De-icing, Demystified

Moderated by: Dave Huffman, Territory Manager
Innovative Surface Solutions Canada
OVERVIEW

• Introduction
• Presenters
  • Paul Johnson, CET, CST, County of Wellington
  • Randy Adams, RM Adams Landscape Supply
  • Sean Hudson, Niagara Falls Bridge Commission
  • Jason Ciavarro, Supreme-Metro Corporation
• Q & A
Smart about Salt
Filling the Salt Management Gap

Presented by: Paul Johnson, Operations Manager
Wellington County, Ontario, Canada
SMART ABOUT SALT COUNCIL

- A not-for-profit organization
- Dedicated to the protection of the environment
- Through better management of salt
- On sidewalks and parking lots.
OUR HISTORY

Region of Waterloo developed the Smart About Salt program to encourage private sector to improve salt management practices.

2008

Widespread interest led to formation of Smart About Salt Council.

2010

This partnership brings together municipalities, private contractors, commercial property owners and public recognition.
To protect freshwater from winter salt applied on facilities

SAS Mission
SALT IMPACT

Where is it coming from?

- Facilities: 40%
- Roadways: 60%
Much of the salting activities in Urban Areas not covered by the Code
TWO-PRONGED APPROACH

Contractors

Sites
• *SAS Certified Contracting Company* – Must meet the Certification Standard
• *SAS Certified Site* – Manage Risk & Use Certified Contractors
• *SAS Accredited Operator / Accredited Site Manager* – Take SAS Training and Pass Exam
SITE CERTIFICATION

Manage Risk & Use Certified Contractors
TARGETED PRACTICES

- Equipment Calibration
- Material Application
- Tracking Material Use
- Use of Liquids
- Use of Non-chloride chemicals
- Material Storage
- Plowing
- Training
SMART ABOUT SALT PROMOTES IMPROVED RISK MANAGEMENT

- Use of best management practices
- Identification and management of high risk areas
- Better record keeping
- Proactive approach to winter maintenance
- Improved training
BENEFITS OF SAS

• Improved safety through proactive practices
• Manage risk through better record keeping
• Better environmental stewardship
• Less infrastructure damage
• Reduced insurance rates
• Reduced operating costs
MORE INFORMATION

www.Smartaboutsalt.com

or

contact@smartaboutsalt.com
Thank You!

Paul Johnson C.E.T., C.S.T.

paulj@wellington.ca
Presenter: Randy Adams
Owner, Adams Landscape Supply, Kitchener, Ontario
HISTORY OF RM ADAMS

• Started in the early 1980’s
• Randy and Eva bought first topsoil screening plant as a way to keep their small fleet of trucks busy during slower periods
• Currently source landscaping products from across Ontario and internationally
• Pride ourselves on knowledge, experience and expertise
• Have grown into Waterloo Region’s largest and most successful landscape supply companies
WHAT WE DO

Trucking

Landscape Supply

Snow Removal

Equipment Sales & service
WINTER MAINTENANCE AT A GLANCE

• 12 snow plows, 6 salters, 4 loaders
• Use liquids heavily
• Use all products that we sell on the properties that we look after
• Gives us a first hand experience so we can educate our customers on how each of the products work
• Try our best to use the right products for the appropriate weather conditions
PRODUCTS USED

- Bulk rock salt
- Treated salt
- Winter liquids
- Packaged ice-melters
- Winter sand
OUR COMPETITIVE ADVANTAGE

- Low employee turn over – very knowledgeable staff of industry experts.
- Strong customer relationships (trust factor)
- Multiple revenue streams – strong business in all seasons
- Proactive approach to winter maintenance
- Use premium products when necessary (winter liquids, treated salt)
HOW WE USE LIQUIDS

Direct Liquid Application
• Spraying liquid on pavement in anticipation of a snow event

Pre-Wetting
• Wetting the salt as it comes off the trucks

Treated Salt
• Using salt that has been pug milled and coated with magnesium chloride and a corn carbohydrate
BENEFITS OF LIQUIDS

Risk Management
- Works faster
- Lasts longer
- Works to colder temperatures

Economics
- Less material used
- Lower operational costs

Competitive Advantage
- Sets us apart from our competitors
- Exceptional service levels

Environmental Stewardship
- Smart About Salt initiative
- Less chlorides used overall
SUMMARY

• Liquids and/or pre-treated salt should be used by every company in the snow removal business.

• If you don’t currently offer this service to your customers, it is only a matter of time before they will start to look elsewhere and find a company that does.

• Many customers are willing to pay extra for premium products as it is a safer alternative and helps to reduce slip and fall accidents on their property.
Presenter: Sean Hudson
Niagara Falls Bridge Commission
NIAGARA FALLS BRIDGE COMMISSION

The NFBC maintains the facilities, plazas and physical bridge structures. It is bi-national with operations in NYS and Ontario and is entirely self-funded*.

*not a Gov't agency
PERSPECTIVE

1 crossing is primarily auto / tourist traffic
1 crossing is exclusively auto traffic
1 crossing is a mix of auto / commercial vehicles
1.54 million vehicular crossings & 63K pedestrian crossings Dec–Mar
WINTER ENVIRONMENT
WINTER ENVIRONMENT
WHY LIQUIDS?

2 primary factors in our decision making ...

Environmental:
Most of our roadways are over an international body of water, the impact of the use of salt on the immediate surroundings and on a larger scale was a concern.

Preservation of our structures:
We wanted something that was effective, but would be less corrosive to the steel and concrete of the physical bridges.
Environmentally – the product we use, is organic based and the use of liquids prevents material ‘cast off’. Meaning we put the material where we want it and we lose virtually none to bounce or scatter.

Less corrosive than normal rock salt – resulting in reduced coating maintenance costs significantly over the last decade or so.
WHY LIQUIDS?

Low working temperatures = less impact by the virtually constant winds blowing under our bridges.

With experience we’ve become very good at applying ahead of snow / ice events this in turn puts us in a better position operationally to be ‘ahead of the curve’ in being proactive in our winter operations.
ADDED BENEFITS OF LIQUIDS

• Spring clean up is now days not weeks.

• Pavement marking lasts longer, partially attributed to the lack of abrasive materials being applied to the roadway.

• Our green spaces, lawns and gardens are healthier in the spring because of the reduced salt run off during melts.
OUR EXPERIENCES

We began with simple tanks and spray bars – with guidance from a supplier.

We continued our ‘traditional’ means of snow and ice control – but made a continued and deliberate effort to educate and train our staff.

Used some trial and error methods to deal with our unique environment
OUR EXPERIENCES
OUR EXPERIENCES
OUR PROCEDURES

We have experimented with many patterns of spray applications – and have found this to be our most effective.

Our intent – is to apply before precipitation, up to as much as 8 hrs. in advance.

Worth noting, once applied the liquids are ‘tracked’ by traffic and effectively spread over the entire road surface.
We find our methods to be extremely effective in providing a safe travelling surface for vehicular traffic.
BEST PRACTICES
Liquid and Granular Anti-Icing and De-Icing

Education Breeds Change
Become Educated

Presented by Jason Ciavaro / Supreme – Metro, Green Ways Plus
Jason Ciavarro  
**President, Advanced Pavement Group/NJ Operations, Asphalt & Concrete Contractors**  
**President, Green Ways Plus, Liquid & Granular Ice Melt Products**

- Supreme-Metro since 1988 has grown to over $13M in sales and employs over 60 employees.
- Supreme-Metro provides asphalt, concrete and snow management services to Commercial Properties, HOA’s, Municipalities and Schools throughout the Tri-State area.
- Green Ways Plus holds many educational seminars to encourage the use of safer and more effective products which include liquid and granular options. The State of New Jersey does not have consistent winters or snow storms which require different tools in the toolbox to be utilized.
- Jason attends various peer groups throughout the year in constant effort to better himself and his companies and holds numerous certifications within the asphalt and concrete industries.
OUTLINE

- Liquid & Granular Ice Melts
- Pending Weather
- Protecting Parking Lots
- Available Equipment
- Sample Pictures
- Questions?
LIQUID & GRANULAR ICE MELTS

What is Anti Icing & De-Icing?
WHAT IS DE-ICING?

De-Icing is designed to melt through ice and snowpack and to break its bond with the road or walkway surface.
WHAT IS ANTI-ICING?

Anti-icing is the application of a chemical freezing point depressant to a pavement before or at the start of a winter event. The chemical inhibits the formation of the snow/ice bond to the pavement. It can help prevent frost and/or black ice situations due to pavement dew point temperatures.
WHAT DO THE STATES SAY?

Liquid anti-icers work like anti-freeze by lowering the freezing temperature of water and preventing ice from forming a strong bond to the road. They help keep roads from becoming slick, improve safety, lower costs and reduce accidents.
GRANULAR VS LIQUID MILEAGE APPLICATION RATES

Granular Application
300 Lbs/Lane-Mile
Using 10 Tons of Salt
67 Miles Treated
Austin, MN to Farabault, MN

Liquid Application
20 Gal/Lane-Mile
Using 10 Tons of Salt
440 Miles Treated
Austin, MN to Thunder Bay, Canada

Graphic to illustrate Granular De-Icing Coverage vs. Anti-Icing Coverage Rates Using 10 Tons of Salt.

Source: Minnesota Department of Transportation Test Results, 2010
GRANULAR VS LIQUID COVERAGE RATES

PRODUCT: Straight White Rock Salt
- Effective Working Temperature Range 18° & Above
- ABOVE COVERAGE RATE:
  400 Lbs. – Covering 31,680 SF
  (0.013 Lbs. / SF Applied)

PRODUCT: MM3 Ice Control Liquid
- Effective Working Temperature Range -20° & Above
- ABOVE COVERAGE RATE:
  400 Lbs. of Salt Converted into 200 Gallons – Covering 300,000 SF
  (1,500 SF / Gal Applied)
LIQUID COVERAGE RATES

PRODUCT:
MM3 Liquid Anti-Icer

Effective Working Temperature Range 32° or Below

COVERAGE RATES
Pavement:
25 Gallons – Covering 37,500 SF (1,500 SF / GAL)

Sidewalk:
8 Gallons – Covering 12,000 SF (1,500 SF / GAL)
Protecting Parking Lots

Parking Lots & Owners

Promoters of Winter Sanity
PREPARING YOURSELF - PREPARING YOUR LOTS

- Freezing rain/ sleet
- Daytime snow/ ice
- Evening /weekend
- Blizzard conditions
- Black ice conditions
- Thaw / refreeze events
KNOW YOUR SITE CONDITIONS
IDENTIFY THE PROBLEMATIC AREAS
LIQUIDS VS. NONE
SALT APPLICATION PER LANE MILE

- 100 LB/LM-12FT: 0.227 OZ/YD^2
- 300 LB/LM-12FT: 0.680 OZ/YD^2
- 500 LB/LM-12FT: 1.136 OZ/YD^2
- 800 LB/LM-12FT: 1.818 OZ/YD^2
OVER APPLYING PRODUCT IS COSTLY
LIQUIDS AT WORK
**POST STORM - OBSERVATION:**

Evidence of hard pack in areas of heavy foot traffic causing formation of hard pack required a heavy de-icing application to manage. Borders had liquids applied at entrance prior to the storm. No additional de-icing products required to eliminate hard pack.
AFTER THE STORM

AREAS TREATED WITH LIQUID ANTI-ICER

- Experienced zero hard pack
- Provided safer conditions for vehicle and pedestrian traffic
- Reduced the number of salting applications and labor requirements of snow fighters
VARIOUS LIQUID APPLICATIONS

Easy to Apply

- Pump or backpack sprayer for individual use
- Spray bar or spray wand for commercial use
AVAILABLE EQUIPMENT
AVAILABLE EQUIPMENT
AVAILABLE EQUIPMENT
AVAILABLE EQUIPMENT
AVAILABLE EQUIPMENT
SAMPLE PICTURES
THANK YOU!
QUESTIONS?