

Tips For Deicing

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Keeping parking lots, sidewalks, and other surfaces where people walk and drive clear of obstacles is an important safety factor for private and public facilities, not to mention private homes. For contractors offering snow and ice management services, there are a multitude of issues to address, and these include effectiveness of service, safety for all parties, and, often, concerns of environmental impact. One area of these services is deicing and anti-icing services. And the tools and methods available to the industry continue to evolve.

The Minnesota Pollution Control Agency has published the "Winter Parking Lot and Sidewalk Maintenance Manual," Third Edition, and it can be a resource for industry professionals. The full document can be found at www.pca.state.mn.us/programs/roadsalt.html. Following is an excerpt from the document, focused on the anti-icing and deicing methods.

Anti-Icing Method

Anti-icing is a proactive approach. It should be first in a series of strategies for each winter storm. Applying a small and strategic amount of liquid on the pavement before a storm will prevent snow and ice from bonding to the pavement. This buys time for the clean-up efforts.



(Photo: Getty Images)

Hot Tip: Anti-icing is like frying eggs: grease the pan and the eggs come out easily with no mess to clean up. Like greasing the frying pan, the purpose of anti-icing is to keep snow from sticking to the pavement. Anti-icing provides safer pavement during the event and faster clean up after the event.

Anti-icing requires about 1/4 the material and 1/10 the overall cost of deicing. It can increase safety at the lowest cost, and is effective and cost-efficient when correctly used and approached with realistic expectations. Anti-icing prevents formation of frost. It can be effective for up to several days depending on the weather conditions. Anti-icing is quick. It is possible to treat a parking lot in a matter of minutes. It is an excellent strategy for saving time. Charging by the hour is not a desired practice when changing to anti-icing

Get started in anti-icing. The basic equipment needed includes: pavement temperature sensor, storage tank, spray truck system, transfer pump, hoses, and fittings.

What to do. Here is a list from the Manual to get started and operate efficiently—

Calibrate, and use application rates suggested in the Rate section of this manual.

Apply with stream nozzles to maintain dry areas between sprayed areas to reduce slipperiness. Stream nozzles work the best for anti-icing.

If using fan nozzles apply extra light. This makes a dry surface wet and users will have less friction until it dries. .

Try anti-icing in a low traffic area to build confidence about its properties. .

Read some of anti-icing guidelines in the reference section of this manual. Test application rates and spray pattern to become confident in preventing the bonding of ice without creating a slimy, slippery situation.

What not to do. See this list of things from the Manual to avoid with anti-icing.

Do not re-apply if there is still residue. It can remain many days after application.

Do not apply $MgCl_2$ or $CaCl_2$ to a warm surface (above 35 degrees F pavement temperature). It can become “greasy” as it pulls moisture to the pavement. These liquids do not always become greasy, but there is a higher potential in warmer temperatures and higher humidity.

Do not over apply $MgCl_2$ or $CaCl_2$.

Do not apply liquids before a rain storm. They will wash away.

Anti-icing Tips. Consider these tips from the Manual for safe, effective operations. Liquids are more efficient than solids and may be applied days in advance of an event.

It is better to use less than more. Over-application can cause slippery conditions because it makes a dry surface wet.

Anti-icing is often an effective method for heavy frosts.

Liquids are dispersed by the traffic. Spray the traffic lanes and the liquid will migrate with the tires to the parking areas.

Some users advise against spraying the service road in front of buildings and instead spray traffic lanes and back service roads to allow the traffic to spread the liquids near the building where foot traffic is higher. This can reduce tracking into the building and over-application in a high traffic area.

For service roads on hills, some users recommend applying to only the top half of the hill, relying on traffic to carry it down the hill, to avoid a slippery situation at the bottom of the hill.

Anti-ice when weather forecasts indicate a need. Do not anti-ice on a regular schedule, e.g., every Friday.

Early application is particularly important for frost or light freezing drizzle.

Pretreated or pre-wet materials are not as efficient as liquids for anti-icing. These require more material overall than with liquids. The pre-wet granular materials don't stay in place as well as liquids. Pre-wet granular solids can work if applied at very low application rates immediately before snow.

Equipment. The Manual offers these tips into keeping fleet and other equipment.

Anti-icing unit, e.g., transport vehicle with tank. For larger trucks: Stream nozzles (minimum eight holes), 8" spacing, bar height 12" to 14" from surface, 30 to 35 psi at the bar. Solid stream-fan spray is more apt to make slippery conditions. A hand held pump sprayer or backpack sprayer can be used for sidewalks. Remember: leave a pattern of wet and dry to reduce the chance of creating slippery conditions. Lastly, a shutoff switch in the cab is recommended here.

Deicing Approach

Deicing is a reactive operation where a deicer is applied to the top of an accumulation of snow, ice, or frost that has already bonded to the pavement surface and can no longer be physically removed. Deicing costs more than anti-icing in materials, time, equipment, and environmental damage. Deicing is the "traditional" approach to winter maintenance.



(Photo: Getty Images)

Removing ice that has already bonded to the pavement is difficult. Removing it mechanically can damage equipment and surfaces. Generally, enough ice must be melted chemically to break the bond between the ice and the pavement. This requires larger amounts of chemical, making deicing much less efficient than anti-icing.

Use the application rate table [available in Manual, Figure 24] to help with deicing. Using recommended rates will help with these common problems:

Over-salting. Most over-salting can be prevented by using calibrated spreaders and good judgment in selecting application rates based on pavement temperatures. ·

Trying to melt everything. Don't try to melt all the snow on the surface with salt. This is an overuse of materials. Apply just enough to loosen the bond between pavement surface and the snowpack so it can be plowed off.

This is an excerpt from the Minnesota Pollution Control Agency publication, "Winter Parking Lot and Sidewalk Maintenance Manual" [available online here](#) .

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