

About Deicer Agents

Never use a product without reading the label instructions. Be familiar with both the ingredients and its application instructions. There are many products on the market, pick the one that meets your needs best. Below is a break down of some chemicals you might find useful in your winter maintenance routine:

Chemical	Lowest practical temperature
Sodium Chloride (NaCl): delivered as solid rock salt; very corrosive, inexpensive	15°F
Magnesium Chloride (MgCl): delivered as flakes, pellets, or liquid; corrosive, higher cost	-10°F
Calcium Chloride (CaCl): delivered as flakes, pellets or liquid; powerful deicer but extremely corrosive, utilizes exothermic reaction and radiates off heat and can perform at lower temperatures, higher cost	-20°F
Calcium Magnesium Acetate (CMA): delivered as powder, crystals, pellets or liquid; non-corrosive, non-chloride and biodegradable, higher cost	20°F
Beet Juice: delivered in liquid form; biodegradable salt alternative, non-corrosive, higher cost	-20°F

This is not an exhaustive list of ingredients.

Common Myths of Winter Maintenance

Myth: Salt application is safe for our environment.

Fact: Everything in moderation. In fact, too much salt can cause chloride contamination of our ground water.

The truth is, chloride (salt) contamination has been on a rise in the Illinois River since the onset of salt application in the 1960's. Too much salt application can kill plants and healthy soil bacteria. Storm runoff carrying excess salt goes directly to our creeks, streams and rivers and becomes part of the water cycle and eventually finds its way to our groundwater resources. Chloride contamination can be harmful to our ecology as well as our drinking water.

Myth: Applying salt will "burn off" snow and ice making it easier to shovel and clear away.

Fact: Salt application is only effective during certain temperature and weather conditions.

In fact, most salt loses its ability to melt ice at pavement temperatures of 15°F or below. Salt application is meant to prevent ice from bonding with the pavement and is not meant to be used once the ice has formed. This brochure will instruct you on effective methods for safe snow and ice removal.

EFFECTIVE SNOW AND ICE REMOVAL FOR HOMEOWNERS



Before the Storm

This is the ideal time to apply salt to your driveway and sidewalks. If the pavement has any snow accumulation, shovel, snow blow, or sweep off before any salt or de-icing application (see After the Storm). Dry salt tends to scatter or blow away, so do not apply dry salt in windy conditions. Do not apply prior to rainfall when it will wash away to storm drains.

Magnesium Chloride (MgCl) and Calcium Chloride (CaCl) products will work at lower temperatures than Sodium Chloride (NaCl) products (Caution: see Pet Safety). NaCl is not effective at temperatures of 15°F or below. MgCl is effective down to -10°F, and CaCl is effective down to -20°F. Regardless of product choice, the amount of salt needed to prevent ice from forming a bond to the pavement is the same—no more than 4lbs of salt per 1000 sq. feet (approximately 1 full 12 oz. coffee mug of salt weighs 1 pound). More salt does not equal more melting! Know the size of the area you plan to treat to best measure the effective amount of salt to use. Read product labels carefully before use.

*** Practice “just enough” application. Too much salt will cause excess runoff into storm drains. This runoff will go untreated to our rivers and streams, in addition to causing salt burn to grass and soil in your own lawn.**

During the Storm

As long as the temperature remains above 15°F, most pre applied salt applications will remain effective at preventing snow and ice from bonding with pavement. Only those applications of MgCl and CaCl will be effective below 15°F and will only work if temperatures are above -20°F. Reapply salt as needed, but remember to clear the pavement of accumulated snow and ice first to be most effective! If temperatures drop below -20°F, consider using sand for added traction. Just remember to sweep sand up after the storm so sand does not accumulate in storm drains.

*** In winter conditions, reduce your speed and drive safely. Limit travel when possible.**

After the Storm

Now is the best time to act quickly and remove any accumulated snow before it compacts and/or freezes. If possible, avoid driving over snow covered driveways so as to avoid compaction. There are multiple tools on the market to remove snow:



Shovels can push snow and/or scoop it up and dump it away from walkways and drives.



Root cutters and picks can be used to break up compacted snow and ice for ease of removal.



Brooms work great at removing light dustings of snow, as well as removing residual sand or salt left over after the storm

Sweep up any residual sand/salt mixture placed on the drive and walkways. You may even save this mixture for future reuse. Store your salt deicer agents in sealed moisture proof containers.

*** Fresh water can be contaminated from over-salting. As little as 1 tablespoon of salt to 5 gallons of water can impair fresh drinking water for both humans and fresh water species.**

Pet Safety

Remember your four legged loved ones when choosing a deicing agent. Read product ingredient labels carefully. Many CaCl and MgCl agents can be harmful to pets paws and skin. A glycol based product would be more pet friendly than typical commercial agents on the market. Remember to wash and wipe paws after being outside, this will reduce the exposure time if they have been in areas with typical deicer agents. Always store chemicals in sealed and properly labeled containers, away from both child and pet access.

*** Additional alternatives that are also more environmentally friendly include deicers derived from beet juice.**

More Information

Access to fresh water is a luxury, and while chlorides are not the only contamination threat—it is a growing concern. North Farm Creek Watershed in Tazewell County has shown elevated levels of chloride contamination. High levels of chlorides are dangerous for sensitive fresh water species such as bluegill. Chlorides in public and private drinking water wells would translate to costly desalination treatments! We need to prescribe or our roads, parking lots and sidewalks a low sodium diet! Be informed! This pamphlet is only a beginner’s guide. If you would like more information regarding how to protect our waters from chloride contamination, check out the following websites and videos:

Mississippi Watershed Management Organization (video):

http://youtu.be/qc8Y-_Nmfm0

The County of Dupage Storm Water Management:

http://www.dupageco.org/EDP/Stormwater_Management/Water_Quality/1193/

Accuweather (Information on pet safety):

<http://www.accuweather.com/en/weather-news/ice-melt-can-injury-dogs-1/59512>

Contracted Snow Removal Services

If you use a contracted snow removal service ask, them if they have attended the Heart of Illinois Winter Maintenance Workshop. Read about our success with this program in the 2012 February issue of *Roads and Bridges* magazine at this link:

<http://www.roadsbridges.com/winter-maintenance-engrained-mind>

Encourage your service provider to attend the HOI Winter Maintenance Workshop. For more information on the workshop, use our contact information below:

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