# Deicer: Less is More

*Guidance on the Proper Usage and Selection of Deicing Products*

Winter brings with it lots of fun activities, but it also brings mounds of snow to shovel and layers of ice to remove from our sidewalks and driveways. More often than not we make the job easier by applying deicers. But many deicers can contain dangerous chemicals that have negative impacts on the local environment and watershed. When ice melts, the salts and chemicals dissolve and flow into street drains that lead directly to our local water ways, reducing water quality and endangering aquatic life.

Here are a few tips to reduce salt use and prevent pollution:

## Reduce Usage

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

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

## Appropriate Usage

Before applying a deicer to your sidewalk, consider the air temperature, potential for sun exposure and how much product you'll need. Always 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 beings falling in order to prevent it from bonding.
- **For sleet and freezing rain:** Apply deicer product early on during these conditions to prevent ice from building up.
- **For significant snowfall:** When more than two 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.

City of Liberty missouri

# Alternatives

Consider deicer's with different primary chemicals. See the below table for a pros and con list of different deicing products:

| Primary Chemical | Pros | Cons | Costs |
|---|---|---|---|
| **Calcium Chloride** | • Gives off heat so it works well at low temperatures (-25 F)<br>• Fewer chemical additives than regular Rock Salt so it is usually considered less harmful to vegetation<br>• Available in flakes, pellets or liquid form | • Attracts moisture from the air which can leave behind a slippery residue that can harm carpet, tile, shoes and your pet's feet<br>• Can be corrosive to metal | • Approximately 3 times as expensive as Rock Salt |
| **Sodium Chloride (Rock Salt)** | • Effective deicer for areas that receive vehicle traffic because of the additional heat friction created by moving tires and heat exhaust | • Draws heat from the environment rather than releasing it, so it's not very effective below 25 F<br>• Can leach into soil, changing its chemical composition and eventually flowing into local waterways<br>• Highly corrosive to paved surfaces, buildings and metal | • Generally, the least expensive deicing product |
| **Calcium Magnesium Acetate** | • Made from dolomitic limestone and acetic acid<br>• Salt-free and biodegradable<br>• Will not harm the environment if used sparingly<br>• Less corrosive to concrete and less damaging to plants than Rock Salt | • Only works to 25 F<br>• Can sometimes dilute and refreeze, leaving a slick residue on walkways | • Approximately 20 times as expensive as Rock Salt |
| **Potassium Chloride** | N/A | • Increased potential to burn foliage and inhibit rooting of plants due to its high salt content<br>• Performs poorly below 20 F | • Approximately 3 to 5 times as expensive as Rock Salt |

| Primary Chemical | Pros | Cons | Costs |
|---|---|---|---|
| **Urea** | • Primarily used as a fertilizer<br>• Lower potential to damage vegetation compared to potassium chloride | • Performs poorly below 20 F<br>• Potential to burn lawn, shrubs and other plants when the chemicals dissolve ice and collects in one area<br>• Very little actual benefit to your lawn<br>• Most 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 | • Varies, but generally inexpensive |
| **Magnesium Chloride** | • Effective to -13 F | • Corrosive and attracts moisture from the air, which can keep pavement wet<br>• Need twice as much as Rock Salt to produce equivalent results | • Approximately 2 times more expensive than Rock Salt |
| **Sand** | • Salt and chemical-free alternative that poses no potential threats to plants. | • Dry sand does not readily "stick" to ice or cause it to melt effectively<br>• May need to be dampened before application<br>• If not cleaned up promptly in the spring, sand can clog storm drains and transport absorbed contaminants into local waterways | • Approximately 3 - 4 times more expensive than Rock Salt |
| **Potassium Acetate** | • Works to -75 F<br>• Considered safer than salt for steel and other metal structures<br>• Biodegradable and non-corrosive | • Attracts moisture from the air. Can keep pavement wet, leaving a slick residue<br>• Lowers oxygen levels in waterways if allowed to enter storm drains<br>• Not always readily available to the public. | • Approximately 8 times more expensive than Rock Salt. |
| **Ethylene Glycol and Propylene Glycol** | • Propylene Glycol is considered a safer alternative for mammals than Ethylene Glycol. It is often found in "pet friendly" deicers. | • Both are considered by the EPA to be highly toxic to aquatic organisms | • Approximately 3 - 4 times more expensive than Rock Salt |

**Information taken from "A Citizens Guide to Cold Weather Practice" with the permission of the Clinton River Watershed Council*