

SUSTAINABLE LIVING

Road salt alternatives

By Shawn Dell Joyce

<http://www.sedona.biz/sustainable-living1407.htm>



SHAWN DELL JOYCE

Winter weather has struck unexpectedly early this year, and many people and municipalities are breaking out their snow shovels and road salt.

According to the National Research Council, we Americans dump between 8 million to 12 million tons of salt on our roads per year. Massachusetts, New Hampshire and New York report the highest level of salt use, with New York weighing in at 500,000 tons per year. The New York State Department of Transportation requires a road-salt application rate of 225 pounds per lane-mile for light snow and 270 pounds per lane-mile for each application during a heavy snow storm.

When you consider that there are approximately 6,000 miles of paved roadways near New York watersheds, you begin to see how all that road salt adds up. Some roads may get up to 300 tons of road salt per lane-mile each year. Recently, many scientists have begun to study the effects of so much road salt on ecosystems, water quality, public health and road quality. Here are a few things you should know before your break out that sodium chloride, the most commonly used de-icer.

- Salt destroys soil structure by killing some soil bacteria. This allows more soil to erode into streams, taking the salt with it. Salt erosion contaminates drinking water to levels that exceed public consumption standards.
- Salt doesn't evaporate, or otherwise get removed once applied, so it remains a persistent risk to aquatic ecosystems and to water quality. Approximately 55 percent of road-salt runs off with snow melt into streams, with the remaining 45 percent infiltrating through soils and into groundwater aquifers according to a 1993 study.



NO SALT, PLEASE - Using salt as a road de-icer destroys soil structure and contaminates waterways. There are alternatives to sodium chloride that are relatively harmless to the environment and still get the job done. CNS Illustration by Shawn Dell Joyce.

- Salt slowly kills trees, especially white pines, and other roadside plants. The loss of indigenous plants and trees on roadsides allows hardier salt-tolerant species to take over.
- Salt can change water chemistry, causing minerals to leach out of the soil, and it increases the acidity of water, according to Dr. Stephen Norton, a professor of Geological Sciences at the University of Maine.
- Elk, moose and sheep eat road salt causing "salt toxicosis" where they lose their fear of vehicles and humans, causing many fatal encounters.
- Salt acts like a desiccant and will dry out and crack animal paw pads - house pets are particularly susceptible.
- Road salt seeping into drinking water changes its flavor, and adds the excess dietary sodium associated with hypertension.
- Salt corrodes metals like automobile brake linings, frames, and bumpers, and can cause cosmetic corrosion. To prevent this corrosion, automakers spend almost \$4 billion per year.
- Salt can penetrate concrete to corrode the reinforcing rods causing damage to bridges, roads and cracked pavement.

Canada is considering classifying conventional de-icers as toxic substances under the Canadian Environmental Protection Act. California and Nevada restrict road-salt use in certain areas to reduce damage to roadside vegetation. Massachusetts is using alternative de-icers to prevent contamination of drinking water. New York State is considering doing the same to protect New York City's watershed.

There are alternatives to sodium chloride that are relatively harmless to the environment and still get the job done. Calcium magnesium acetate and potassium acetate are two chloride alternatives currently available. They are much more expensive than road salt, but if you factor in the loss of wildlife, soil erosion, water quality and corrosion, these alternatives start to look like a real bargain.

For home use, there are many alternatives with varying degrees of environmental safety.

- Sand is not a de-icer, but it does offer traction on ice. Unfortunately, sand adds to sedimentation in streams if it isn't cleaned off the roads.
- Urea is often used for de-icing as it melts ice and is not corrosive, making it popular for airport runways. Urea can also cause algae blooms in waterways, so it isn't a good

choice near streams.

- Kitty litter, gravel and ash don't actually melt ice, but they do provide traction. None are particularly healthy for the environment, as they could clog and contaminate waterways.

- Alfalfa meal is a natural fertilizer that actually melts the ice, provides traction and won't harm the environment. It is different than pelletized alfalfa sold in feed stores. Look for meal in local garden centers.

- The greenest choice is still a good set of snow tires that will offset the loss of fuel efficiency by providing traction. At home, snow cleats on your shoes and a good workout with a snow shovel will be more effective than any chemical de-icers.

- Got a bad back? Pay the neighbor's teenager to do the job for you and keep the money flowing in your local economy!

Shawn Dell Joyce is an award-winning sustainable artist and writer who lives in a green home in the Hudson Valley of New York. She can be reached at Shawn@ShawnDellJoyce.com

© Copley News Service

Visit Copley News Service at www.copleynews.com.