



Answers to questions about structures, ventilation, soil, water, waste, energy, machinery and safety.

Deicers for walkways and roads

Slick steps, sidewalks and roads can be hazardous to your wintertime health. Removing compacted snow and ice with a shovel or blade is not always an easy task. That's where chemical deicing agents can come in handy. Sprinkled over snow or ice, deicers melt down through to the hard surface and "undercut" or loosen the snow and ice by lowering the freezing point of water.

Deicers are available in pellets, flakes, irregularly-shaped particles, and liquid. Research shows that uniformly-shaped, spherical pellets of 1/16" to 3/16" diameter penetrate ice faster than other shapes.

There are five chemicals commonly used as deicers. They may be used alone or combined with other materials to enhance their performance.

- **Calcium chloride** often works better than other deicing salts, especially at lower temperatures, because it gives off heat as it melts.
- **Sodium chloride**, or rock salt, is relatively inexpensive, but it can burn plants and corrode metal and concrete. It was first used as a road deicer in the 1940s.
- **Potassium chloride** is a naturally-occurring material that is also used as a fertilizer and food salt substitute. Its high salt index has the potential to burn foliage and inhibit rooting.
- **Urea** is made from ammonia and carbon dioxide and is used primarily as a nitrogen-based fertilizer. It is less likely to burn foliage than does potassium chloride.
- **Calcium magnesium acetate** (CMA) is a new, salt-free melting agent. It is made from dolomitic limestone and acetic acid (the main compound of vinegar). This material has little impact on plants and animals, is a good alternative for environmentally-sensitive areas.

Pelleted fertilizers containing ammonium nitrate or ammonium sulfate are sometimes also used for melting snow and ice. Be aware that these tend to damage concrete more than sodium chloride or calcium chloride do. Improper use of any chemical deicer may cause plant injury, which appears as drying, stunting, dieback, or "burning" of the foliage.

For locations where chemical deicers aren't appropriate, sand or cat litter can provide some traction but will not melt snow and ice.