

MORE ABOUT CALCIUM CHLORIDE USED FOR DUST CONTROL ON GRAVEL SURFACES

CALCIUM CHLORIDE

The essential element for better roads

Dust Control

Calcium chloride is one of the most effective dust control agents in the industry.

Base Stabilization

A stable base requires maximum density, and moisture control is the key to density. Calcium chloride is an economical, dependable additive for obtaining optimum moisture during construction.

Full Depth Reclamation

When recycling roads through full depth reclamation, calcium chloride can provide a stabilized base that can withstand traffic even before the wearing surface is applied.

Whether you're stabilizing a road base or reclaiming a road, calcium chloride helps prevent costly maintenance problems. With a strong, structurally-uniform base that results from using calcium chloride, your road will be more resistant to problems like frost heave, uneven settlement, potholes and ruts.... So it will last longer and require less maintenance.

Each season brings new challenges to your road maintenance program. You can meet these challenges; improve the quality of your roads, and lower maintenance costs by using calcium chloride as part of your ongoing unpaved road strategy.

ROAD-RESCUING PROPERTIES OF CALCIUM CHLORIDE

Hygroscopic:

Calcium chloride absorbs moisture from air and surroundings.

Deliquescent:

Calcium chloride dissolves in the moisture and forms a clear solution that is extremely resistant to evaporation.

High surface tension:

Calcium chloride lubricates the aggregate, improving the interlocking action.

HOW CALCIUM CHLORIDE SAVES ROADS AND MONEY

Improved dust control:

Calcium chloride retains moisture for prolonged periods. This unique property helps to hold down dust and stabilize unpaved road surfaces, creating smooth-riding roads that last.

Reduced routine maintenance costs:

Since calcium chloride treated roads need less maintenance than 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.

Reduce 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 can help reduce road reconstruction costs by as much as 50%.

CALCIUM CHLORIDE IN DUST CONTROL

Dust is a public nuisance on unpaved roads, and can affect visibility to such a degree that driving becomes hazardous. Uncontrolled dust can also lead to a break-down of the road itself.

Calcium chloride is highly effective as a dust control agent, because it resists evaporation. As a result, calcium chloride keeps dust down longer than other dust control agents.

CONTROLLING DUST FOR LESS

Calcium chloride is a cost-effective-and highly effective-agent for dust control, providing savings of up to 50%. Calcium chloride also:

Reduces grading costs by as much as 50%

Reduces replacement cost of gravel and other materials by up to 80%

Reduces labor costs

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.

APPLYING CALCIUM CHLORIDE FOR DUST CONTROL

Blade and shape the surface to allow water to drain off properly.

Apply a 18% solution of calcium chloride using a tank truck with a rear-mounted distribution bar that spreads the liquid evenly over the road.

For proper road maintenance, apply a second time later in the summer.

APPLICATION TIPS FOR DUST CONTROL

Calcium chloride works best when applied just before roads become dry and dusty, because it can then retain moisture already present in the road.

Apply calcium chloride immediately after spring shaping, before the road has dried from the spring rains.

CALCIUM CHLORIDE LEAVES OTHER AGENTS IN THE DUST

Water can't resist evaporation like calcium chloride; that's why water can only delay dust instead of control it. Once the water evaporates, you will have to water the road again. And frequent road watering adds up to greater operating costs.

THE IMPORTANCE OF BASE STABILIZATION

To the public, the dust clouds trailing cars and trucks on unpaved roads are a nuisance, even a driving hazard. To those who maintain these roads, the fines leaving the road as a dust threaten the road's very existence.

Fine particles in a road fill the spaces between coarser aggregates which bind them into a compact, dense surface. When the fines are lost, traffic will break down the road surface, scattering the aggregate and causing ruts, washboard, and other hazardous problems. One study estimates that a single car travelling on an untreated road once a day for a year would throw off a ton of gravel per mile. Such unchecked deterioration leads to costly road rebuilds and higher road maintenance costs...not to mention complaints by local citizens.

Proper application of calcium chloride will stop the damage before it starts by maintaining a clean, solid, smooth-riding surface.

CALCIUM CHLORIDE KEEPS IT TOGETHER...

A road is only as strong and durable as its base... and the integrity of the road base depends on proper interlocking of aggregate.

Calcium chloride absorbs moisture from the air to form a clear liquid. This liquid is extremely resistant to evaporation and is attracted to negatively-charged soil particles (clay), which decreases leaching. Because it resists evaporation, calcium chloride maintains optimal moisture levels (between 7-8%) during compaction to attain a high density.

The calcium chloride solution penetrates the road's material, coating tiny particles of dust and gravel, binding them together. This binding action stabilizes the unpaved road, keeping it dense and compacted. Aggregate particles also interlock faster, speeding the compaction of the base. That means calcium chloride treated road bases reach greater density with fewer rollings than bases using only plain

water — which translates into labor savings. In fact, the cost of calcium chloride is often completely offset by the savings it provides in construction costs.

The calcium chloride solution moves deeper into the base during wet weather; during dry spells it rises towards the surface through capillary action to keep the surface moist. In this manner, moisture is maintained in the road to minimize the loss of fines. As a result, the road remains dense and compact under almost any level of traffic — even on the hottest, driest days.

...FOR LESS

Calcium chloride is a cost-effective alternate to paving, providing savings of up to 50%. Calcium chloride also:

- Reduces replacement cost of gravel and other materials by up to 80%
- Reduces compaction effort on loose granular surfaces by 60%
- Reduces labor costs
- Enables emergency and local traffic to use roads right after application, because it firms up almost immediately.

CALCIUM CHLORIDE STANDS UP TO OTHERS

Water can't control the road's moisture content because it can't resist evaporation. Calcium chloride is resistant to evaporation, so it continues to attract and retain moisture which improves compaction. So calcium chloride can help reduce your maintenance trips, grading, rework, and man-hours. It can also reduce equipment, fuel, and repair costs. Water only works as long as it's around. As soon as water evaporates, so do your savings!

Liquid calcium chloride

In liquid form, calcium chloride works best when applied just before roads become dry and dusty. Liquid calcium chloride will always add moisture to the road, but it penetrates better and is more effective if used to retain moisture already present.

Liquid calcium chloride is generally sprayed as a 18% solution, using a tank truck with a rear-mounted distribution bar that spreads the liquid evenly over the road.

A typical unpaved road treated with calcium chloride contains surfacing materials ranging in size from coarse aggregate (two inch maximum) to the very finest particles of binder and soil. A two-inch top size aggregate is considered maximum for easy blade maintenance.

The smaller-sized particles must be present in sufficient quantities to fill the spaces between each of the larger sizes. The binder soil, kept moist by treatment with calcium chloride, remains plastic, keeping voids filled. Traffic will compact the graded particles into place, interlocking them to form a dense, smooth-riding surface with sufficient strength to carry normal wheel loads. The surface thus formed is sufficiently tight and compact to prevent penetration by water from rain or melting snow.