



Capitol Region Watershed District

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Sidewalk Talk: Deicing with Water Quality in Mind

Making sidewalks and walkways safe for guests can be challenging during a Minnesota winter. Ice on sidewalks and driveways creates hazardous conditions for people, property, and the environment. Yet some chemical deicers in spring snowmelt are a potential drinking water contaminant, a stressor to plants, and corrosive to both metal and concrete. Also, chemical-laden spring runoff harms plants and animals in lakes and the Mississippi River since all hard surfaces in our urban environment eventually lead there.

Snow and ice removal is least hazardous to water quality when it's done non-chemically with shovel, plow, and old-fashioned elbow grease. But admittedly the results aren't always adequate to ensure safety. A combination of shoveling, chemical deicer, and/or grit like sand is often part of a strategy to make winter walkways safe.

Five types of chemical deicers are commonly used, often times in mixtures:

Sodium Chloride (common rock salt) is fairly inexpensive, but is often not as effective as other chemicals. It is corrosive, can burn plants where ice is pushed aside, and is harmful to water quality. Salts can also cause dermatitis, paw inflammation, and stomach problems if ingested by pets.

Calcium Chloride is a different form of salt. As it dissolves in water, a chemical reaction gives off heat. It is effective at much lower temperatures than other deicers.

Potassium Chloride salt is more likely to harm plants.

Urea fertilizer (made from ammonia and carbon dioxide) is less likely to damage plants than potassium chloride, but may cause excessive plant growth along the edges of sidewalks and driveways.

Calcium Magnesium Acetate (CMA) is a salt-free melting agent made from limestone and acetic acid. It is more expensive, but has little impact on plants and is used on bridges and environmentally sensitive areas.

Applied to bare sidewalk before a storm, deicer melts through the ice and softens it from the bottom so a scraper or shovel can be used for removal. For melting through layers of ice, the shape of the deicer granules makes a difference. Round pellets melt through ice faster than irregular shapes, flakes, or powder. You can minimize damage to concrete and plants by using deicers sparingly. Use a 1:1 mixture of deicer and a grit like sand or fine gravel and sweep it up again in April to reuse next winter. Wood shavings, available free of charge at many carpentry shops, prevent slipping and will eventually decay. Old kitchen rugs can also work as excellent foot-grippers.

For more information, contact Capitol Region Watershed District at 651-644-8888.

"Our mission is to protect, manage, and improve the water resources of the Capitol Region Watershed District."