ANDEMAR
DUST & ICE CONTROL LTD.
www.andemardustandice.com

Ice Control

We also offer OBPE's on their own for treating bulk salt.

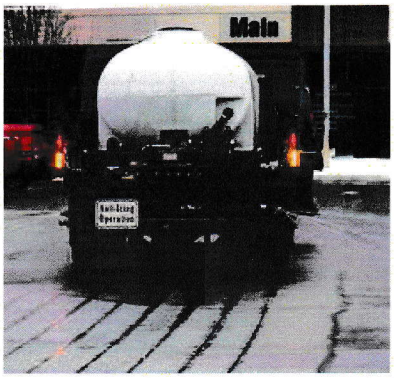
We offer 2 superior liquid ice prevention products. The first is Calcium Chloride Natural Brine 25-28% and the second is Manufactured Sodium Brine 23.3%, OPSS 2502. Both are offered in varying quantities to meet the needs of both large and small clients. Both products can be mixed with our ogranic based performance enhancers at different ratios to meet each client's needs. These products are identified as Agromelter 55 and Ice-Axe L and S.

Suggested material usage, based on temperature optimization:

- *Calcium Chloride Natural Brine & OBPE's > - 9 deg Celsius*
- *Manufactured Sodium Brine 23.3% & OBPE's < - 9 deg Celsius*

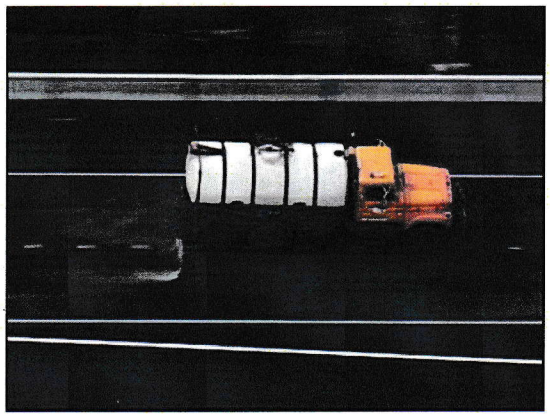
Pre-wetting

Studies show that traffic from as few as five cars can knock off 80% of solid ice-melting material, such as rock salt. Conclusive findings from research points out, that pre-wetted salt is more effective than dry salt for snow and ice control. The research, conducted by Dr. Liping Fu and his research team at the University of Waterloo for the Ontario Ministry of Transportation, found that, under the same conditions and application rates, salt pre-wetted with Liquid Calcium Chloride Brine out-performed dry salt by as much as 40 percent in terms of reducing snow cover. As well reduced the salt usage application by as much as 30%.



Anti-icing Pre-event

Anti-icing is a proactive approach to snow and ice control. Treatment consists of applying Liquid Brines to pavement as close as possible to the beginning of an event. Treatment creates a barrier to minimize snow and ice from bonding to pavement. This allows accumulated snow to be pushed off the road easier. Allows for maximum efficiency of snow removal equipment. It also makes post-storm cleanup easier and faster.



De-icing Post-event

De-icing is the reactive apporach to the buildup of ice and snow hard-pack. Treatment consists of applying liquids directly to built up areas with a specialized HVLP stream nozzled system. Allow burn through to occur, depending on situation, and remove with traditional equipment if required. Liquid Brine resists evaporation, which means longer-lasting effects, even as ice and snow melts.

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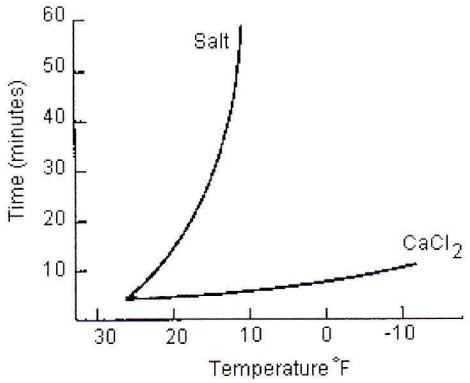
Perhaps most important in deicing applications is the superior deicing speed and power of Liquid Calcium Chloride (CaCl2) Natural Brine. The chart below shows the time it takes Liquid Calcium Chloride Brine to melt 1/8 of glare ice, as compared to rock salt.



Liquid Calcium Chloride Brine creates heat

Another distinguishing characteristic of Liquid Calcium Chloride Brine is that it gives off heat as it dissolves. This heat-releasing feature exists with liquid forms when calcium chloride content is high. Other common chemicals need to be heated to dissolve into a solution. The advantage of the heat properties when dealing with hard packed surfaces is the ability to breakdown these stubborn roads. See below for a comparison of other common deicers.

Product	Heat of Solution BTU/lb*
Liquid Calcium Chloride Brine	+290
Magnesium Chloride	+125
Sodium Chloride	-39

Liquid Calcium Chloride Brine is more effective than other products*

"CaCl2 has been used as a freeze-proofing additive to salt since the 1940s. Experience has shown the use of CaCl2 to have an advantage over NaCl because it is hygroscopic; i.e., it will absorb moisture from air at a relative humidity (RH) of 42 percent and higher. This serves to keep the salt crystals on the pavement after the bulk of the water has evaporated or been removed by traffic. In contrast, salt by itself will dry up and much will blow away.

It was found that Liquid Calcium Chloride Brine (CaCl2) was the most effective agent under the conditions tested, regardless of the dry salt rate and pre-wetting ratio. Liquid Calcium Chloride Brine (CaCl2) out-performed MgCl2 by 9.5% to 71.4% and NaCl by 37.5% in terms of average snow cover.

Application Tips

- Apply appropriate material based on temperature
- Apply using stream nozzles so materials are distributed directly on the wheel paths.
- Anti-icing is often effective for heavy frosts.
- Apply chemicals early in frost conditions or light freezing drizzle.
- When conditions could produce frost or black ice, apply on selected sections of the roadway (e.g., bridge decks).
- Consider spot applications on hills, curves, and intersections.
- When possible, apply material during low-traffic periods.
- Do not apply chemicals under excessively windy situations.
- Reapplication may not be necessary.