

Horticultural Review – December 2011 - Hodgins

Rock Salt Doesn't Melt Anything!

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In my *Smart About Salt Essentials Training* I do an experiment using a cold plate where I can simulate a frosting situation in the classroom. The picture here shows that the surface temperature is at -6.3°C and there is a good layer of frost on the surface. The granular of salt on the left has been sitting on the surface for some time and very little melting has occurred. Melting won't happen until a combination of moisture, heat and salt forms a brine (solution of salt in water). **It is the brine that melts the frost, snow or ice.** This is a fundamental principle that all snowfighters should understand.



At the end of the lesson I sprayed the right side of the cold plate with a 23% sodium chloride brine and VOILA - the frost is eliminated immediately.

Under the right conditions, the use of liquid anti-icing materials can create a much safer condition than straight salt with significantly less salt. I demonstrated this by spraying half my driveway with a liquid before a snow event. I put on just enough liquid to dampen the pavement. The next morning I woke to see the results of my efforts. The side of my driveway that was untreated was covered with snow, whereas the treated side was bare and damp. The salt residual that was left after I sprayed was there to melt the snow.



Over the following week a warm spell melted all the snow but we had no rain to wash away the salt brine that still remained on the left side of the driveway. Then we got another small snowfall and the same thing happened. The left side of my driveway was bare and damp and the right side was snow covered.

Road authorities that use liquid anti-icing have learned that this same principle can save them time and money and create safer conditions. For example: a road authority could apply dry salt to take care of four consecutive mornings of frost. However the dry salt will only last a day because of the effects of traffic.

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So in four days they could apply about 400 kilograms of salt per 2 lane kilometre. If they were to do liquid anti-icing, they would only use about 23 kilograms of salt and one application would last for the four days if there was no rain. That is a 94% saving in salt and much safer conditions.

There are a number of different liquid anti-icing materials on the market with different properties and working temperatures. They are an excellent tool for maintaining safe winter conditions in parking lots and sidewalks.

As with any tool the user needs to understand when and how to properly use liquid anti-icing materials. If you are a contractor, I encourage you to look into these materials. If you are a site owner or manager, you should discuss the use of liquids with your contractor.



Winter Salt Management Program

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