



Guidelines For Anti-Icing

Introduction:

The information contained herein is intended as a basic guideline only. This in no way constitutes a specific numbered process or procedure for the use of anti-icing material, chemicals, or equipment. The successful use of anti-icing is a learning process of which knowledge through experience is gained. The use of anti-icing can be a very beneficial tool when used in conjunction with other best practices and methods for snow and ice control. For questions or comments contact the Managing Director.

Road Commission for Montcalm County Guidelines:

Anti-Icing: The application of liquid chemicals to prevent the formation of frost or the bonding of snow or ice to pavement. Initial applications can be made either as a pre-treatment in advance of a storm event, or as an early storm period treatment.

Black Ice: Popular term for a very thin coating of clear ice which forms on a pavement or bridge deck surface.

Working Temperature: Range of pavement temperatures at which chemical will effectively melt ice.

When To Apply:

Application Schedule:

- 1) Regularly scheduled applications twice per week on bridge decks and critical areas or on black ice and routes prior to events.
- 2) Residual effect can remain for up to five days after application if the precipitation does not dilute the initial application. Refreezing of the surface can occur when precipitation or moisture in the air dilutes the chemical on the surface.
- 3) Calcium Chloride range of temperature is -10° F to $+30^{\circ}$ F.
- 4) Preferred times of application are during off peak ADT hours, and during normal working hours.
- 5) Application rate for 26% calcium chloride is between 15 to 35 Gallons per Lane Mile.

When NOT to Anti-Ice:

- 1) Prior to predicted rain
- 2) During heavy snow (1 inch/hour events). Heavy snows will cause the rapid dilution of chemicals and require frequent reapplication of liquid. During this time a snow fighter may need to switch to de-icing methods (may include liquids) for their area.

- 3) Under blowing or drifting snow conditions.
- 4) After the bond between the snow and the pavement has already occurred.

Precautions:

- 1) Refreezing of bridge decks or pavement surfaces can occur if the applied chemical is significantly diluted or pavement temperature decreases. Need to know the lowest working temperature of applied chemical to determine minimum freezing point depression. (Calcium Chloride is -10° F road temperature at time of application).
- 2) Pavement slipperiness with the use of liquid calcium chloride is possible after application under certain temperature and humidity conditions. (Temperatures above 30° F and humidity level greater than 40%).
- 3) When blowing and drifting snow conditions exist. Anti-icing chemicals on a dry pavement or bridge deck may cause blowing snow to stick and create slippery conditions.
- 4) Buildup of oils and rubber residues on pavement surfaces and bridge decks may become slippery after the application of liquid anti-icing chemicals. If no significant precipitation has occurred within seven days, assure that these conditions do not exist prior to application.

Benefits of Anti-Icing:

Accident Reduction

More rapid bare lane regain times

Reduce de-icing material, labor, and de-icer residue

Reduce winter clean-up work and costs

Reduce accumulation of sand in drainage structures and beneath guardrails

Nozzle Recommendations:

Eight holes minimum

Solid stream

Bar height 12-14 inches