

## Water Freezing Prevention

In freezing weather conditions, do not allow the water in the SLED modules to freeze to a solid mass of ice. If the temperature at the SLED site is expected to be at or below the freezing point of water 32° F [ 0°C ], it is recommended that an additive be used to prevent the water in the SLED modules from freezing. See Table 1 on pg 17.

**-Common additives used to prevent water freezing currently used in work zone devices under the same category as the SLED Modules.**

### ***SALT (Sodium Chloride)***

*20% mixture by weight*

*Reduces freezing down to 0° F [-18° C].*

*Corrosive to inadequately protected steel components (Galvanizing adequately prevents corrosion)*

*Recommended - premix before filling*

*Prevent spilling since solution is harmful to vegetation, soils, and wildlife. Draining should be done in an acceptable area.*

### ***CALCIUM CHLORIDE***

*35% mixture by weight*

*Reduces Freezing down to 20° F [-6.6 °C ].*

*Corrosive to thin zinc plated components*

*Corrosive to inadequately protected steel components (Galvanizing adequately prevents corrosion)*

*High tendency to stay on road surface resulting in slick road surface.*

*High level of heat created when mixing. It is recommended that pre-mixing is done before filling.*

*Prevent spilling since solution is harmful to vegetation, soils, and wildlife. Draining should be done in an acceptable area.*

### ***ETHYLENE/PROPYLENE GLYCOL***

*50% mixture by volume*

*Reduces water freezing to 0° F [-18° C].*

*High tendency to stay on road surface resulting in slick road surface.*

*Prevent spilling since solution is harmful to vegetation, soils, and wildlife. Draining should be done in an acceptable area.*

### ***LIQUID CMA (Calcium Magnesium Acetate)***

*25% mixture by volume*

*Reduces water freezing to 0° F [-18° C].*

*Has a low environmental impact.*

### ***LIQUID POTASSIUM ACETATE***

*60% mixture by volume*

*Reduces water freezing to 20° F [-6.6° C]*

*Low corrosive characteristics and has a low environmental impact.*

***Table 1- Recommended water freezing prevention chart solution comparison.***

<b>Additive</b>	<b>Environmental Impact</b>	<b>Cost Rating</b>	<b>Protection Temp</b>	<b>Mix Solution Ratio</b>
Salt (Sodium Chloride)	Harmful	Low	0 °F [-18 ° C]	20% by weight
Calcium Chloride	Harmful	Medium	20 °F [-6.6 ° C]	35% by weight
Ethylene/Propylene Glycol	Dangerous	High	0 °F [-18 ° C]	50% by volume
Liquid CMA	Non-Toxic	High	0 °F [-18 ° C]	25% by volume
Liquid Potassium Acetate	Non-Toxic	High	20 °F [-6.6 ° C]	60% by volume