application widths and rates may also be specified.

*MC-70.* This is a road oil or bitumen product. Federal regulations prohibit using bituminous products mixed with petroleum distillates. However, this product meets current Iowa Department of Transportation (IDOT) specifications. It is blotted with sand or limestone chips immediately after application.

## FACTORS CONSIDERED FOR DUST CONTROL

Individual counties may have a traffic safety program in place to treat some fraction of the county's roadways with dust control materials. A minimum average daily traffic (ADT) level must be met (e.g., 200-250 ADT) and coupled with an average traffic speed. IDOT traffic volume estimates may be used, or special traffic counts may be dictated by the county engineer. Counts are usually taken during a 7- to 10-day time period to avoid the effect of special events or repeated travel by drivers trying to inflate the traffic count.

Dust control may also be applied for specific traffic safety reasons at intersections, bridges, curves, a hill with limited sight distance, driveways, or other locations specified by the county engineer. Residents may also extend the treated areas at their own expense.

County funded dust control may also be used on park and recreational roadways, roadways leading to a quarry, and on construction detours and haul roadways. Established or implied detours with high levels of traffic may also be treated in compliance with local, state, or federal requirements.

## HOW MUCH DOES DUST CONTROL ACTUALLY COST?

The current cost for a dual application of calcium chloride to a 300-foot by 20-foot section of roadway by a private contractor is 250 to 300 dollars. The cost per application for different dust control materials can vary. Calcium chloride, for example, is about 0.30 dollars per linear foot for a 20-foot wide application. For an MC-70 application of the same area, on the other hand, the cost would be about 1.00 dollar per linear foot. A full seal coat with a rock base can be as much as 8.00 dollars per foot. In other words, the cost to treat all of the unpaved roads in a county could be as high as two to three million dollars per year per county.

### For more information

For more information, please contact \_\_\_\_\_.