CONCRETE ONTARIO

Ready Mixed Concrete Association of Ontario

DE-ICING SALT USAGE

DE-ICING SALT FOR CONCRETE

In Ontario, homeowners have to deal with snow and ice accumulation on their driveways in the winter months. What is the best way to clear them off without damaging the concrete surface? Most homeowners will simply throw de-icing salts bought from local hardware stores on their driveway, without considering if this is the best practice for their investment. Here is a list of dos and don'ts for concrete driveway winter care:

FIRST YEAR

Make sure you keep the concrete clear of snow and ice for the first winter after construction is complete. It is recommended that no de-icer of any type be used. Instead of de-icer products consider using sand for traction and slip resistance during the first year of service. New concrete containing entrained air to resist the effects of freeze-thaw cycles during the winter months may exhibit surface scaling if chemical de-icers are applied too soon after construction.

Scaling is the loss of surface mortar from the finished hardened concrete surface, resulting in flaking or peeling on the surface. This happens because the microscopic air voids purposely entrained in the concrete to resists freeze-thaw cycles are still saturated at an early age. The air voids cannot yet provide the pressure relief function, if melting water is soaked up and freezes within the pore structure.

*https://www.regionofwaterloo.ca/en/living-here/salt-management.aspx

AFTER THE FIRST YEAR

After the first year, light to moderate applications of de-icing chemicals may be used on the concrete surface if needed. Rock salt or sodium chloride (NaCl, the same as table salt) are recommended in lieu of harsher de-icing salts, such as calcium chloride or magnesium chloride.

Sodium chloride is effective to a temperature of approximately -10 degrees Celsius. While other salts are often promoted as more “effective” at colder temperatures, they are also much more physically and chemically aggressive to the concrete surface. Concrete is porous, therefore it will absorb moisture when the surface is thawed artificially. The concrete will soak up melted water and expand as it re-freezes. This internal expansion can cause surface scaling.

When concrete reaches a high level of saturation due to water from the melted snow and ice getting trapped within its pores, the concrete begins to significantly deteriorate. All de-icing salts can cause distress in the concrete over time, but the effects caused by sodium chloride are much less severe than those of other salts.

De-icers containing sulfates and nitrates, commonly used in fertilizing products, should never be used because of their very aggressive interaction with the concrete. Always clean off your driveway by removing accumulated snow and ice before water has the chance to soak into the concrete. Use rock salt in moderation and only if needed. Taking proper care of your concrete driveway will keep it looking great and ensure that it lasts for decades!