

How calcium chloride saves roads and money:

☑ Improved dust control.

Calcium chloride retains moisture for prolonged periods. This unique property helps to suppress dust on unpaved surfaces and for road stabilization creating smooth-riding roads that last.

☑ Reduce routine maintenance costs.

Since calcium chloride treated roads need less maintenance than unpaved roads treated with other materials, you can save on labor, equipment and fuel costs. By maximizing compaction, calcium chloride also provides a longer lasting road.

☑ Reduced gravel replacement costs.

Up to 80 % of the cost of aggregate replacement can be saved when calcium chloride is properly applied.

☑ Reduced construction costs.

Because calcium chloride speeds compaction, less rolling is required to achieve greater density, which translates into greater labor savings. When used with full depth reclamation, calcium chloride reduces the replacement costs of gravel and other materials up to 80%, cut grading costs and can help reduce road construction costs by as much as 50%.

This brochure is meant to give the reader an overall understanding of dust control applications. Each dust control project may not include all the work described in this brochure. If you have questions regarding the work being performed in your area, please call our office. Thank you.



MCRC Edition 02.10.2017

The Monroe County Road Commission (MCRC) and townships work together to provide dust control for county residents. Depending on the resources available, we attempt to provide treatment for gravel roads at least once a year as contracted by with each individual township.

In 2010, a large majority of townships participated in the dust control program. A total of 376.66 miles of roads received dust control. Costs in 2010 were as follows:

Brine (paid by Twp)	\$111,945
Chloride (paid by Twp)	\$ 77,437
Grading, Inspection & Coordination (paid by MCRC)	\$146,131
TOTAL DUST CONTROL COSTS FOR 2010:	\$335,513

The MCRC recommends one (1) application of chloride, spraying a 16' wide solid swath at a rate of 2,000 gallons/mile. Using this recommendation, the average total cost per mile is \$1,445 (\$1,155 Township, \$290 MCRC).

The total cost of one (1) application of brine, spraying a 16' wide solid swath at a rate of 2,000 gallons/mile is \$705 (\$340 Township, \$365 MCRC).



Dust Control



840 S. Telegraph
 Monroe, MI 48161
 Phone: (734) 240-5102
 Fax: (734) 240-5101
 Web: www.mcrc-mi.org

~Road Commission Leadership~

Commissioners

Paul Iacoangeli, Chairman
Dan Minton, Vice Chairman
 Charles A. Londo, Member
 Stephen J. Pace, Member
 Greg W. Stewart, Member

Staff

Randy D. Pierce, Managing Director/Supt. Of Maintenance
Scott F. Assenmacher, County Highway Engineer
Phillip C. Masserant, Director of Finance
Keith C. Richard, Director of Operations
Camden Regis, Human Resource Director
Cheryl A. U'Ran, Admin. Assistant/Deputy Clerk

GRAVEL ROADS

The gravel or limestone placed on unpaved county roads contains a gradation of stone sizes, as well as a clay that acts as a binder to stabilize the crushed stone. Traffic on unpaved roads during dry weather disturbs the clay and airborne dust is generated. When you see dust coming up from your roads, you are really seeing dollars thrown to the wind. Road dust is made up of fine particles that are important to the stability of a road. These fine particles are small enough to pass through a No. 200 sieve and



feel like powder when rubbed between your fingers. When the fines blow away, the gravel road begins to break down. Traffic scatters the

coarser aggregate, causing potholes, ruts, washboards, loss of profile, loss of ditch lines, and other problems. Not only is the dust a nuisance to adjacent property owners and can obscure the vision of motorists, it also escalates the deterioration of the road surface since the stone material lacks an adequate binder.

Wetting the road surface helps to keep dust-related problems in check. Moisture helps fine particles adhere to each other and to aggregates, allowing for optimum compaction. In order to reduce the amount of dust and preserve the road surface, the Monroe County Road Commission (MCR) contracts with townships to apply to the road surface either calcium chloride or mineral well brine.

Calcium chloride is a by-product of mineral brine and is provided by a private vendor.



These applications absorb and hold moisture, thus keeping the road surface damp and dust-free for prolonged periods of time. The calcium chloride has a higher salt content and therefore is more effective in dust control but is also significantly more expensive.

As part of the dust control program, the Road Commission first thoroughly grades the road, and then sprays on the brine or chloride.

CONTROLLING DUST FOR LESS

Calcium chloride is a cost-effective and highly effective agent for dust control. Calcium chloride:

- Can be reworked when the road surface is moist.
- Reduces grading costs by as much as 50 percent.
- Poses minimal threat to the environment, because it resists leaching. In fact, calcium chloride is used in food processing, fertilizers and as a nutrient in some applications.

MINERAL BRINE is naturally occurring salt water that is pumped from the ground from brine wells. When applied to gravel roads, the brine draws moisture from the air and ground and helps to bind the materials in the road surface reducing the amount of dust that becomes airborne and providing a better driving surface. Mineral brine application does not last as long as the calcium chloride and therefore requires additional applications.

OTHER AGENTS USED FOR DUST CONTROL

WATER cannot withstand evaporation like calcium chloride. Once the water evaporates, you will have to water the road again. And frequent road watering adds to greater operating costs.

OIL is messy, chokes roadside foliage, and causes a crusty, potted, crumbling road surface when it dries. Oil also costs at least three times as much as calcium chloride, and is not environmentally friendly.



OIL EMULSIONS are less expensive than oil alone, but as the water evaporates, the problems of oil-messiness and a crumbling surface remains.

LIGNOSULFONATE, a by-product of paper mills, is less expensive than calcium chloride, but it lasts a fraction of the time. Frequent re-application is necessary due to wash-out caused by rain, which translates

into extra costs and re-application and maintenance trips.



MOLEX is a concentrated liquid extract of beet molasses. It is very hygroscopic (attaches to and holds water) and has a high level of potassium chloride. It is still in the experimental stages.