



Prewetting with LIQUIDOW™

32% Calcium Chloride Deicing Solution

General Description

Prewetting granular material with liquid calcium chloride has been endorsed for more than 25 years by dozens of respected government agencies. Beneficial results with prewetting are achieved with both rock salt and abrasives under typical winter conditions. LIQUIDOW™ 32% calcium chloride meets or exceeds ASTM D98 and AASHTO M144 guidelines, making it an excellent choice for all prewetting applications.



Prewetting Rock Salt

The benefits of prewetting rock salt with LIQUIDOW™ 32% calcium chloride include faster ice-melting action, improved low temperature performance and reduced bounce and scatter. These benefits improve the level of service and reduce the overall cost of deicing.

Typical Application Rate: 8-10 gal/ton

Prewetting Abrasives

Prewetting abrasives with LIQUIDOW™ 32% calcium chloride helps to imbed the material in packed snow and ice, improving traction and reducing losses from bounce and scatter.

Typical Application Rate: 7-15 gal/ton

Product Availability

LIQUIDOW™ 32% calcium chloride is available in bulk tank truck and railcar. Higher concentrations are available if desired, however product temperature must be maintained above the crystallization point in cold winter weather while in transit and/or storage.

Typical Chemical Properties

Appearance:	Colorless to slightly turbid
Odor:	None
Density:	10.99 lbs/gal
Specific Gravity:	1.322
Freeze Point:	-17° F

Typical Physical Properties

Calcium Chloride:	32.0%
Potassium Chloride:	1.0%
Sodium Chloride:	0.6%
pH:	Slightly alkaline

Frequently Asked Questions

Are there benefits associated with using a corrosion-inhibited liquid deicer as a prewetting agent for rock salt?

What is the lowest effective temperature of prewetted rock salt and does that temperature change depending upon the type of liquid deicer used?

What are the benefits associated with prewetting sand stockpiles with liquid calcium chloride?

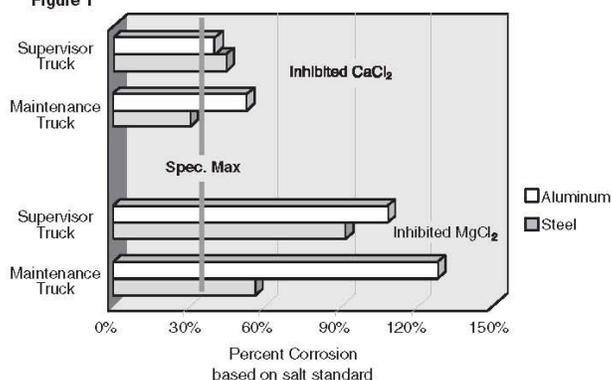
For answers to these questions, refer to the information provided on the back of this sheet, which has been assembled from recent independent studies.

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Are there benefits associated with using a corrosion-inhibited liquid deicer as a prewetting agent for rock salt?

It is unlikely that either highway infrastructure or the general public experiences any noticeable reduction in corrosion from the use of an inhibited prewetting agent. At typical prewetting rates of 8-10 gals per ton, there simply isn't enough inhibitor present to effectively counteract the corrosivity of 2000 lbs of rock salt once melting action begins. This position is supported by field corrosion measurements taken over two winters by Washington State DOT (see figure 1) which have raised questions regarding the ability of corrosion inhibited liquid deicers to effectively limit corrosion in anti-icing applications. If the performance of inhibitors falls short in anti-icing applications, it is unlikely that they provide corrosion benefit in prewetting applications, where the amount of inhibitor per pound of chloride is much lower.

Figure 1
2003-04 Corrosion Field Test Results
Washington State Salt Pilot Program

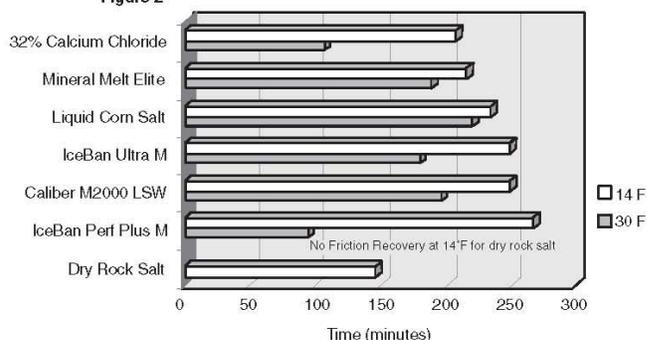


Does the lowest effective temperature of prewetted rock salt change depending on what prewetting agent is used?

Unfortunately, there is no standardized test for determining "lowest effective temperature". This lack of definition gives rise to many confusing and contradictory claims.

A recent study² provides some insight into the influence of temperature on the melting performance of prewetted salt. The time required for frictional values to return to wet pavement condition was measured after applications of both dry and prewetted rock salt. Figure 2 shows that dry rock salt was ineffective at 14° F, however friction recovery was achieved at this temperature with prewetted mixtures. The data also indicates a level of performance differentiation amongst various prewetted formulations.

Figure 2
Friction Recovery Times
8 gal/ton Mixtures



What are the benefits associated with prewetting sand stockpiles with liquid calcium chloride?

The Cass County Road Commission in Michigan found that liquid calcium chloride-treated sand stayed where it was spread and helped maintain long-lasting abrasion qualities under icy conditions³. When liquid calcium chloride was added to salt-sand mixtures, improved melting power was achieved in addition to good spreading characteristics. However, the biggest advantage to prewetting the sand was an improvement in safety. Frozen lumps in stored sand were eliminated, which previously required manual removal by employees during mixing operations.

¹ 2003-04 WSDOT Salt Pilot Project Data, Sixth International Symposium on Snow Removal and Ice Control Technology, June 7-9, 2004, Spokane, WA

² Laboratory Melting Performance Comparison; Rock Salt With and Without Prewetting, Sixth International Symposium on Snow Removal and Ice Control Technology, June 7-9, 2004, Spokane, WA

³ The Chloride Solution; How employees solved a winter operations problem for the Michigan Cass County Road Commission; Better Roads, April 2004

