

- Check out other resources. If you are responsible for snow and ice removal somewhere other than your home, please check out our training and resources tab.

Know about the salt product

Salts can range from simple table salt to calcium chloride. Salts are used because they are able to decrease the freezing point of water. Whatever

product you chose, make sure you know at what temperature it stops working. We recommend using the table below as labels may be misleading. Note that pavement temperatures are usually warmer than air temperatures. To find out the pavement temperature near you, search the Road Weather Information Service, <http://www.rwis.dot.state.mn.us/>.



Calibrate your equipment and know where you are applying your snow and ice removal chemistries. photo Ken Rost

Winter Parking Lot and Sidewalk Maintenance

Key Information Needed:

- Pavement Temperature (it will be 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.
- Anti-icing chemicals must be applied prior to snow fall.
- NaCl (road salt) does not work on cold days, less than 15° F.

Use less! About one tsp. of salt contaminates 5 gallons of water.



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

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



Melting Characteristics

Chemical	Lowest Practical Melting Temp.
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:	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



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General Growth Properties, Inc.

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File available at www.pca.state.mn.us/roadsalt

Help protect our lakes, streams, wetlands, and drinking water!

Use best practices for winter maintenance.

Deicing Application Rate Guidelines for Parking Lots and Sidewalks

These rates are adapted 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 Condition	Maintenance Actions	Application Rate in lbs. per 1000 square foot area			
			Salt Prewetted/Pretreated With Salt Brine	Salt Prewetted/Pre-treated 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
20 - 25° ↓	Snow	Plow & apply chemical	2.0	2.0	2.75	not recommended
	Frz. Rain	Apply chemical	2.5	2.0	3.0	3.25
15° to 20° ↑	Snow	Plow & apply chemical	2.0	2.0	2.75	not recommended
	Frz. Rain	Apply chemical	2.5	2.0	3.0	3.2
15° to 20° ↓	Snow or Frz. Rain	Plow & apply chemical	2.5	2.0	3.0	3.25 for frz. rain
0 to 15° ↑ ↓	Snow	Plow, treat with blends, sand hazardous areas	not recommended	3.0	not recommended	5.0 spot treat as needed
< 0°	Snow	Plow, treat with blends, sand hazardous areas	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/1000ft² 1.5 x 300,000 = 450,000 450,000/1000 = 450 lbs (nine 50 lb. bags).

Anti-Icing Guidelines			
These are a starting point only. Adjust based on your experience.			
Condition	Gallons/1000 sq. ft.		Other Products
	MgCl ₂	Salt Brine	
1. Regularly scheduled applications	0.2 - 0.4	0.3 - 0.6	Follow manufacturers' recommendations
2. Prior to frost or black ice event	0.2 - 0.4	0.3 - 0.6	
3. 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.



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Who Is New From the U To You?

At a recent MGCSA Research Committee meeting Dr. Angela Orshinsky, a new turf pathology asset to the Association was introduced. The Committee is excited about the opportunities that are ahead.

Angela Orshinsky, Ph.D., joins the Department of Plant

Pathology as an extension assistant professor. Her research will focus on two components of an effective IPM program: early diagnosis of disease and the implementation of biological control strategies to manage diseases and weeds.

Angela will collaborate with extension educators, government agencies and industry personnel to implement an education program that will provide timely and accurate updates on diseases of importance to Minnesota's horticultural industry including fruit and vegetable growers, the turf and grounds foundation, master gar-

deners, and the Minnesota nursery and landscape association.

Dr. Orshinsky's interests and research goals include integrated pest



management (IPM) practices aimed to reduce agricultural inputs by preventing the introduction and

spread of plant pathogens, by early pathogen detection, and by implementing sound cultural and biological practices.

“It is my mission to provide the horticultural community with the tools and knowledge that they need to implement IPM programs that are effective, economical, and have a minimal impact on our environment,” Orshinsky's brief UMN biography read. “My research interests focus on two components of an effective IPM program: early diagnosis of disease and the implementation of biological

control strategies to manage diseases and weeds. As part of my research program, DNA-based diagnostic tools will be developed and used to conduct pathogen surveys.

These surveys will assess the potential for disease outbreaks across Minnesota so that the appropriate management plans can be initiated. The other aspect of my research program is the study of biological control organisms including their mechanisms of action, secondary metabolite production, and the impact of cultural practices on the fate of biocontrol organisms and naturally occurring microbial communities. The results of my research will directly contribute to the knowledge and tools available to the horticultural pathology extension education program.”

As a welcoming gesture, the MGCSA has matched funding from the MTGF to provide Orshinsky with start up grant funding totaling \$60,000 over the next three years. Less than eight weeks into her new position, Orshinsky has applied for, and hopes to get, funds from the GCSAA EIFG to match the MGCSA funding to study and develop a rapid response identification technique for *Rhizoctonia* and *Waitia* patch. Her background

in DNA research leads her to believe that rapid molecular diagnostic tools may be applicable to other diseases as well. It is hoped that by increasing the speed and accuracy of pathogen identification, many turf diseases will be controllable through cultural practices and result in fewer or more targeted chemical inputs.

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The Wee One Tournament, Peers Help

By Dave Kazmierczak, CGCS

A glorious cause deserved a glorious day.

That was the feeling of all involved at the 4th annual Wee One Tournament held at Brackett's Crossing Country Club on Monday October 7th 2013.

Under perfect blue skies and comfortable 65 degree temperatures some 131 golfers showed up to enjoy a day of golf, food and drink but more importantly, help raise funds for the Wee One Foundation, a charity supporting the golf course industry's personnel with needs due to medical hardship.

Superintendent Tom Proshek and his staff had Brackett's Crossing in terrific shape for the four-man scramble format and conditions were ideal for low scoring.

While the ultimate goal is

never to have to distribute any of the funds raised, there was not one person in attendance that didn't feel good about raising over \$21,000 dollars to support this year's recipient Eric Peters, Superintendent of

North Links Golf course in Mankato, Minnesota and his family.

Peters was diagnosed with cancer in March of 2013 in multiple areas of

his body, and has been undergoing treatment ever since.

With his wife, Diane and children Kirsten, Megan and Maxwell looking on, Peters expressed his gratitude to all who have helped him and his family through his journey to recovery. He also expressed his resolve to overcome his illness and return to a normal life. Eric was overwhelmed by the sup-



Helping Peers

port he has received from industry and the Wee One Foundation.

The Wee One Legacy began in 1985. Four friends traveled to Scotland on a golf trip. The caddies were making wagers as these golfers stood on the tee. One caddie declared, “My money’s on the wee one!” The “wee one”, Wayne Otto, CGCS, passed away October 21, 2004 losing his battle to cancer.

Wayne had dedicated his life to the betterment of the golf maintenance profession he loved and the individuals who shared his passion.

The Wee One Foundation was developed as a tribute to Wayne to assist golf course management professionals (or their dependents) who incur overwhelming expenses due to medical hardship without comprehensive insurance or ad-

equate financial resources. Through the Foundation’s work, Wayne’s legacy will never be forgotten.

Although the event was shadowed by a somber situation, everyone enjoyed the opportunity to be a part of a peer’s need. From the new Wee Putt Challenge to the brat and taco stands to the distribution

of door prizes, the event was festive and participants chose to celebrate life in general. Everyone was a winner



that day.

Some, more than others, as the group did recognized a Hole In One made by Mike Carlson and the team Kazmierczak, Lesmeister, Thompson and Rasmusson blew the field away with a score of 53. Make plans to attend next year’s Wee One Tournament and challenge Team Prestwick for bragging rights.

