



# ADVANCED LIQUIDS APPLICATION

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From This View



To This Result With Liquids



Define Anti-icing as  
an action of Direct  
Liquid Application

Define De-icing as  
an action of Direct  
Liquid Application

Products and  
Impacts

Management  
Strategies for  
Positive Results

## Anti-Icing:

1. A proactive approach to Winter Maintenance
2. Preventing the bond of snow and ice to a pavement surface
3. Reduces operational costs and environmental impacts
4. Not recommended before a rain fall or freezing rain





## Direct Liquid Application Anti-icing



100% Brine

Application Rate  
35 to 50 Gal/LM

Consideration of Cycle  
Times from dilution

Blend to Manage  
Conditions

90 Brine, 10 MG/CA  
80 Brine, 20 MG/CA  
85 Brine, 15 RG-8 or  
Geomelt 55, 5 MG/CA

Application Rate  
35 Gal/LM

Consideration of Cycle  
Times from dilution





## De-Icing With Liquids

1. Forward Thinking

2. Must be managed appropriately

3. Product Knowledge is Critical





## Direct Liquid Application De-icing



100% Brine

Application rate  
35 to 50 Gal/LM

Consideration of Cycle  
Times from dilution



Blend to Manage  
Conditions

Mixtures

90 Brine, 10 Mg/CA

80 Brine, 20 Mg/CA

85 Brine, 15 RG-8 or

Geomelt 55, 5 Mg/CA

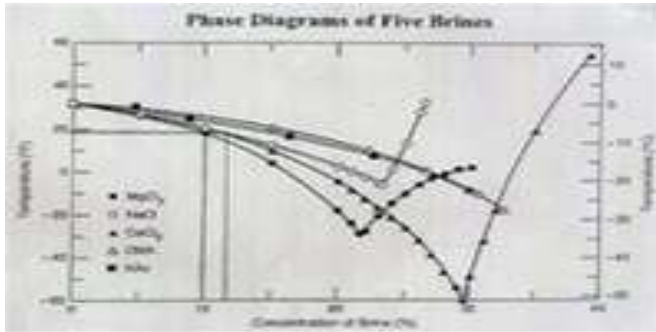
Application Rate

35 Gal/LM

Consideration of Cycle

Times from dilution





Product	Lowest Possible Melting Point	Eutectic Temperature	Optimal Concentration
Sodium Chloride	15	-6	23%
Magnesium Chloride	-10	-28	27-30%
Calcium Chloride	-20	-60	30%
Calcium Magnesium Acetate	20	-18	32%
Potassium Acetate	-15	-76	50%
Sand	No Melting	No Melting	

## Critical Knowledge of Products and Impacts

1. Discuss products with supplier; Your intended use, and obtain information on its limitations
2. Visit Organizations that are advanced in the practice your desiring
3. Attend training to obtain information and bring back to your organization
4. Look at the products and their environmental impacts; then as a budgetary impact item





## Management Strategies for Positive Results

1. Understanding limitations for yourself, staff, equipment
2. Obtain support from Boards or Councils
3. Educate Staff and the Public in General of your intentions, but start **SMALL**



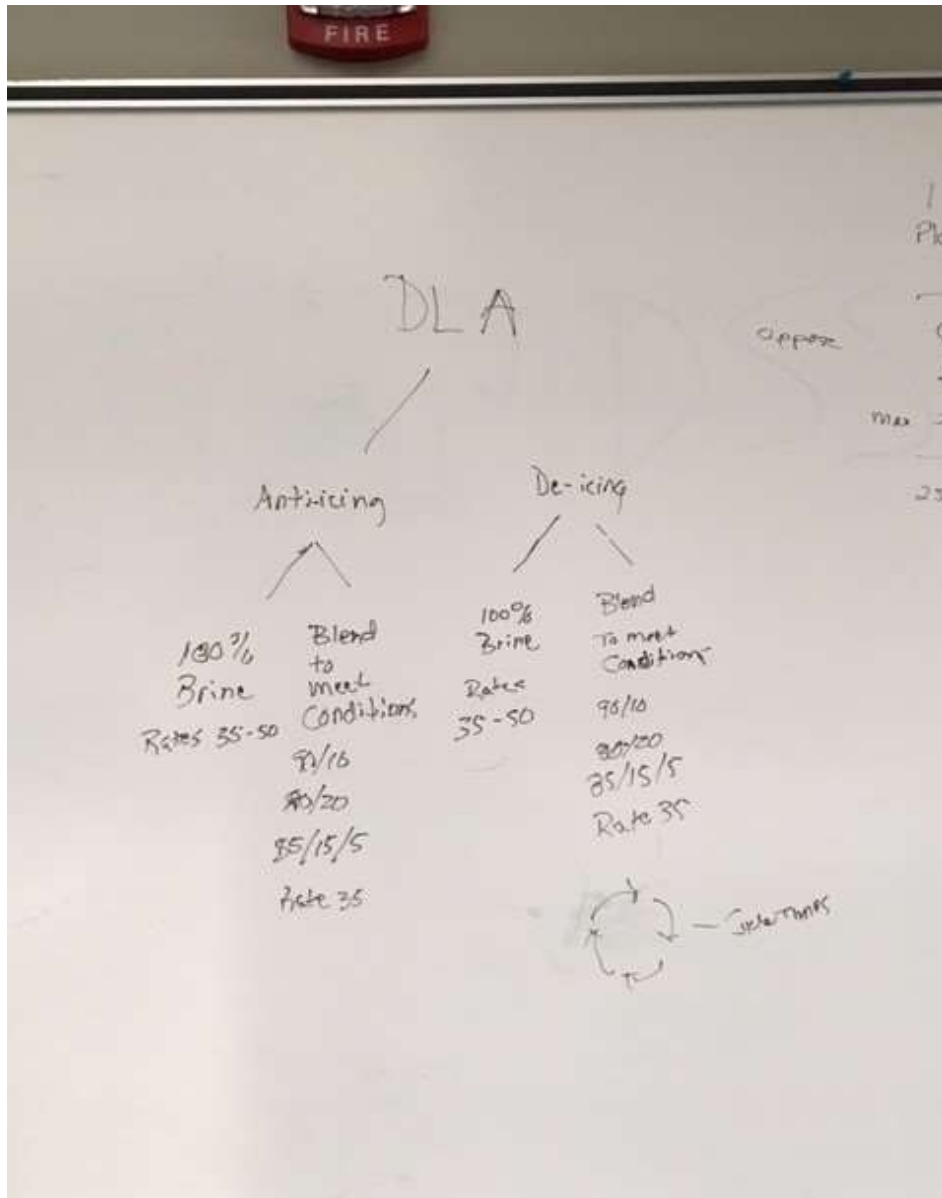


## Management Strategies for Positive Results; Cont.

4. Build your program knowing it is challenging and that you will most likely fail at times. Monitor and react to failures immediately

5. Light snow and frost events are easily accomplished with DLA. Start with these event types and grow from there





## Management Strategies for Positive Results; Cont.

6. Moderate snow fall events that you have knowledge of its end-time and future forecasting

7. Light to Moderate rain, or Freezing rain can be managed keeping in mind that Cycle Times are necessary

8. Expunge information from periodicals and on the Web. Good Source is Clear Roads, DLA Study