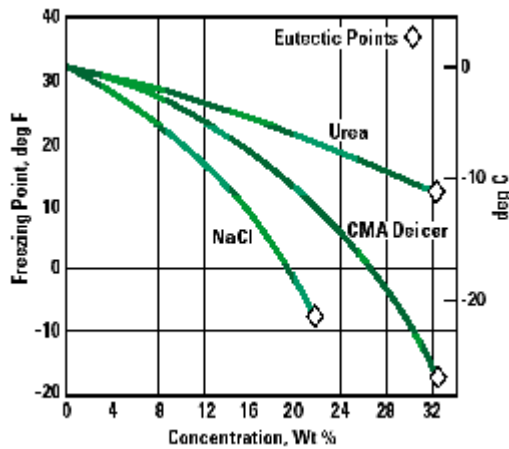


Product Performance

CMA has been used successfully since 1986 by snow fighters worldwide. It is effective over a similar temperature range as road salt: performance decreases below 20 degrees F (-7 degrees C). Effectiveness is generally enhanced by traffic, sunlight, and warmer temperatures. Because CMA is acetate-based instead of chloride-based, it has unique performance characteristics. Over the years many techniques have been tested and adopted to increase its efficiency.



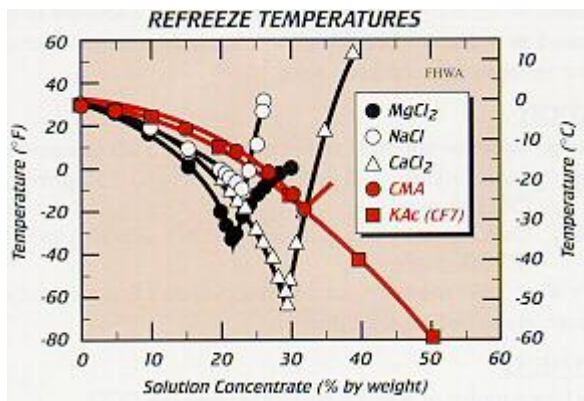
The refreeze temperatures and performance of CMA and KAc (Cryotech CF7®), are addressed in the following excerpt from the **Federal Highway Administration's Manual of Practice for an Effective Anti-icing Program: A Guide for Highway Winter Maintenance Personnel.**

B.4 CMA and KAc (CF7)

The curve for CMA (Figure 17) was determined from different percent concentration solutions made by dissolving commercially available CMA supplied in a dry pellet form. The curve for KAc (CF7) was determined using a commercially available liquid form of KAc (CF7). The eutectic temperature for the CMA water system in Figure

17 is -27.5°C (-17.5°F) at a concentration of 32.5 percent. The eutectic for the KAc (CF7) - water system is -60°C (-76°F) at a concentration of 49 percent. The curves for the CMA and KAc (CF7) almost coincide with each other. Also, they have a much flatter slope than the other three curves. This is an important feature of both CMA and KAc (CF7) solutions. The refreeze temperature of CMA and KAc (CF7) solutions rises slower with dilution than do the refreeze temperatures of either NaCl, CaCl₂, or MgCl₂. This feature makes them well suited for being used in a liquid form during anti-icing treatments. This is especially true for their use in a liquid form for the pretreatment of bridge decks in anticipation of frosting, or localized icing conditions.

Figure 17



CMA Works Differently

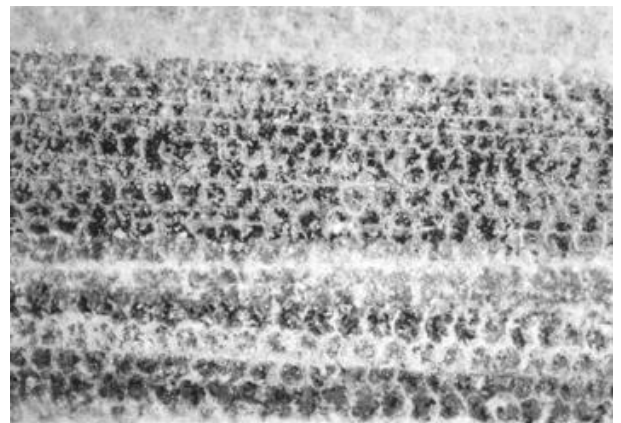
When mixed with snow, CMA interferes with the ability of snow particles to adhere to each other or to the surface. It does not create a flowing brine like salt, but keeps the snow lighter and drier improving traction. Applied early in the storm, CMA prevents the formation of snow pack and the bonding of ice to the pavement surface, so snow and ice can be removed more easily by plow, broom or shovel.

CMA Has Residual Action

Because CMA does not produce a running brine, it does not move off the surface like other deicers. Therefore, fewer applications are needed during a storm and from storm to storm. Experience has shown that surfaces treated with CMA often exhibit anti-icing properties during subsequent periods of freezing moisture.

CMA Is Applied "Bottom Up"

Early application is the key to effective performance of all deicers, including CMA. At the beginning of a snow event, a heavier application of CMA may be appropriate depending on local conditions. Snow plows and the action of traffic will remove the snow - leaving a residual layer of CMA. Application rates may be decreased as the storm continues.



CMA treated snow appears drier