

A CITIZEN'S GUIDE TO COLD WEATHER PRACTICE



Winter brings with it lots of fun activities, like sledding, ice skating and skiing. But winter also means mounds of snow to shovel and layers of ice to remove from our sidewalks and driveways. We often make the job easier by applying deicers like salt. Besides sodium chloride, many deicers also contain chemicals like cyanide. When ice melts, the salts and chemicals dissolve and flow into street drains that lead directly to the river, endangering aquatic life. Here are a few tips to reduce salt use and prevent pollution year-round

Help prevent stormwater pollution this winter!

Below are some approaches to reducing stormwater pollution from household salt:

1. Try an Alternative

Calcium magnesium acetate (CMA) was developed as a deicing alternative because it has fewer adverse environmental impacts than salt and doesn't cause erosion.

2. Reduce your salt use.

By limiting the amount of salt we use on sidewalks and driveways, we can reduce the amount of polluted stormwater washing into our waterways.

3. Use De-icing Products Based On Winter Conditions

Before applying a deicer to your sidewalk, think about the air temperature, potential for sun exposure, and how much product you'll need. Remember to follow label directions carefully and use products sparingly. It's easy to over apply deicers, but applying more than you need won't melt your ice any faster.

- For Dry, Powdery Snow: Shovel or sweep snow immediately to avoid using deicer.
- For Wet, Heavy Snow: Apply deicer product as soon as snow begins falling in order to prevent it from bonding.
- For Sleet & Freezing Rain: Apply deicer product early on during these conditions to prevent ice from building up.
- For Significant Snowfall: When more than 2 inches of snow falls, plow or shovel first and then use a deicing product to melt any underlying layers of ice that have built up due to packed down snow.



Help keep our rivers healthy year-round!

WINTER

Besides limiting the amount of salt you use to melt ice, start thinking about adding native plants to your yard this spring. Plants native to Michigan have deeper roots than turf grass, so they help absorb stormwater and filter out pollutants.

SPRING

Along with adding natives to your landscape, take care of the lawn you already have by keeping your grass about three inches tall. Taller grass cools the soil, needs less water and shades out weed growth. It is also more insect and disease resistant!

SUMMER

Conserve water by using only what your lawn needs. By watering late in the afternoon, water will reach roots more easily and won't evaporate as quickly in the hot summer sun. Also make sure your sprinkler is watering your lawn — not your driveway or sidewalk!

FALL

Rather than bagging all of your leaves for disposal, try composting. Compost piles are easy to make, and you'll end up with rich, earthy fertilizer for your lawn and garden!

Comparing 5 Common Chemicals for De-icing

-- "Comparing 5 Common Chemicals" information provided by Iowa State University

1. Calcium Chloride (CaCl₂)

Pros: This chemical gives off heat so it works well at low temperatures (-25° F). Because it doesn't contain as many chemical additives as regular rock salt does, it is usually considered less harmful to vegetation. It is available in flakes, pellets or liquid form.

Cons: CaCl₂ attracts moisture from the air so it can leave behind a slippery residue that can be harmful to carpet, tile, shoes and your pet's feet. It can also be corrosive to metal.

Cost: About three times more expensive than rock salt, but you only need to use 1/3 as much it.

2. Sodium Chloride (NaCl, a.k.a. Rock Salt)

Pros: This is an effective deicer for areas that receive vehicle traffic because of the additional heat friction created by moving tires and heat exhaust.

Cons: It draws heat from the environment rather than releasing it, so it is not very effective below 25° F. Salts can leach into soil, changing its chemical composition and eventually flowing into local waterways. Salt is also highly corrosive to paved surfaces, buildings and metal.

Cost: Rock salt is generally the least expensive deicing product.

3. Calcium Magnesium Acetate (CMA)

Pros: Made from dolomitic limestone and acetic acid, CMA is salt-free and biodegradable. It will not harm the environment if used sparingly and is less corrosive to concrete and less damaging to plants.

Cons: It only works to 25° F. It can sometimes dilute and refreeze, leaving a slick residue on walkways.

Cost: About twenty times more than regular rock salt.

4. Potassium Chloride (KCl)

Pros: -

Cons: Increased potential to burn foliage and inhibit rooting of plants due to its high salt content. Performs poorly below 20° F.

Cost: Costs three to five times as much as sodium chloride, but doesn't work as well at low temperatures, so you need up to ten times as much to be effective.

5. Urea (NH₂CO NH₂)

Pros: Primarily used as a fertilizer, Urea has a lower potential to damage vegetation compared to potassium chloride.

Cons: Performs poorly below 20° F. It still has the potential to burn your lawn, shrubs and other plants when the chemicals dissolve ice and collect in one area. Very little of most fertilizer-based deicers are actually beneficial to your lawn. Most of the nutrients end up running off frozen soil in the spring and flowing into storm drains, where they cause massive algae blooms in local waterways.

Cost: Varies, but generally inexpensive.

Other De-icing Products

-- "Other De-Icing Products" information provided by Iowa State University

Potassium Acetate

(KC₂H₃O₂)

Pros: Works to -75° F. Potassium Acetate is considered safer than salt for steel and other metal structures. It is biodegradable and non-corrosive.

Cons: It attracts moisture from the air so it may keep pavement wet, leaving a slick residue. It also lowers oxygen levels in waterways if allowed to enter storm drains and is not always readily available to the public.

Cost: Eight times more than rock salt.

Magnesium Chloride

Pros: Effective to -13° F.

Cons: Is corrosive and attracts moisture from the air, which can keep pavement wet.

Cost: Two times more costly than rock salt, and you also need twice as much of the product for effective results.

Ethylene Glycol & Propylene Glycol

Pros: Propylene Glycol is considered a safer alternative for mammals than Ethylene Glycol. It is often found in "pet friendly" deicers.

Cons: Both products are considered by the EPA to be highly toxic to aquatic organisms.

Cost: Three to four times the cost of rock salt.

Sand

Pros: A salt and chemical-free alternative that poses no potential threats to plants.

Cons: Dry sand does not readily "stick" to ice or cause it to melt effectively. It may need to be dampened before application. If not cleaned up promptly in the spring, sand can clog storm drains and transport absorbed contaminants into local waterways.

Cost: Three to four times more costly than rock salt.

The most important step is to physically remove as much ice as possible before applying salt. Use a shovel to break up the ice before you add another layer of salt to your sidewalk. Adding more salt without removing what has melted can result in over-application, meaning more salt and chemicals end up in the river.

You can also reduce salt use by limiting access to your home to one entrance. For every doorway that is not used, there will be less salt running into the catch basin in your street.

