

DE-ICING SALTS AND LANDSCAPES DON'T MIX

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With winter cold comes icy and slippery walkways and driveways. While we need to clear surfaces of ice for safety's sake, we also need to be aware of the negative impacts deicing materials can have.

The most common de-icing product is sodium chloride—ordinary table salt or rock salt. Salt is corrosive and can not only damage concrete, but sodium and chloride are both toxic to plants in high concentrations. Salt applied to a walk or driveway will wash off and into the surrounding soil, building up over time. This destroys soil structure, raises soil pH, causes soil compaction which reduces water infiltration and soil aeration, damages soil microbial life, affects availability of nutrients to plants, and can reduce plants' ability to take up water. The result can be plant symptoms such as poor growth, browning leaf tips, plant dieback, or plant death. It may take several years in some cases for symptoms of salt-related damage to appear. Lawn areas, especially along walk or drive edges, die off and can become bare or weedy.

Salt can run off into storm sewers and into lakes and rivers where it is toxic to those ecosystems. Small creeks and ponds are especially affected by salt runoff. Chloride connected to deicing salts can also find its way into wells, which affects human health. Additionally, sodium chloride can be toxic to pets if ingested, such as from licking paws or drinking out of salt-laden puddles.

Sodium chloride only works to 15-20 degrees F, so when the temperature is lower than that, it won't be effective. It is usually the least expensive and most readily available option, but there are other commercially available de-icing products. Some products consist of salt with other materials mixed in to lower the melting temperature.

Other de-icers include calcium chloride, which is effective to -20 degrees F and acts very quickly, but it is much more expensive, highly corrosive, readily leaches into ground water, and damages plants. Magnesium chloride works down to -10 F and releases 40% less chloride into the environment than rock salt or calcium chloride; however it is also expensive and damaging to plants. Potassium chloride, which is used as a commercial fertilizer, only works to 25 degrees F, is relatively expensive and can damage plants, but doesn't damage soil structure as much as other materials. Urea, a component in nitrogen fertilizers, is often an ingredient in products labeled as pet friendly, but it too can damage plants and ground/surface water if over applied. It is not as effective as other products, especially at temperatures below 25 degrees F.

To avoid salt damage to plants and the environment, always use as little de-icing material as necessary for safety purposes. Use it only where needed in high-traffic areas, and try to apply it before the ice bonds to the pavement for better effectiveness. Use sand, wood ashes (such as from your fireplace), or kitty litter to provide traction in all temperatures, or mix these materials with a small amount of salt to get both melting and traction. Try to keep salt from washing into storm sewers, lakes or rivers.

Avoid shoveling salt-laden snow into planting beds or lawns. In areas where you expect salt to accumulate, choose plants that have tolerance for higher salt levels. You can also try flushing soil in salty areas in spring, applying several inches of water, to remove salt from plant root zones. In areas with heavy clay soil that has become very salt-laden and compacted, application of gypsum can displace sodium ions and improve aeration and drainage.

Salt or other ice melting products can be an important tool to keep surfaces safe during winter. However, they all can damage surfaces as well as plants, soil, and the environment, so they should be used appropriately and in moderation. For more information, see the UW-Extension publication "Winter Salt Injury and Salt Tolerant Landscape Plants" at <http://learningstore.uwex.edu/Assets/pdfs/A3877.pdf> or contact Diana Alfuth, UW-Extension Horticulture Educator, at (715) 273-6781.