

Common Winter Maintenance Questions

What does VTTrans actually use on its roads?

VTTrans uses 4 products on its roadways: salt, brine, Ice B' Gone, and sand. There are many different types of salt that exist.

Salt- VTTrans uses the same salt you see on your table (NaCl), but in bigger chunks and not as clean.

Brine- Brine is simply water and salt mixed together into a solution. Dropping dry salt on the road into snow or ice also makes brine, just in a different way. Mixing water and brine ahead of time just starts the melting process a little faster.

Ice B' Gone- This is a trademarked product that VTTrans purchases for use in colder temperatures. Ice B' Gone contains molasses, magnesium chloride, and other proprietary products that allow it to work until -35° F.

Sand- Sand has absolutely no melting properties, but provides traction in icy situations. VTTrans only uses sand in certain situations as it is very environmentally degrading and costly to clean up in the spring.

How is salt brine made and how does it work?

There's no crazy method or madness to making salt brine. Brine is made by simply mixing together varying amounts of salt and water to reach the 23.3 % solution. VTTrans uses several different mixes to enhance brine: 95/5, 90/10, and 80/20. Salt generally works well until the temperature hits 15-20 degrees. When temperatures dip below 15-20°F VTTrans workers begin mixing in brine. Brine pre-wets the salt, which helps prevent bounce and scatter and allows salt to start working the second it hits the pavement. The brine allows salt to work to about -6°F. When the temperature drops below -21.1°C (-6°F), brine and salt are generally ineffective.

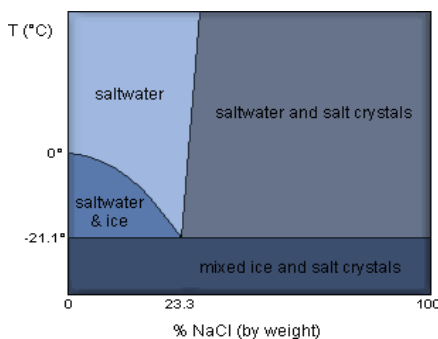


Figure 1. Brine's melting capacity extends to -6°F

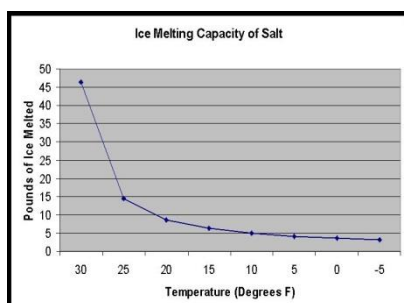


Figure 2. Salt's melting capacity is lessened between 15-20°F

Won't brine make the roads slippery?

No, calcium chloride and magnesium chloride can create chemical slipperiness when applied, but brine does not. There are MANY contributing factors to slippery roads, the main cause being tires heating up the snow and causing the snow to melt, then freezing on the cold pavement, turning it into a slippery sheet of ice.

Is salt brine bad for the environment?

RCRA* 8 metals are not present above the acceptably low method reportable detection limit. The 8 metals tested are silver, arsenic, barium, cadmium, chromium, mercury, lead, and selenium. VTTrans also tested for magnesium in their brine and Ice B' Gone and found it was not above acceptable levels.

*Resource Conservation Recovery Act.

Will salt brine rust my car out faster?

The common misconception is that salt brine is rusting your car out faster. Brine is only a diluted version of salt. To make brine, VTTrans workers simply mix salt and water in a large tank until it's a specific 23.3% solution and at times adds IBG at rates of 95/5, 90/10, or 80/20 solution of water to salt. If brine is applied before a storm it is sprayed on the roadway and dries after about 45 minutes. If applied during a storm, the brine allows crews to use less salt to clear the roadway. Less salt applied to the roadway also equates to less salt on your car! While at times it may make more of a mess on your car, the brine won't corrode the metal any faster.

What's the brown stuff on the road?

Additives make salt and brine work better at lower temperatures. VTTrans uses a product called Ice B' Gone. In its most basic form it's water, molasses, magnesium chloride, and a few trade secret additives, none of which tested above RCRA 8 low method reportable detection limit levels.

Ice B' Gone is actually less corrosive than sodium chloride as magnesium chloride has less corrosive properties. In fact, the EPA has rated the brine as "designated for the environment," which has been confirmed by a NELAP Accredited lab that tested our materials at VTTrans for these RCRA 8 metals.

What are the costs for these products?

Salt- \$79.0/T

Brine- \$0.15/gal

Ice B' Gone- \$1.24/gal