

Anti-icing

Overview

Anti-icing is a proactive approach. Liquid chemicals are spread before a storm or frost to reduce the bonding between the snow and the pavement surface. Liquids, not granular products, are used in anti-icing. Anti-icing can help melt snow more quickly and reduce the likelihood that ice will form. Anti-icing requires 1/4 the material and is 1/10 the overall cost of deicing.²⁰

Anti-icing will not melt all of the snow that falls. It is intended to be a first step, before the storm, in maintaining a parking lot or sidewalk. Follow-up steps could include mechanical removal or applying deicer.



In this photo, notice the lines showing effective anti-icing application on the sidewalk.



Tip *Anti-icing before the storm can be time efficient and save salt.*

A good way to think about how anti-icing works is to picture an egg and a frying pan. The egg is the snow and the frying pan is the pavement. To prevent the egg from sticking to the pan, grease the pan. Like the grease, anti-icing chemicals will reduce the bond between the snow or ice and pavement.



The cooking spray will prevent the egg from sticking just like anti-icing prevents the snow and ice from sticking to the pavement

Equipment

Non-vehicle Equipment:

There is a variety of different equipment available for anti-icing from one-gallon hand sprayers to higher capacity backpacks or push sprayers. If an operator is using a dual-purpose piece of equipment (like a pesticide sprayer), the salt will corrode parts of the equipment. Equipment designed for winter maintenance is protected against corrosion.

Be sure the sprayer creates a solid stream, not a fan stream.



Above is a small hand-held anti-icing sprayer

Vehicle Equipment:

Equipment needed to outfit trucks or UTVs includes tanks, a boom with holes or nozzles, hoses, and chemicals (salt brine or other liquid products). There are many options and price ranges for outfitting a vehicle from purchasing a complete system to crafting a boom out of PVC pipe. Nozzles should spray a solid stream and not a fan stream to achieve the proper spread pattern. Space nozzles about eight inches apart and place the bar 12-14 inches from the ground for large trucks.



Above an ATV is applying deicer in a wet/dry spread pattern

Spread Pattern

The safest application is to apply in a wet/dry spread pattern. This will look like lines on the pavement. If something goes wrong, you will still have traction on the dry pavement.

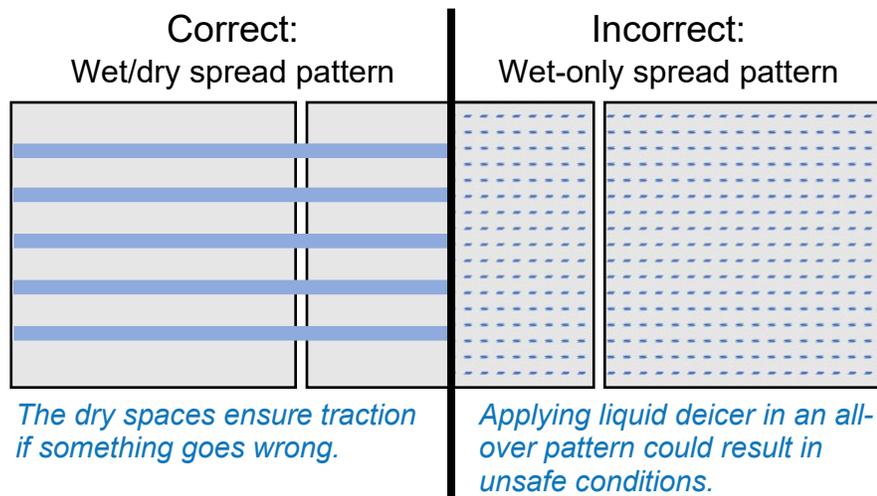


Figure 7: Anti-icing on a sidewalk

Communication with your Customers

Tell customers what the anti-icing application will look like. Many people are not familiar with anti-icing and liquid products. Let them know about this proactive approach, and they will soon learn to love the lines!

Love the Lines



Stripes on roads before a storm are anti-icing. They show that your professional maintenance crew is concerned about safety and is saving money, time and protecting our environment!

Graphic from Wisconsin Saltwise

Timing

The best timing rule for anti-icing is to apply the treatment as close to the storm as possible to obtain the best results.

Consider these factors while choosing the appropriate time to anti-ice:

- The amount of salt that is already on the pavement (from previous storms or anti-icing treatments)
- The amount of traffic from people or cars that will pass on the pavement- The more traffic between application and when it snows the sooner the anti-icing treatment will wear away.
- The predicted weather conditions

Other Considerations

Other tips that are helpful for achieving good results when anti-icing:

- Calibrate equipment.
- It is better to apply less. Over application can create a slippery surface.
- Experiment in lower traffic areas to become confident in applying liquids.
- Anti-icing works well for heavy frosts.
- Apply according to weather forecasts and not on a schedule.
- Consider how liquids will be tracked by traffic. For example, do not spray right in front of building entrances.

Chemicals

- NaCl brine (23.3 percent) is the most commonly used product (freezing point is -6° F).
- At colder than 15° F, other liquids should be used.
- Ask your vendor for application instructions for products other than NaCl brine.

Application Rates

To use an interactive version of the chart, go to the [Salt Wise application calculator](#).

Anti-Icing Application Rate Guidelines for Parking Lots, Sidewalks and Trails		
Anti-icing is a proactive practice intended to reduce the bond between the pavement and the snow and ice		
Predicted Weather	Recommended rates	
	23.3% Salt Brine (NaCl) gallons/1000 sq. ft.	Other Products
Frost/Sleet	0.3	Follow manufacturers' recommendations
Black Ice	0.5	
Freezing Rain	Not recommended	
Light Snow (<1/2 in./hr.)	0.5	
Moderate or heavy snow (≥1/2 in./hr.)	0.6	

***Maximum rates can be calculated by increasing recommended rate by 0.15 gal/ 1000 sq. ft.**
 Dane County Department of Land and Water Resources (LWRD) has determined that these guidelines establish a best maintenance practice for those fighting winter storms so they can provide high quality service and a lower impact on our environment. By issuing these guidelines, LWRD does not intend to extend its liability beyond that imposed by state statutes.

Figure 8: Anti-icing application rate guidelines for parking lots sidewalks and trails



Anti-icing is not suited for all conditions. Do not anti-ice when:

- It is blowing or windy conditions.
- Heavy rain is forecast before snow (it will wash away the salt)
- There is already salt on the pavement.
- There is already snow or ice on the pavement.
- It is too cold.
- On broken-up parking lots or gravel
- If you do not need to achieve bare pavement