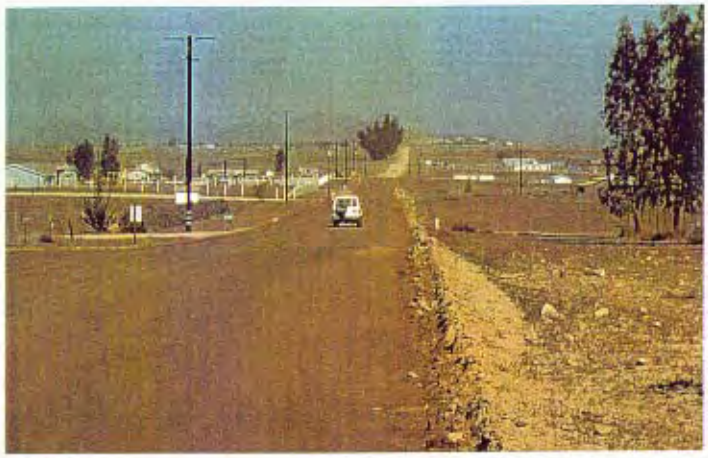
MAGNESIUM CHLORIDE

BEFORE



AFTER

BEFORE

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COMBAT FUGITIVE DUST WITH AN EFFECTIVE SOLUTION

CARGILL

DISTRIBUTED BY

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MAGNESIUM CHLORIDE

THE EFFECTIVE METHOD TO COMBAT FUGITIVE DUST

WHAT CAUSES FUGITIVE DUST:

- The breakdown of roadway surfaces.
- Wind erosion — particularly in areas of heavy construction for development.
- Inability to maintain adequate watering of potential problem areas, such as equipment yards or truck lots.

WHY CONTROL FUGITIVE DUST:

- Increase productivity, reduce equipment downtime.
- Reduce high cost of equipment maintenance.
- Maintain safe driving conditions on all roadways.
- Compliance with governmental agencies regulatory requirements.

AN EFFECTIVE AND ENVIRONMENTALLY POSITIVE SOLUTION TO CONTROL FUGITIVE DUST:

- Magnesium Chloride has been used successfully for years in the industry.
- U.S. Forestry Service supports and uses Magnesium Chloride on their access roads.
- Water control agencies have evaluated and support the use of Magnesium Chloride for dust control.
- Air pollution control districts are supporters of Magnesium Chloride for dust control.
- County agencies support and use the product in their own maintenance programs.
- Comparison to conventional road maintenance methods have produced up to 60 percent reduction in cost.
- Availability and cost of water are considerations today and for the future.

Western Salt Company (pictured on the front) is the local source of Magnesium Chloride for Southern California and Arizona. There are several methods that produce the product, however, the natural process used by Western Salt Company derives Magnesium Chloride from the waters of the Pacific Ocean. A reliable source that produces product naturally, Western Salt Company has been in business in San Diego for over 70 years.

For Further Information

DUST-OFF® STABILIZES ROAD SURFACES AND CUTS MAINTENANCE COSTS.

Defects that develop continually in unpaved roads can waste up to 75% of a county's annual road budget. When potholes, rutting, washboards and frost damage are repaired, there's still the problem of dust control. And where there's dust, there's sure to be continued road damage occurring. What's needed is an effective road surface stabilizer — Dust-Off Anticorrossive Dust Suppressant. Dust-Off helps stabilize road surfaces and cuts down on expensive maintenance such as frequent blading and regravelling.

FOR ROAD STABILIZATION, MAGNESIUM CHLORIDE OUTPERFORMS CALCIUM CHLORIDE.

Because magnesium chloride and calcium chloride are hygroscopic, meaning that they absorb moisture from the air, they both control dust. But calcium chloride loses its hygroscopicity as relative humidity decreases.[1] In long, hot dry spells, when dust control is most necessary, this could be a real problem.

Dust-Off's magnesium chloride formula remains hygroscopic at much higher temperatures and lower humidity than calcium chloride and therefore may be more suitable in dryer climates.[1]

DUST-OFF. THE PROOF IS IN THE PERFORMANCE.

Magnesium chloride performs as well or better than calcium chloride as a dust suppressant. That claim is confirmed by the toughest test of all: how it performs for the customer.

- The U.S. Army Corps of Engineers has tested magnesium chloride for use on assault airstrips and unsurfaced tank trails. The surface produced was a tight, macadam-like surface when compacted. The army considers magnesium chloride to be the most economically known product for controlling dust from tracked vehicles on cushionless (sand and gravel) soils.[2]
- The U.S. Forest Service has found magnesium chloride to be an excellent road stabilization agent and dust suppressant. The results of dust treatment with magnesium chloride received high marks in all areas.[3]
- In tests for the MX missile program, the Boeing Company found that hygroscopic materials did the best job as dust palliatives, and of this group, magnesium chloride was preferred.[4]
- In a report distributed by the Technology Transfer Assistance Program of the Missouri Highway and Transportation Department, magnesium chloride is said to be "more effective than calcium chloride solutions for increasing surface tension, resulting in a very hard road surface."[1]

Recommendations like this indicate that Anticorrosive Dust-Off is the proven performer when it comes to road stabilization and dust control. For you, that can mean reduced maintenance costs across the board.

(1) "Guidelines for Cost-effective Use and Application of Dust Palliatives." Roads and Transportation Association of Canada, Oct. 1986

(2) "Dustproofing Unsurfaced Tank Trails, Grafenwohr Training Area, Federal Republic of Germany, June 15-29, 1985." U.S. Army Corp. of Engineers Miscellaneous Paper GL-86-40, 1986

(3) "The Use of Magnesium Chloride for Dust Treatment and Soil Stabilization of Forest Service Roads." Eugene D. Hansen; USDA Forest Service Intermountain Region, Ogden, Utah, 1982.

(4) The Boeing Company; Report #D295-10567-1.

CARGILL SALT

DUST-OFF® IMPROVES ROAD CONDITIONS AND REDUCES MAINTENANCE.

In a recent survey of road engineers, it was learned that an average of 31% of their annual budget was used for gravel road maintenance.[1] Even though more engineers cite dust control as their most serious gravel road problem, only 8.5% of time and 8.4% of money spent are utilized for this problem. Engineers often find that even small increases in the time and money spent on a dust control and soil stabilization program can significantly reduce overall gravel road maintenance costs. With time and money at a premium, engineers are turning to dust control agents that are cost-effective, long-lasting and easy to apply. Dust-Off meets these requirements exceptionally well. Proper maintenance and the application of Dust-Off produces a low-cost, durable road surface with in-depth strength and virtually no dust.

THE U.S. ARMY LAUNCHES AN ASSAULT ON DUST.

The U.S. Army conducted two demonstrations using magnesium chloride as a dust suppressant on tank trails at Fort Irwin, California and on an assault airstrip at Fort Chaffee, Arkansas.[2]

The dust generated by military convoys at Fort Irwin caused dust clouds which obscured visibility on both the tank trails and adjacent roads, increased safety hazards and increased maintenance on the military vehicles using the tank trails. Similar problems with dust occurred on the assault airstrip at Fort Chaffee: impaired visibility for pilots and dust intrusion into engine compartments, air filters, propellers and turbines.

MAGNESIUM CHLORIDE HELPS WIN THE BATTLE.

Both army sites were prepared by blading away all ruts, potholes, washboard and loose excess surface materials. The exposed surface was then pre-wetted, compacted and treated with magnesium chloride dust suppressant. The results of the tests were impressive.

- The dustproofed assault airstrip was used 31 times by combat loaded C-130 cargo aircraft. Comments by participants were that "there was a 85 to 95% reduction in dust and a 100% improvement in flight operations in terms of landings and takeoffs."

No blading of the airstrip was required after the completion of the C-130 flights, which is normally a maintenance requirement after such flights.

- Rutting of the airstrip and tank-trails was minimal.
- The magnesium chloride provided 8 to 12 months of dust control with minimal maintenance.

In both studies, the army concluded that magnesium chloride provided a relatively dust free, unpaved riding surface. The absence of dust clouds could result in less wear and maintenance on engines, propellers, turbines and sensitive mounted equipment in vehicles and aircraft. And the dollar savings could be substantial.

These firsthand experiences have led the Army to recommend magnesium chloride for use on government unsurfaced roads and airstrips. And we recommend the premier magnesium chloride dust suppressant on the market, Dust-Off Anticorrossive Dust Suppressant.

(1) Better Roads— April 1992

(2) "Dustproofing Unsurfaced Areas: Facilities Technology Application Test (FTAT) Demonstration, FY 85." U.S. Army Corps of Engineers Technical Report GL-86-20, 1986

CARGILL SALT

Salt 939

LONG LASTING AND COST EFFECTIVE

The goal is cost-effective dust control. The concern is corrosion, longevity and road stability. The answer is Dust-Off® dust suppressant.

Unlike most dust control products that bind or glue the soil particles together, Dust-Off® road treatment acts to maintain optimum moisture in the road particles. This provides two benefits: It controls dust and provides a highly compacted travel surface.

Dust-Off® takes care of dust...

Dust-Off® is hygroscopic. It absorbs moisture from the air and retains this moisture in the top two inches of the road covering. By utilizing the moisture in the air, Dust-Off® multiplies its ability to hold down dust--giving you more dust suppression per gallon. That's money saved.

...and the road.

Proper moisture is essential to obtain optimum compaction. Maintaining moisture in the road surface results in an extremely hard travel surface which reduces maintenance cost. Washboarding and peeling of treated surface areas are just a few of the problems that are minimized.

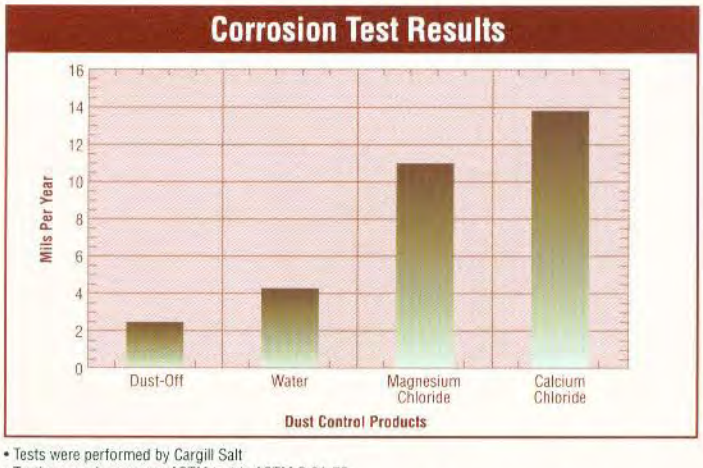
In addition to dust control, Dust-Off® road treatment also acts to provide soil stabilization. Dust-Off® is a specially formulated magnesium chloride that contains an anti-corrosive additive as well as natural corrosion inhibitors. These natural inhibitors are the result of a unique production process.

Dust-Off® road treatment is produced by the solar evaporation of seawater and requires over five years to reach a concentrated solution. This slow process is what allows the microbiological activity that generates the natural rust inhibitor. It is only domestic magnesium chloride that is derived from the ocean. When tested under ASTM C 31-72 Dust-Off® is far less corrosive than other popular dust control choices.

Local roads call for local expertise.

Dust-Off® is applied by your local distributor who can evaluate your particular soil conditions, climate and traffic patterns and provide a comprehensive dust control plan. Miles of road can be treated with Dust-Off® in one day. This topical application is quickly absorbed into the road surface, which means treated areas can be open to traffic just hours after application.

Dust-Off® road treatment has been used by the mining, agriculture, logging and general industries as well as state and local governments to control dust and maintain travel surfaces since 1983. For more information about Dust-Off®, contact your local distributor or call Cargill Salt at 1-888-385-SALT (7258).



- Tests were performed by Cargill Salt
- Testing was done as per ASTM test is ASTM G 31-72
- Results are reported in mils per year of weight loss to corrosion on 1010 carbon steel coupons.
- Test solutions were made from reagent grade MgC12 and CaC12 and demonized water.

DUST-OFF®

Dust-Off® Road Treatment

WHY DO YOU NEED DUST-OFF® ROAD TREATMENT?

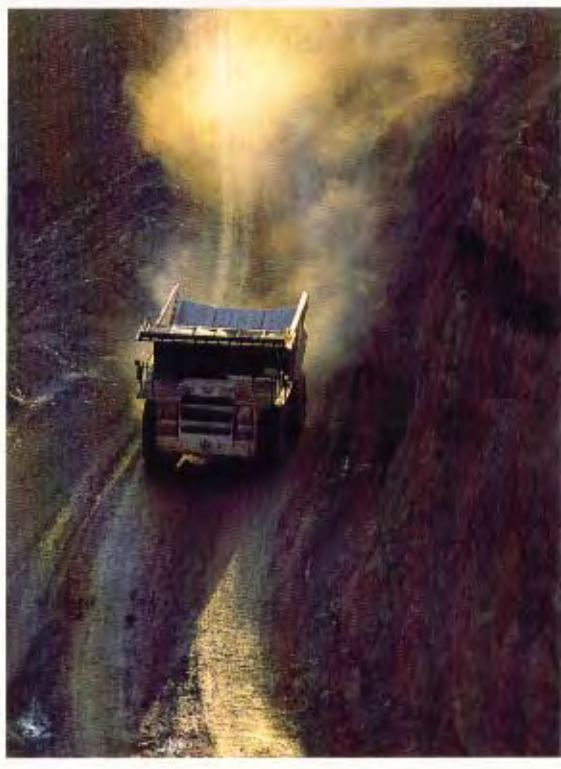
Increased safety. Vehicles traveling on an untreated gravel or dirt road pose several safety problems. The dust they create limits visibility for vehicles behind, for road workers and others traveling nearby.

Reduced vehicle maintenance. Dust gets into filters, bearings and hundreds of other auto parts. Less dust means less dust-related maintenance.

Increased stabilization. Untreated road surfaces require more frequent repairs of potholes, washboard, rutting and other damage. Dust-Off® will lengthen the time between required maintenance!

Greater efficiency. Smooth, well compacted travel surfaces will allow for ease of travel on unimproved roads. Dust-free environments will permit activities to progress at optimum speed – safely. Maximum visibility on road or work areas will assure the operation continues at top efficiency, regardless of dry conditions.

Reduces crop damage. Dust that lands on nearby crops can injure, if not destroy. Dust is also a carrier of harmful mites and pests and can inhibit the activity of beneficial insects when introduced to crops. Access and perimeter roads that are treated with Dust-Off® help solve this problem.



Contact your local distributor or call Cargill at ***1-888-385-SALT (7258)***

to learn more about how Dust-Off® road treatment can save you time, money and a lot more.

Cargill Salt *P.O. Box 5621 Minneapolis, MN 55440*

SALT# 1587
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