

# DE-ICING AGENTS: WHAT PRODUCT IS BEST FOR USE?

*Waldman Engineering Consultants, Inc.*

We are often asked about de-icing and what is recommended.

There are several products to consider when choosing de-icing agents, Sodium Chloride (rock salt), Calcium Chloride, Magnesium Chloride, and Urea Acetates are just a few.

When addressing which product to use, attention need to be given to product effectiveness, potential of remedial damage to trees, grasses and bedding plants, and water runoff into these areas and as well as, streams, ponds and water ways. Also, considerations must be given to, deterioration and corrosive effects of these agents on concrete, asphalt, metals and other building products they will be in contact with.

The most commonly used agents are sodium chloride and calcium chloride.

**Sodium Chloride (rock salt):** The most commonly used de-icing agent.

*Benefits:* it is the most inexpensive and abundant of the products available.

*Challenges:* it loses effective in extreme temperatures (less than 15-20° F); Not as effective if applied before a freeze or snow fall; It can burn plants and beddings and build up in water ways; Corrosive to concrete and metals; Leaves a white, salt residue that is tracked into buildings.

**Calcium Chloride:** Sits closely behind salt in use as an ice melting agent.

*Benefits:* It can be effective to temperatures as low as -25 ° F; Effective when applied prior snow fall; Less damaging to plants, beddings and water ways then rock salt; No salt residue.

*Challenges:* Cost of the product can be found to double or even triple the cost of rock salt; Can have negative impact on plants and beddings. It is corrosive to metals.

Some of the lesser-used de-icing agents include Magnesium Chloride, and Acetates.

**Magnesium Chloride:** Similar to calcium chloride.

*Benefits:* It can be effective to temperatures as low as -15 ° F; Effective when applied prior snow fall; Less damaging to plants, beddings then salt or Calcium Chloride..

*Challenges:* Cost can be found in range with calcium chloride; however, product coverage is significantly less than the calcium chloride. High phosphorous levels make a significantly poor choice.

**Acetates:** Including calcium magnesium acetate (CMA), potassium acetate, and sodium Acetate, are salt-free.

*Benefits:* Do not cause damage to vegetation, concrete or metals; Effective temperatures are below 0°F; May be combined with other compounds to reduce the corrosive potential.

*Challenges:* High cost and used in the same sensitive locations that urea may be used in.

**Note Concrete:** New concrete is especially susceptible to damage from salt. It is recommended, salts not be used on concrete for the first winter after installation. Sand is often applied instead to provide traction.

**Note Landscaping:** Agents safest for landscaping are often expensive and not budget sensitive. Therefore, other products are used, so preventive actions may be required to protect sensitive areas. Some simple protective actions: Protect foliage burlap or other protective wrap, to protect from over spray; Lessen turf damage by applying gypsum before winter.

Each product has benefits and challenges to consider as it applies to the needs of the property. As always, the best ways to prevent damages is to plan for and prepare the landscaping, with consideration of the de-icing agents and the potential impact from areas near walks, steps, landings, lots, and roadways.

**Whatever the choice, use it and keep it available.**

**Be Safe, protect yourself and your neighbors from injury related falling on ice, it Hurts!**