

Winter Parking Lot and Sidewalk Maintenance: Roads, Parking Lots, Sidewalks, and Driveways

Key Information Needed:
Pavement Temperature (it will different than air temperature)
Parking lot area (or drive lane distance)= Length x Width
Amount of material your truck or sander delivers at each setting and speed.

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

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 min.
25°	14.4 lbs of ice	10 min
20°	8.6 lbs of ice	20 min.
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		
	Chemical	Lowest Practical Melting Temp.
Pick your material based on lowest practical melting temperature, not eutectic, temperature which is often listed on the bag.	CaCl ₂ (Calcium Chloride)	-20°F
	Kac (Potassium Acetate)	-15°F
	MgCl ₂ (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 rate

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

Deicing Application Rate Guidelines for Parking Lots and Sidewalks

These rates are adopted from road application guidelines (Mn Snow & Ice Control Field handbook, Manual 2005-1). Develop your own application rates using the guidelines as a starting point and modify them incrementally over time to fit your needs. The area should first be cleared of snow prior to applying chemical.

Pavement Temp. (°F) and Trend (↑↓)	Weather Conditions	Maintenance Actions	Application Rate in lbs. per 1000 square foot area			
			Salt Prewetted/ Pretreated With Salt Brine	Salt Prewetted/ Pretreated With Other Blends	Dry Salt	Winter Sand (Abrasives)
> 30°F↑	Snow	Plow, treat intersections only	0.75	0.5	0.75	not recommended
	Frz. Rain	Apply chemical	1.25	1	1.5	not recommended
30°↓	Snow	Plow & apply chemical	1.25	1	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	1.5	not recommended
	Frz. Rain	Apply chemical	1.5	1.25	1.75	not recommended
20-30°↓	Snow	Plow & apply chemical	1.25	1	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	2	2.75	not recommended
20-25°↓	Frz. Rain	Apply chemical	2.5	2	3	3.25
	Snow	Plow & apply chemical	2	2	2.75	not recommended
15° to 20°↑	Frz. Rain	Apply chemical	2.5	2	3	3.2
	Snow or Frz. Rain	Plow & apply chemical	2.5	2	3	3.25 for frz. Rain
0 to 15°↑ ↓	Snow	Plow, treat with blends, sand hazardous areas	not recommended	3	not recommended	5.0 spot treat as needed
	Snow	Plow, treat with blends, sand hazardous area	not recommended	4.5	not recommended	5.0 spot treat as needed

To determine the amount of material needed, take the application rate x parking lot area/ 1000 ft². **Example:** Given a 300,000 sq. ft. parking lot and an application rate of 1.5 lbs/1000 ft² 1.5 x 300,000= 4500,000 450,000/1000 = 450 lbs (nine 50 lb. bags).

Anti-Icing Guidelines

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

Condition	Gallons/ 1000 sq. ft.		Other Products
	MgCl ₂	Salt Brine	
1. Regularly scheduled applications	0.1 - 0.2	0.25 - 0.3	Follow Manufacturers' recommendations
2. Prior to frost or black ice event	0.1 - 0.2	0.25 - 0.3	
2. Prior to light or moderate snow	0.1 - 0.2	0.2 - 0.4	

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