



# Road Salt & Winter Hazards

DRINKING WATER  
**SOURCE PROTECTION**  
Our Actions Matter



Every winter, many Canadians and their armies of snowplows and anti-ice avengers strap on their tuques and begin the annual tradition of salting their roads, sidewalks, walkways, and driveways without really knowing the harm they could be causing to their neighbourhoods.

According to Environment Canada, millions of tonnes of salt are used on our roads each year. We understand that road salt and other de-icing chemicals are commonly known to have a negative effect on our cars and shoes, but perhaps less commonly known is that these winter staples can also have severe impacts and cause lasting damage to roadways, pets and wildlife, homes, and the environment.

# Impacts

## Metals

Road salt is corrosive to any material made out of metal including vehicles, railways, train wheels, and bridges. This means that any metal that is frequently in contact with de-icing substances will tend to deteriorate much more rapidly, resulting in repeated costly repairs, dangerous road conditions, and a higher frequency of accidents and injuries.



## Your home

Melting snow will mix with any salt and grit used to de-ice roads and driveways and can find its way into your lawn and garden. This can raise the pH of your soil, rendering it less fertile and deteriorating the health of any trees, shrubs, and plants near your driveways and walkways. Systems of roots are easily damaged by the concentration of salt, which can cause drought-like conditions in plants that can no longer efficiently absorb the water they need.



## Pets and wildlife

Not only is salt severely toxic if ingested by your pets and wildlife, but prolonged contact with road salt can cause painful chemical burns to paw pads. Birds in particular are susceptible to ingesting salt granules, which can poison and reduce local populations, but even animals that get salt or salt-related wounds on their feet may lick them clean and subsequently become sick. Furthermore, since many wild animals are attracted to salt, they will more frequently find their way to roadsides, increasing the potential for car accidents.



## The environment

De-icing substances can have negative impacts beyond just roadside vegetation. More often, during melting season, the mix of melted snow and salt finds its way into nearby vegetative ecosystems; lakes, rivers, and watersheds; and even into your drinking water. This kind of contamination to water can cause permanent pollution, which could lead to the eradication of some species of aquatic life.



## Your family

Road salt can have an effect on your family if it ever makes its way into your drinking water. Any contaminants, such as an excess of sodium, that can run off and enter your drinking water sources could negatively affect you and your family without your knowledge. In severe cases, like Walkerton in 2000, for instance, road salt or winter chemical contamination in your drinking water can lead to serious illness or even death. But even less serious cases of contamination can pose a problem. For people of reasonable health, high levels of sodium in water may not have as severe of an effect, as the daily tolerable level for them is higher. Others, such as infants or those with more health concerns such as hypertension, congestive heart failure, or those on a sodium-restricted diet may find that sodium levels above 20mg/L in their drinking water can find that their water sources are harmful without even realizing.





## Alternatives

### Anti-icing

These are actions taken prior to the arrival of ice to reduce the potential for ice formation and lessen the amount of de-icing substances necessary. The practice of anti-icing involves the application of liquid brine solutions to roads, sidewalks, and walkways to prevent ice and snow from bonding to these surfaces. This proactive strategy suppresses the freezing point, and as a result, plowing after a snowfall requires less effort and is altogether more effective.

### Household Alternatives

Many household alternatives will follow the same goal as road salt; lowering the melting point of the ice. A certain level of sugar, salt, vinegar, or a combination of any of these can do this. Though some of these alternatives can still have some salt content, the quantity of salt used is always lower than road salt and much more environmentally conscious. These are some options of ice-melting alternatives:

- Beet juice
- Cheese brine
- Pickle brine

Some alternatives can provide traction rather than have melting effects on ice. These are some options of traction-providing alternatives:

- Sand
- Kitty litter
- Wood ashes
- Coffee grounds

There are always environmentally friendly alternatives to be found that more closely simulate the effects of road salt. Contact your municipality or local hardware stores to find out what practices or products are recommended for you.

Pay attention to your household's salt use year-round! If your home requires a water softener, try to stick to 1 bag of salt per month and have a professional maintain regularly or replace it when necessary.

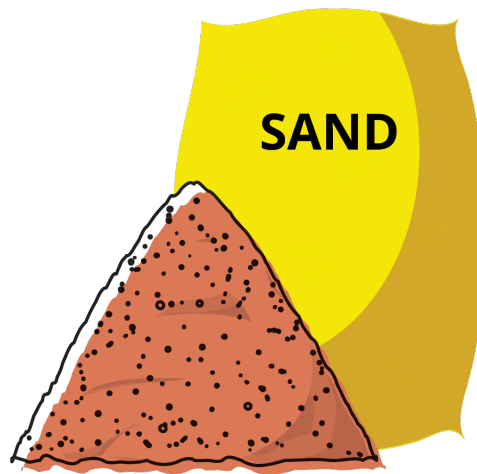
## Tips and Tricks

Here are some ideas of things you can do around your home to prevent ice accumulation on your driveways and walkways:

- Point your downspouts away from driveways, sidewalks, and walkways
- Keep eaves troughs and storm drains clear
- Pile snow in areas where it won't melt onto your driveway and refreeze
- Clear snow from walkways and driveways promptly to keep it from being packed down and turning into ice

Things to remember when using salt:

- Clear snow and break up ice using a steel ice chopper or shovel before applying road salt to reduce the amount of work the salt will have to do
- The effectiveness of road salt decreases in temperatures below  $-10^{\circ}\text{C}$  and becomes completely ineffective below  $-20^{\circ}\text{C}$
- Pay attention to the temperatures to avoid wasting salt in incompatible temperatures (below  $-10^{\circ}\text{C}$ )
- One coffee mug worth of salt is enough for 10 sidewalk squares or an entire 20-foot driveway
- Make sure to properly store dry road salt in sealed containers where it cannot absorb moisture to avoid additional unnecessary runoff and waste of salt
- Be patient and give salt the time to work before reapplying – sometimes you need less salt than you would think

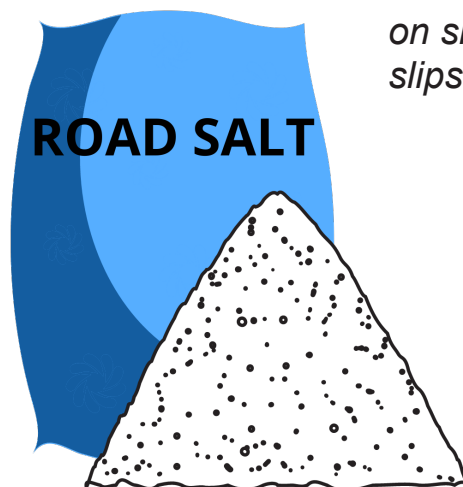


Sand is used for traction below

$-20^{\circ}\text{C}$

Salt is less effective below

$-10^{\circ}\text{C}$



*As always, wear snow-appropriate footwear and use caution when walking on slippery surfaces to protect against slips and falls.*

*Care for your vehicle accordingly by using snow tires and giving yourself extra time in the winter and on poor weather days to prevent accidents.*