

# Deicer fact sheet and application rate guidance

This assists winter maintenance professionals in deicing decisions based on pavement and weather conditions. You should know the pavement temperature (not air temperature), area of application (length x width in feet or drive lane distance) and the amount of material your spreaders deliver at each setting and speed.

## Tips:

- Deicers melt snow and ice. They provide no traction on top of snow and ice.
- Deicing works best if you plow before applying material.
- Pick the right material for the pavement temperatures.
- NaCl (road salt) does not work on cold days, less than 15° F.
- Sand only works on top of snow as traction. It provides no melting.
- Anti-icing prevents the bond from forming between pavement and ice. Must apply prior to snow fall.

## Melt times for salt (NaCl) at different pavement temperatures

Pavement temp. °F	One pound of salt (NaCl) melts	Melt times
30°	46.3 lbs. of ice	5 minutes
25°	14.4 lbs. of ice	10 minutes
20°	8.6 lbs. of ice	20 minutes
15°	6.3 lbs. of ice	1 hour
10°	4.9 lbs. of ice	Dry salt is ineffective and will blow away before it melts anything

## Melting characteristics

Pick your material based on the lowest practical melting temperature, not eutectic temperature which is often listed on the bag.

Chemical	Lowest practical melting temperature
CaCl <sub>2</sub> (Calcium Chloride)	-20° F
KAc (Potassium Acetate)	-15° F
MgCl <sub>2</sub> (Magnesium Chloride)	-10° F
NaCl (Sodium Chloride)	15° F
CMA (Calcium Magnesium Acetate)	20° F
Blends	Check with manufacturer
Winter sand/Abrasives	Never melts – provides traction only

## Variables affecting application rates

Increase rate	Decrease rate
Compaction occurs & cannot be removed mechanically	Light snow or light freezing rain
There is a lot of snow left behind	Pavement temperature is rising
	Subsequent applications

## Deicing application rate guidelines for parking lots and sidewalks

These rates are based on road application guidelines (*Minnesota Snow and Ice Control Handbook for Snowplow Operators*, LRRB 2022). Use them as a target to achieve by gradually adjusting your application rates downward.

Pavement temp. (°F) and trend (↑↓)	Weather condition	Maintenance actions	Application rate in lbs. per 1,000 square foot area			
			Salt Prewetted/pretreated with salt brine	Salt prewetted/pretreated with other blends	Dry salt	Winter sand (abrasives)
>30° ↑	Snow	Plow, treat intersections only	0.75	0.5	0.75	Not recommended
	Frz. Rain	Apply chemical	1.25	1.0	1.5	Not recommended
30° ↓	Snow	Plow & apply chemical	1.25	1.0	1.5	Not recommended
	Frz. Rain	Apply chemical	1.5	1.25	1.75	Not recommended
25-30° ↑	Snow	Plow & apply chemical	1.25	1.0	1.5	Not recommended
	Frz. Rain	Apply chemical	1.5	1.25	1.75	Not recommended
25-30° ↓	Snow	Plow & apply chemical	1.25	1.0	1.5	Not recommended
	Frz. Rain	Apply chemical	1.75	1.5	2.25	3.25
20-25° ↑	Snow or Frz. Rain	Plow & apply chemical	1.75	1.5	2.25	3.25 for frz. rain
	Snow	Plow & apply chemical	2.0	2.0	2.75	Not recommended
20-25° ↓	Frz. Rain	Apply chemical	2.5	2.0	3.0	3.25
	15-20° ↑	Snow	Plow & apply chemical	2.0	2.0	2.75
Frz. Rain		Apply chemical	2.5	2.0	3.0	3.25
15-20° ↓	Snow or Frz. Rain	Plow & apply chemical	2.5	2.0	3.0	3.25 for frz. rain
	0-15° ↑ or ↓	Snow	Plow, treat with blends, sand hazardous areas	Not recommended	3.0	Not recommended
<0°		Snow	Plow, treat with blends, sand hazardous areas	Not recommended	4.5	Not recommended

## Anti-icing guidelines

These are a starting point only. Adjust based on your experience.

Condition	Gallons/1,000 sq. ft.		Other products
	CaCl <sub>2</sub> or MgCl <sub>2</sub>	Salt brine (liquid NaCl)	
Regularly scheduled applications	0.2 – 0.4	0.3 – 0.6	Follow manufacturers' recommendations
Prior to frost or black ice even	0.2 – 0.4	0.3 – 0.6	
Prior to light or moderate snow	0.2 – 0.4	0.3 – 0.8	

**CAUTION:** Too high an application rate may result in slippery conditions or tracking.