

# Technical Bulletin

## Material Compatibility and Storage of Cryotech CF7® Liquid Commercial Deicer

Customers frequently ask if material in their storage, handling, and application equipment is compatible with Cryotech CF7 (potassium acetate based) for application on bridges and roadways. There are technical differences between the potassium acetate deicers from various producers, usually in the formulation of corrosion inhibitors. Therefore, some differences in material compatibility are expected. The following information applies to Cryotech CF7, which is 50% potassium acetate, by weight.

### CORROSION INHIBITORS

Cryotech CF7 contains less than 1% proprietary corrosion inhibitors. These inhibitors create a protective barrier on the surface of various metals. Performance of these inhibitors is usually linked to the pH of the fluid. Diluted CF7 biodegrades naturally when exposed to air producing by-products such as unsightly biological growth and superficial staining/corrosion. Therefore, the exterior surfaces of application equipment should be rinsed routinely with warm water after use.

### EQUIPMENT CONSIDERATIONS

When selecting equipment to transport, store, and apply potassium acetate for bridges, elevated roadways and FAST (Fixed Anti-icing Spray Technology) systems, the following guidelines should be considered:

- Pumps: Stainless steel positive displacement pumps or properly sized centrifugal pumps with mechanical seals are preferred. Avoid pump bodies made of brass, cast aluminum, or cast iron, because some castings are of poor quality and may have reduced service life. Avoid large bore, low head (pressure) “trash” pumps. Avoid pumps with brass, zinc or galvanized wetted parts.
- Pipes: Stainless steel, carbon steel, PVC, polyethylene, and rubber are okay. Avoid galvanized metals because potassium acetate will react slowly with zinc giving off hydrogen gas.
- Transfer Hoses: Wire reinforced chemical hoses with cross-linked polyethylene lining and an EPDM rubber cover are recommended. They should be rated for the system’s pressure and vacuum. Stainless steel cam and groove fittings with locking cam levers and EPDM gaskets are also recommended.
- Tanks: Stainless steel, fiberglass or polyethylene are preferred. Carbon and alloy steel tanks may be used if clean and rust free. Tanks must be strong enough to hold CF7 which is heavier than water weighing 10.7 pounds per gallon.
- Gaskets and Seals: Butyl rubber, ethylene propylene rubber (EPM, EPDM), isoprene, and natural rubber are preferred. Nitrile (Buna N), hypalon, neoprene rubber are generally acceptable. Avoid butadiene, fluorocarbon rubber, fluorosilicon, polyacrylate, polyurethane, SBR rubber (Buna S) and silicon rubber.

### INSTALLATION CONSIDERATIONS

Obtain professional engineering assistance to ensure proper design and installation of tanks and components. Make sure the system has relief valves and low point drains, and that block valves can be opened without operator risk. Avoid dissimilar metals or provide properly engineered insulators to minimize the effect of galvanic corrosion. Potassium acetate has low viscosity and low surface tension. Therefore, high quality joints are needed for a leak-free system. Welded or flanged pipe joints are recommended. But if threaded fittings are used, a high quality pipe sealant is important.

### STORAGE CONSIDERATIONS

#### AVOID PROBLEMS

- Do not use potassium acetate deicers with galvanized (zinc-plated) metals.
- Do not use potassium acetate on poor quality concrete.
- Do not mix potassium acetate deicers with deicers from different manufacturers.