



# SNOWEX<sup>®</sup> LIQUID SOLUTIONS

⊕ Equipment 💧 Materials 📋 Training

## Anti-Icing Deicing 101

INFO SHEET 📋

There are three fundamental snow and ice control strategies in winter maintenance: Anti-icing, Deicing and Snow Removal, all of which seek to address the safety issues that result from the buildup of snow and ice on pavement.

Anti-icing and deicing utilize many of the same types of equipment and materials, but where they differ is when and how they are utilized. Anti-icing is a preventative measure that inhibits snow and ice from bonding to the pavement whereas deicing is a reactive measure to penetrate and break an established ice-to-pavement bond.

Snowfighters armed with the appropriate tools to execute each of these strategies are optimally prepared to expedite service objectives and gain a competitive edge when a storm hits.

### ANTI-ICING

To achieve optimum outcomes, anti-icing requires judgment in assessing a variety of 'real time' conditions to determine the preferred approach. Factors impacting such decisions include pavement surface temperature, the amount of moisture present/anticipated, the type of deicing material used, cycle times and the anticipated amount of sunlight/traffic during the event.



### ANTI-ICING 101:

- A **Proactive Strategy** – typically executed up to 48 hours in advance or at the onset of a storm, as long as rain is not in the forecast.
- A **Bottom-Up Strategy** – to inhibit compacted snow and ice from forming a strong bond with the pavement.
- The '**Best Management Practice**' utilizes a light application of a liquid deicer (est. 18-35 gallons per acre)\* applied directly to the bare pavement surface; however, pre-wet solids can also be used when called for.
- New studies demonstrate that under certain conditions, during storm Direct Liquid Application (DLA) of a deicer can be both an effective and efficient strategy as long as a strong bond has not formed.
- Do not apply on top of compacted snow or ice, or ahead of rain, sleet or high winds.

### Benefits of Anti-Icing:

- Expands operational timeframe to achieve service goals.
- As a preventive strategy provides expedited safety objectives at a lower cost.
- Reduces salt damage to property and landscaping when applied correctly.
- Reduces time and labor required to achieve performance goals.
- "Anti-icing requires about 1/4 the material and 1/10 the overall cost of deicing. It is the most cost effective and environmentally safe practice in winter maintenance." [Winter Parking Lot and Sidewalk Maintenance Manual](#), 2010 Minnesota PCA, MLTAP and Fortin Consulting

\*Rates are just a suggested starting point and should be adjusted according to specific conditions or situations.

## DEICING

The more common (trigger) approach to snow and ice control is to wait until an inch or more of snow accumulates on the pavement before starting to plow and treat the surface with deicers or abrasives. This approach often results in compacted snow bonding to the pavement surface. When this occurs, deicing measures are called for, requiring substantially more material to undercut the ice pack and weaken the bond to allow for removal.

“Because deicing is reactionary ... as a result of its inherent delay, it often provides less safety, at higher cost, than anti-icing. Nonetheless, the reactive technique of deicing will remain important for snow and ice control, as there will always be lower priority service levels that preclude preventive operations.”

Manual of Practice for an Effective Anti-Icing Program, A Guide for Highway Winter Maintenance Personnel, FHA 1996

### DEICING 101:

- A Reactive Strategy – Employed during or after a storm.
- A Top-Down application to penetrate and break a compacted snow or ice-to-pavement bond to facilitate plowing.
- The ‘Best Practice’ utilizes a liquid deicer to pre-wet rock salt in the auger or chute just prior to spreading.



### Benefits of Deicing with Pre-Wet:

- Less salt bounces off surface, conserving material and reducing environmental impacts.
- “Pre-wetting salt with brine or other liquid chemicals has proven to reduce application rates by 20-30 percent.”  
Innovative Environmental Management of Winter Salt Runoff Problems at INDOT Yards, 2004 Joint Transportation Research Program Study, Purdue University, INDOT, FHA
- Pre-wetting with salt brine jumpstarts the brining process and accelerates performance – solid deicers must first form a liquid to work.
- Pre-wetting with one of the exothermic chlorides (Calcium Chloride or Magnesium Chloride) will also enable the salt to work effectively at lower temperatures.
- Reduces time and labor required to achieve the desired performance goals.

### The key to successful anti-icing and deicing requires:

- Obtaining the right equipment and materials to execute each of these operations and monitor/control application rates.
- Providing your crew with comprehensive training on the Best Management Practices for these strategies.
- Obtaining accurate, advance and “real time” information relative to the unique conditions of a given storm.
- Synchronizing the use of these tools, resources and information to determine the best strategies and timing of operations to achieve optimum performance outcomes.

**The snowfighter who masters these elements can save thousands of dollars during the course of a season and achieve the competitive edge needed to grow his or her business.**