Deicing

Overview

Using chemicals during or after a storm is considered deicing. Deicing is often necessary to loosen the bond between ice or snow and the pavement. Aggressive mechanical removal before applying deicers will reduce salt use.

Spread Pattern

When applying granular materials, leave space between the grains. Deicers should not be spread on thick or in clumps. Any spilled or excess salt should be cleaned up.

Correct:
Spaces between granules

Incorrect:
Thick spread of salt

Spacing between granules, as seen above, will vary with rate.
Piles of salt, shown in the photo above, are an example of a wasteful practice

When deciding where to apply salt, consider how salt moves. Foot traffic will spread deicer to the edges of sidewalks and into building entrances. Sidewalks spread with a narrow-spread pattern will allow for salt to stay on the sidewalk for more melting, less wasted product and less damage to plants and soil next to the sidewalk. If a broadcast spreader is too wide for the sidewalk, add a shield for an easy fix. Drop spreaders have been shown to be effective in reducing salt use.

Speed and Control

When using a vehicle to apply deicer, drive at slower speeds to keep salt on target. Granular products bounce off target at higher speeds.
Rates

Your equipment should be calibrated before using a rate chart. See Chapter 3.

Using the Rate Chart

You will need to know: type of material and the pavement temperature.

The steps to using the application rate chart:
- Determine the pavement temperature. (Chapter 6)
- Determine the product to use. (Chapters 7 and 8)
- Where the pavement temperature (left) and material (top) intersect equals application rate

The chart will give a range for application rate. If pavement is warming or cooling, determine what end of the range is appropriate (warming = less, cooling = more).

Note: Gray areas mean the product is not recommended for the temperature range.

To use an interactive version of the chart, go to the Salt Wise application calculator.

<table>
<thead>
<tr>
<th>Pavement Temp. (°F)</th>
<th>Rock Salt*</th>
<th>Bagged Blend Mostly Sodium Chloride</th>
<th>Bagged MgCl₂ or CaCl₂</th>
<th>Wet at 6-12 gal/ton</th>
<th>Winter Sand**</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Apply with calibrated equipment</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>28 ° to 32 °</td>
<td>2.3</td>
<td>2.3</td>
<td></td>
<td>1.6</td>
<td></td>
</tr>
<tr>
<td>23 ° to 28 °</td>
<td>2.3-4.5</td>
<td>2.3-4.5</td>
<td></td>
<td>1.6-3.2</td>
<td></td>
</tr>
<tr>
<td>15 ° to 23 °</td>
<td>2.3-6.8</td>
<td>2.3-6.8</td>
<td></td>
<td>1.6-4.8</td>
<td></td>
</tr>
<tr>
<td>0 ° to 15 °</td>
<td></td>
<td></td>
<td>2.3-6.8</td>
<td>3.2-4.8</td>
<td>3.2-4.8</td>
</tr>
<tr>
<td>-5° to 0°</td>
<td></td>
<td></td>
<td>6.8</td>
<td>4.8</td>
<td></td>
</tr>
<tr>
<td>&lt; -5°</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

SPEED of melting:
- AVERAGE: The colder it is the slower it works
- Faster than rock salt if gradation is finer

<table>
<thead>
<tr>
<th>ABOVE AVERAGE</th>
<th>FAST</th>
<th>FAST</th>
<th>NONE</th>
</tr>
</thead>
</table>

Spot treat as needed

Plow Only

* Dry rock salt is not recommended in cold temps. It is slow to melt and leads to over application.
**Winter sand contains ≤ 5% salt. It will not melt snow or ice. It is used for traction only.

For subsequent passes use ½ rate to the full initial rate.

Dane County Department of Land and Water Resources (LWRD) has determined 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 9: Deicing application rate guidelines for parking lots sidewalks and trails
Evaluation

Document the conditions and strategies for every storm. A post-storm debriefing form may be helpful for documentation (see Chapter 12). If salt is found on dry pavement after a storm, too much was applied. Granular salt found on dry pavement should be swept up.

Direct Liquid Application

Direct Liquid Application (DLA) is applying a straight liquid product before, during or after the storm. When used before the storm it is commonly called anti-icing. See Chapter 9 for more information on anti-icing.

When used during or after a storm, the liquid is sprayed at a high pressure with streamer nozzles through the snow and ice. This penetrates the snow and ice and creates a layer of melting between the snow and the pavement. This strategy is not intended to melt all of the snow or ice on the pavement.

- DLA is an advanced technique and should not be attempted unless you are familiar with using liquids.
- DLA requires penetration through the ice and snow to melt from the bottom up. Otherwise you will create a slippery surface.
- If liquids do not penetrate, but spread on top of snow and ice, a dangerous situation may be created.

Good situations to try DLA include:

- Micro layer of ice
- Warm or warming pavements

Since DLA is a new strategy, there is limited information available about rates. Most use application rates equal to or greater than anti-icing rates.