



Agricultural Byproduct Blends **— VS — Straight Chloride Brines**

Ever since the first agricultural byproduct/chloride brine blend product (ICE BAN) appeared on the market in 1994, there have been numerous third party studies published evaluating the performance of these products. One of the first and most extensive was a 90 page report published in September of 1999, based on the results of a two-winter study (1996-1997, 1997-1998) conducted by 13 DOTs around the country.¹ The report showed that the blended products **consistently outperformed straight brines** in the areas of:

- **Liquid anti-icing**
- **Onboard pre-wetting**
- **Stockpile treating**

This enhanced performance was in part the result of a greater residual effect left on the pavement after applying these materials directly with a spray bar or by applying salt treated with them, often delaying the timing of the next application. The greater residual effect was due to the high percentage (50%) of the agricultural byproduct in the blend which increased the viscosity of the liquid, causing it to better adhere to salt and abrasives. Pre-wet salt "provided superior deicing performance than untreated salt or salt pre-wet with calcium chloride even when applied to the road at significantly lower rates than the standard practice (i.e., 150 to 200 pounds per lane mile versus 250 to 300 pounds per lane mile)²." My experience working with New England municipalities for over 20 years confirms these results. A review of the market shows a significant trend toward the use of agricultural byproduct blends over the past several years.

Another finding of the HITEC Report was that the blended products significantly reduced corrosion on ferrous metals. Two blends were tested with the following result - "Corrosion tests performed on steel specimens indicate that both products corrode steel at a rate which is only a fraction of the rate observed for ordinary road salt. Indeed, in some cases the products displayed an absolute corrosion inhibiting property, causing even less corrosion than pure water."³ The reason for this is that the agricultural byproducts have proven to be very powerful, natural corrosion inhibitors.

These enhanced winter operations results also carry over into summer road maintenance operations. Once again, over the years blended products have demonstrated superior performance to straight magnesium and calcium chloride brines in the areas of:

- **Dust control and fines retention**
- **Base stabilization**
- **Shoulder mix agent**

The enhanced performance occurs as a result of the agricultural component coating individual road particles with a thin adhesive-like film that binds the particles together. It acts as a dispersant, allowing the particles to pack closer together thereby creating a stronger surface. This, coupled with the hygroscopic action of the chloride brine that absorbs available moisture from the ambient air, keeps the road surface moist.

In summary, the blended products produce a synergistic effect that not only exceeds the performance of each component individually, but also is environmentally friendly. Because you don't need as much material to achieve the desired result, you save man-hours and positively impact your operations budget while protecting the environment and your equipment.

Please contact me with any questions you may have about our time-tested, environmentally friendly road maintenance products — **SAFE MELT™** for ice melting and **SAFE BIND®** for dust control. We also offer a complete line of bulk liquid storage systems (vertical storage tanks, transfer pumps and hose kits, storage tank mix jets); stockpile treating accessories; onboard pre-wetting systems; and multipurpose skidded sprayers.

I look forward to speaking with you.

Kevin Barrett
President

Safe Road Services
508-364-1739

saferoadservices@comcast.net

1/Prepared by the Highway Innovative Technology Evaluation Center (HITEC), a service center of the Civil Engineering Research Foundation (CERF) Report #40410, published September 1999
2/lbid, PP 79-80
3/lbid, P 80



Environmentally Friendly
Winter & Summer Road Maintenance Products

3 McKinley Road Franklin, MA 02038

Phone: 508-364-1739 | Email: saferoadservices@comcast.net
Visit our website for more info: www.saferoadservices.com



SAFE MELT™