



SNOW AND ICE CONTROL TOOLS

UNDERSTANDING THE BASICS

This Snow and Ice Control Guidebook summarizes common snow and ice control tools and serves as an introduction to the field of winter maintenance for operators and managers.

Minnesota local agencies perform winter maintenance to keep roads clear for the traveling public. However, agencies must balance public safety, cost, and environmental concerns to effectively manage their winter maintenance. This guidebook will help new staff understand:

- Snow and Ice Control Strategies
- Snow Plows and Equipment
- Winter Maintenance Materials
- Winter Maintenance Technologies
- Winter Maintenance Policies and Best Practices

DOWNLOAD THE FULL GUIDEBOOK HERE:

www.lrrb.org/pdf/2016RIC11.pdf



SECTION 3: WINTER MAINTENANCE MATERIALS

WINTER MAINTENANCE MATERIALS

A variety of winter maintenance materials are available for local agencies to use to manage snow and ice.

This table summarizes the commonly used materials, their uses, attributes and environmental impacts.

	Abrasives	Solid Rock Salt (NaCl)	Salt Brine	Magnesium Chloride (MgCl ₂)	Calcium Chloride (CaCl ₂)	Calcium Acetate	Potassium Acetate
Usage	Mix with salt to provide traction to slippery roads.	Deicing or anti-icing	Pretreating and anti-icing	Deicing, pretreating, and anti-icing	Deicing	Anti-icing	Anti-icing
Typical Form	Sand (unpaved roads) or gravel (paved roads). Mixed with salt (20% to 33% salt).	Solid granular	Liquid	Liquid or solid	Liquid	Liquid	Liquid
Lowest Practical Melting Temperature	Lowest practical melting temperature	15° F	15° F	-10° F	-20° F	20° F	-15° F
Positive Attributes	<ul style="list-style-type: none"> Provides temporary traction More effective than chemicals at very low temperatures and for spot traction at targeted locations (hills, curves, bridges, intersections, shaded areas, winddown areas) Useful alternative in environmental sensitive locations (no salt roads) 	<ul style="list-style-type: none"> Excellent melting capacity Lower cost compared to other chemicals Clear roads of snow and ice 	<ul style="list-style-type: none"> Prevents snow and ice from bonding to pavement (anti-icing) Lower cost compared to other chemicals Reduced granular scatter when used for pretreating Low cost 	<ul style="list-style-type: none"> Reduced amount of product used, reduced salt and abrasive use over rock salt Better cold temperature performance than rock salt Prevents on the road surface, aiding in longer block ice prevention than sodium chloride 	<ul style="list-style-type: none"> Better cold temperature performance than rock salt Reduced amount of product used 	<ul style="list-style-type: none"> Non-corrosive Often used on bridge anti-icing systems 	