



MeltDown[®] APEX[™]

De-icing/Anti-icing

PRODUCT DESCRIPTION

Technology Applied: The goal was to develop *THE ONLY* product that would deliver increased melting all other liquid products across the entire spectrum of temperatures experienced in combating snow and ice buildup on road surfaces. **APEX** is the result of product research and development required to meet that goal. **APEX** is a performance enhanced magnesium chloride ($MgCl_2$) brine but is vastly different than other magnesium based enhanced products. Rather than add in substantial amounts of additives that work alongside the $MgCl_2$ in order to improve performance, we opted to simply improve the performance of the $MgCl_2$ itself without diluting the concentration of the active ingredient. Simply put, we have taken $MgCl_2$ and made it Better - Faster - Stronger.

USES OR APPLICATION

Anti-icing

When used as an anti-icer, the enhanced melting capacity of **APEX** provides longer cycle times between routes before snow pack buildup and allows for improved removal with simple plowing.

De-icing

When used as a liquid de-icer, **APEX** provides the ultimate in melting performance vs other liquid products.

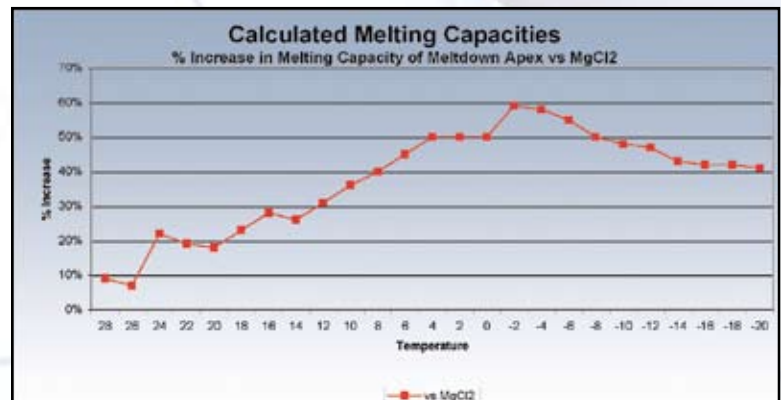
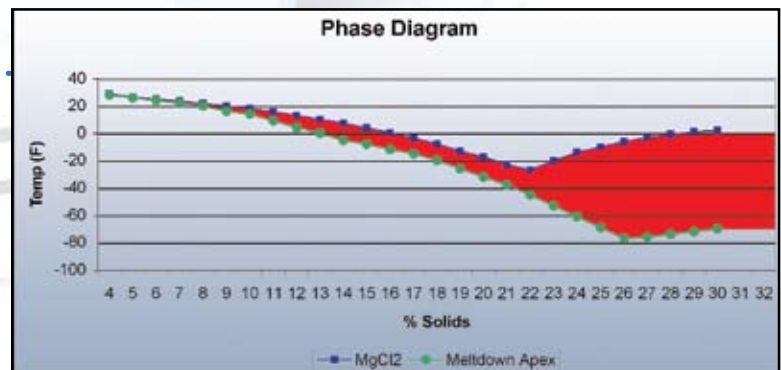
When applied in a stream pattern, **APEX** quickly penetrates vertically through the snow pack and breaks the bond at the road surface.

Pre-wetting

As an onboard pre-wetting agent for salt and sand, **APEX** reduces bounce and scatter, increases the speed at which the salt begins working, increases the melting capacity of the salt, and permits the use of salt at lower temperatures.

TYPICAL PERFORMANCE PROPERTIES

APEX gets the job done in the "red-zone". The phase diagram below demonstrates the source of the improved performance of **APEX**. The "red-zone" is an illustration of the difference in freeze points between **APEX** and $MgCl_2$ when compared at equivalent concentrations. From the graph you will see that if each product is diluted 1:1 with water (from melting snow and ice) $MgCl_2$ will refreeze at 4 degrees F while **APEX** will not refreeze until -8 degrees F. That 12 degree improvement in freeze point is significant when evaluating melting performance. No other liquid product, enhanced or otherwise, can boast any such improvement. The chart titled Calculated Melting Capacities is an illustration of the increased melting capacity of **APEX** vs $MgCl_2$ at a wide range of temperatures. It is this increase in melting capacity that translates to increased efficiencies in de-icing operations.





De-icing/Anti-icing

CORROSION PERFORMANCE

The Pacific Northwest Snowfighters (PNS) coalition has adopted a test based on a modified version of NACE TM-01-69 to measure and rank de-icing chemicals in terms of relative corrosion toward ferrous metals. In this test, distilled water and salt are assigned relative corrosion rates of 0 and 100 respectively, and deicing chemicals are ranked according to these two standards. To be considered for use in the PNS states, a de-icer must score 30 or less (70% less corrosive than salt) on this scale. In this test **APEX** was found to have an average score of 22%

Metal Corrosion Tendency

De-icing Fluid	PNS DOT Relative Corrosion Rate
Distilled Water	0.00
MELTDOWN APEX	22.00
Magnesium Chloride (MgCl ₂) 30%	80.00
Calcium Chloride (CaCl ₂) 30%	86.00
Rock Salt (NaCl)	100.00
Calcium Chloride (CaCl ₂) 38%	121.00

Typical Properties

Solids	29.5% - 30.5%
MgCl ₂	29% - 30%
Specific Gravity	1.28 - 1.32
pH	6.0 - 8.0
Solubility	>99%
Eutectic Point	-77° F (- 60° C)
Appearance	Clear to Amber
Odor	None

FEATURES

Melts ice/snow

Lower re-freezing point

No harsh odor

Fast Acting

BENEFITS

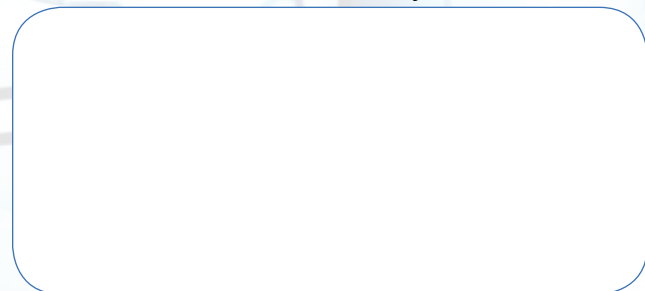
- Safer roads
- Less stress for supervisor
- Fewer complaints
- Peace of mind
- Improved public relations

- Versatile anti-icing, de-icing, frost prevention
- Out performs all other liquids at all temperatures

- Improved public perception
- Fewer complaints

- Eliminate "trouble spots" quickly
- Easier to plow
- Predictable performance that you can count on

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