GEOMELT® USA

GEOMELT® Patented Products

Environmentally Sensitive Alternative

- **Winter**

  Ice Melt

- **Summer**

  Dust Control

  Non Chloride

Deicer Parameters

Standard Analysis

- PNS Testing
- Quality Control
- Solids Content
- Corrosiveness
- Biodegradation
- Friction
- Heavy metals
- Chloride content
- Freeze Point
- Effect of Dilution

Watch for Patented product lookalike violators

Watch for over stated marketing claims

Request Documentation-100% ingredient disclosure

Benefits of GEOMELT®

- Natural renewable resource
- Natural corrosion inhibitors
- Biodegradable
- Synergistic with inorganic salts
- Biologically stable
- Reduce Chloride load to environment

Quality Control

Quality Control Program

- **Raw Material**
  - Each source is qualified
- **Product Blending**
  - Each blending site is qualified
- **Product QC/QA**
  - Each lot sampled and retained for one year in GEOMELT® USA laboratory

Quality Control Transportation

- **Transporters must be certified.**
  - **proper permits and documentation**
  - **approved and practiced QC/QA program**

GEOMELT® Liquid Products

- GEOMELT® = Sugar Beet enhancer
- GEOMELT® 65 & 55% solids
- GEOMELT® S = NaCl brine
- GEOMELT® M = $MgCl_2$ brine
- GEOMELT® C = $CaCl_2$ brine
- GEOMELT® K = Potassium Acetate

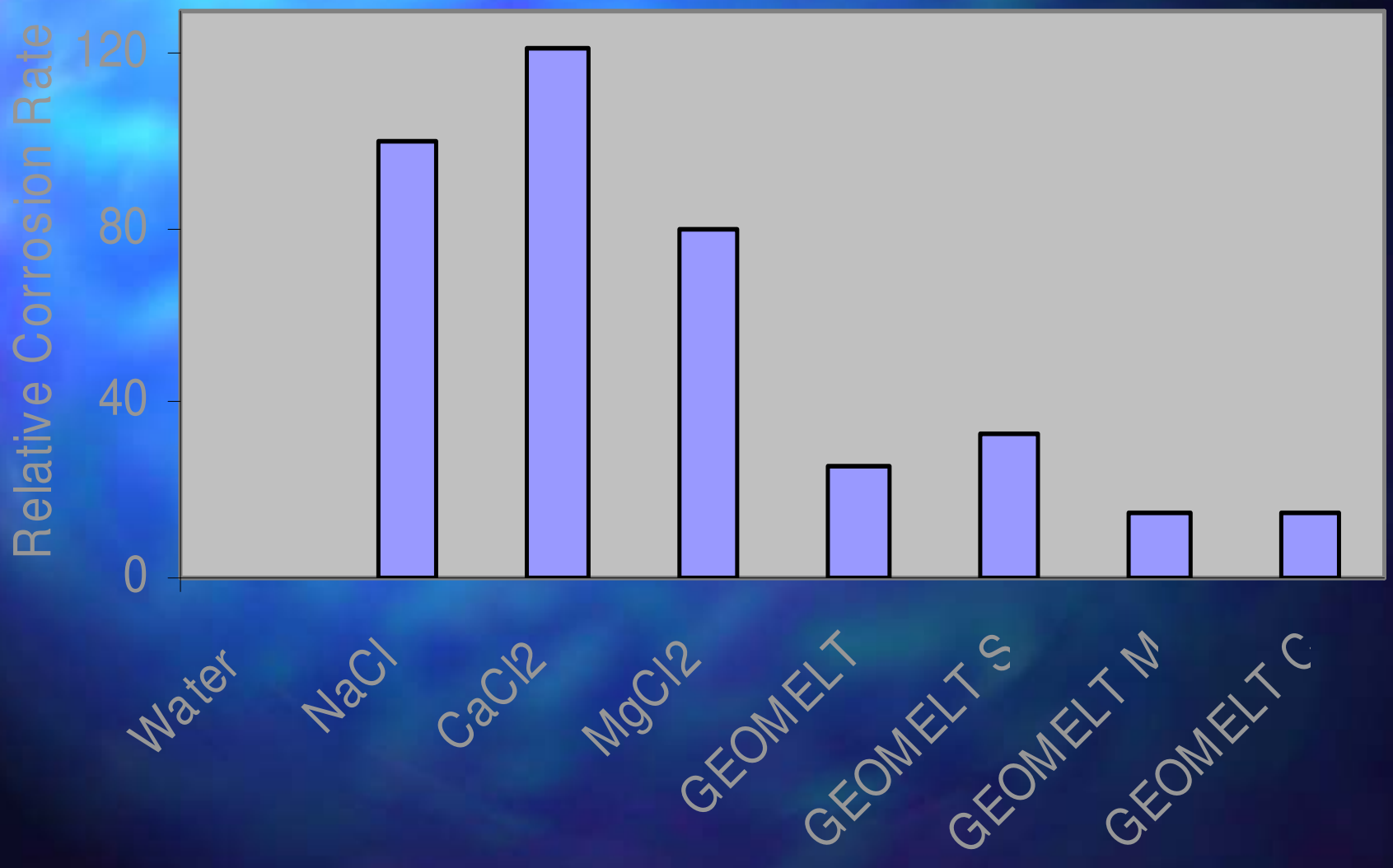
Rock Salt Usage

- Airport Parking 87,500 tons
- Bridges 130,000 tons
- Landscape & Industrial 300,000 tons
- *Highways Canada 4,500,000 tons
- *Highways US DOT 18,000,000 tons
- * City/County streets excluded.

Environmental

		lb. chloride/mile
Solid NaCl	400#/LnMile =	240
NaCl brine	20 gal/LnMile =	28
$MgCl_2$ solution	"	48
GEOMELT® S	"	14
GEOMELT® M	"	23
GEOMELT® C	"	21

Corrosion - PNS

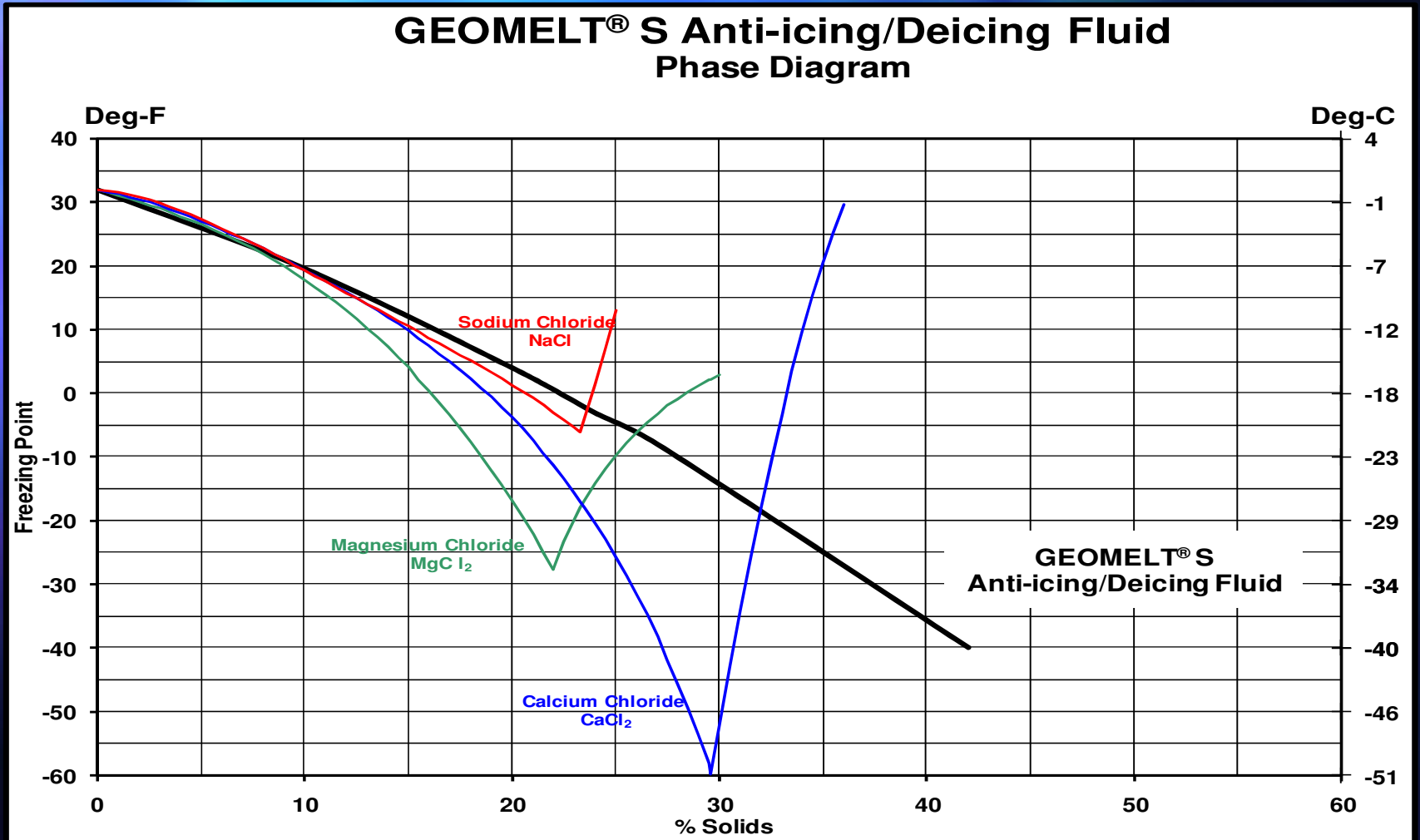


Comparative Freezing Point Data

Deicing Fluid	% Active	Freezing Point (°F)
Sodium Chloride	23	-5
Calcium chloride	28	-60
Magnesium chloride	22	-27
GEOMELT®	55	-30
GEOMELT® S	40	-30
Potassium Acetate	60	-60

Freeze point not the same as "Ice Melt Capacity."

Performance Evaluation-Phase Diagram



GEOMELT® anti-icing/deicing products freezing points are based on Analytical Labs, Boise, IDdata. The data are useful for comparing anti-icing/deicing performance in a laboratory setting. Actual field observations may differ.
This information is presented in good faith but is not warranted as to accuracy of results. Also, freedom from patent infringement is not warranted. This information is offered solely for your investigation, verification, and consideration.
GEOMELT® anti-icing/deicing products are produced under U.S. Patents #6,080,330, #6,416,684, and #6,641,753.
Phasegeo55
GEOMELT® USA Approved 05/01/09

Friction Testing

- Coefficient of Friction
  - Dry pavement 1.15
  - Water 0.75
  - GEOMELT® 0.66
  - GEOMELT® S 0.70
  - GEOMELT® M 0.55
  - GEOMELT® C 0.69
  - Typical liquid deicers 0.50

GEOMELT®
Application Techniques

- **Salt Pile Treatment - GEOSALT®**
- **Pre-Wetting**
- **Liquid Anti-icing**
- **Liquid Deicing**

GEOMELT® 55
Salt Pile Treatment

- Apply to Salt Pile:
  - 5 - 6 gallon per ton of salt
  - spray directly onto pile
  - blend with front end loader
- Apply at Conveyor, Pugmill
- Treated Product Quality Control Important
  - store product on cement or asphalt
  - Store product in storage facility
  - Must at least cover product with tarp

Treated Salt Storage

GEOMELT® 55

Salt Pile Treatment

- **BENEFITS**
  - Accelerated melting
  - Increased ice melt capacity - higher solids
  - Reduce bounce and scatter loss
  - Use 30% less rock salt – reduce operating cost
  - Increase employee efficiency
  - Increase equipment efficiency
  - Truck / employee can cover 30% more area
  - Prevents freezing, crusting – salt free flowing
  - Reduced equipment corrosion
  - No added chlorides

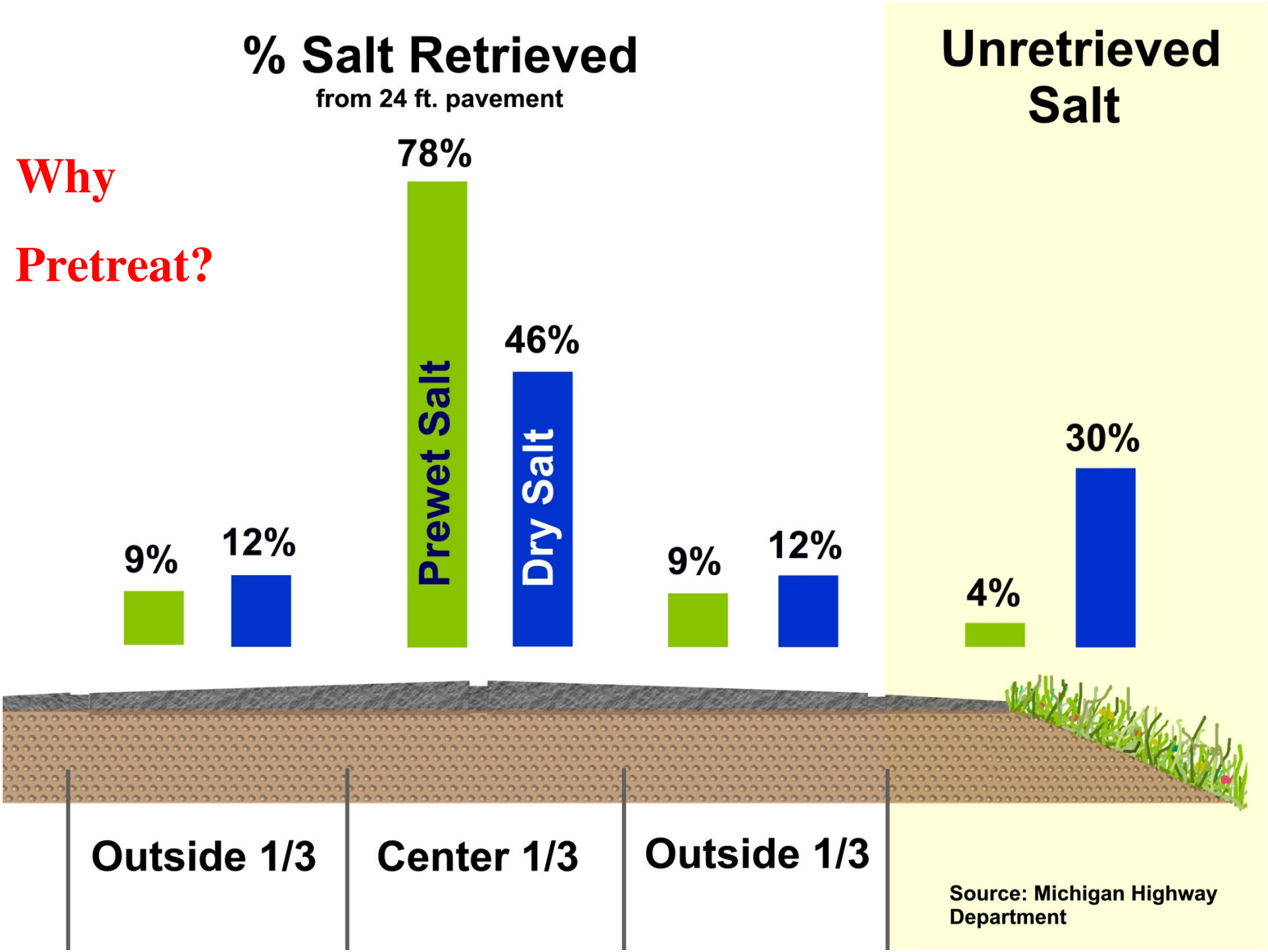
GEOMELT® S
Enhanced Salt Brine

- GEOMELT® used to enhance salt brine.
- Cuts corrosion by 80%.
- Lowers freezing point to -34°c (-30°f)
- Increased ice melt capacity.
- Reduces application rate, increasing employee and equipment efficiency.
- Cuts chloride release into environment.

GEOMELT® Pre - Wetting

- Apply at 6-10 gals/ton(21-42 liters/m ton)
- Use GEOMELT®55 as is – no chlorides
- Or blend GEOMELT®55 with brine(s)
- Reduce application rate 30%
- Reduce bounce and scatter loss
- Improve equipment/employee efficiencies

Why Pretreat?

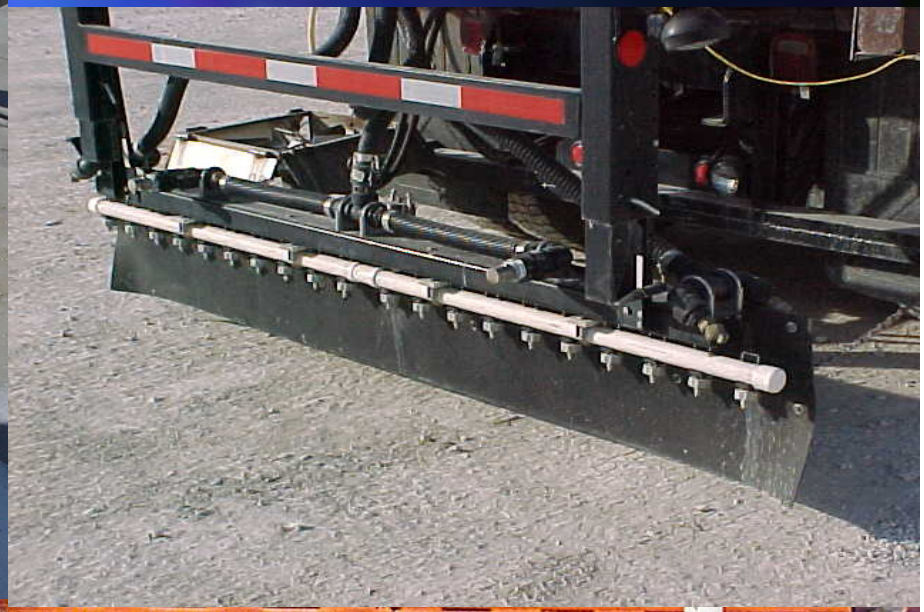


Liquid application equipment

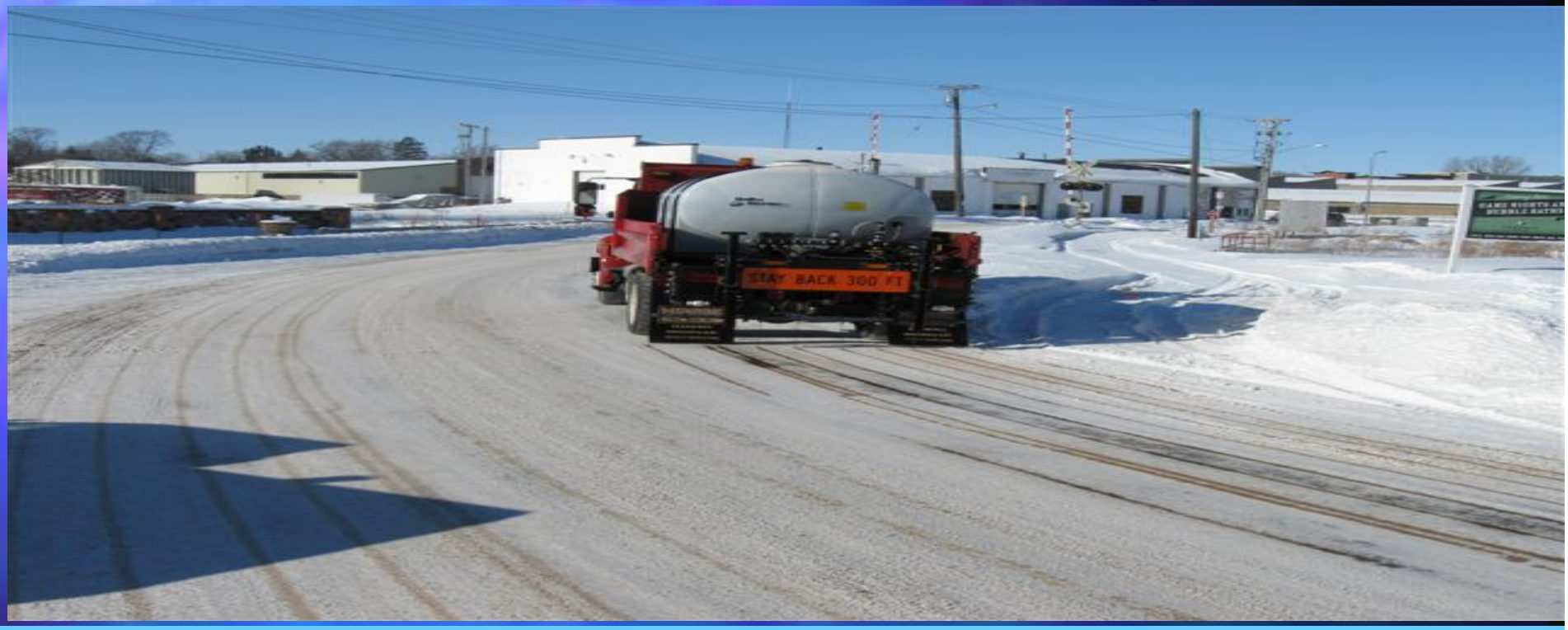
GEOMELT® Liquid Anti-icing

- Apply at 20-30 gals / Ln mile (47-71 ltrs / kilometer)
- Apply before storm event to prevent snow and ice bond to pavement
- Reduced application rates 30% - 60% compared to non enhanced brines
- GEOMELT® residual will last 4 – 6 days frost protection – bridges
- Improve employee and equipment efficiencies – cover 30% more territory
- Reduce equipment and infrastructure corrosion
- Reduce chloride load to environment

Latest nozzle designs



GEOMELT® Deicing



- After storm event plow and apply 50-60 gals / Ln mile (190-225 ltrs / kilometer)
- Allow GEOMELT® S to penetrate – breaking bond to pavement
- GEOMELT® enhanced products require less volumn to break bond than non – enhanced products reducing corrosion potential and reduce negative environmental impact

Salt Stock Pile Preservation Treatment

- Apply at 5-6 gals/ton (21-25 liters/metric ton)
- Apply at 55% solids no need to dilute with Brines
- Prevents freezing, crusting – salt free flowing
- Prevents hardening over summer
- Will not waste rock salt due to hardening

Benefits of GEOMELT®

- Natural renewable resource
- Natural corrosion inhibitors
- Biodegradable
- Synergistic with inorganic salts
- Biologically stable
- Reduce Chloride load to environment

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