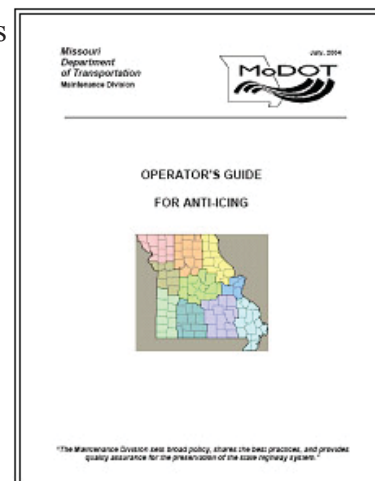


Section VII - Anti-ice / De-ice Strategies

Anti-icing Guide

- * Use for guidance during storms
- * Found in the “Engineering Policy Guidelines” Section 133 “snow and ice control” and can be found on the intranet in the quick link sections and also on the internet in the business section under manuals.
- * Gives weather scenarios
- * Suggested operations and treatment techniques



MoDOT Snow Removal Policies

Decisions Have to Be Made

The decision on whether or not to initiate pre-treatment, when to start it, and what type of treatment to apply can be made after a review of the current and projected weather information. The supervisor's decision is based on when the precipitation is expected, the form of precipitation that is expected, probable air and pavement temperatures, expected sky conditions, wind speed and direction, and the intended timing of the treatment.

Sometimes, No Action Is The Best Action

When the pavement is cold (below 15⁰ F) and the new or blowing snow is light and cold, traffic and/or the wind may be sufficient to prevent snow from accumulating on the road.

Under these conditions, applying liquid chemicals, or abrasives may create, rather than cure a problem.

Once the pavement gets wet, the dry snow will adhere to the pavement and begin to build up. Prompt removal with a plow may prevent snow pack from developing, but this situation may have been avoided by refraining from using any chemicals. **Sometimes, just monitoring the situation can be the best course of action.**

Anti-icing and De-icing

Two distinct ice-control strategies make use of chemicals: **anti-icing** and **de-icing**, yet they differ in fundamental objectives.

Anti-icing operations are conducted to prevent the formation or development of a bond between snow/ice and the pavement. It is a preventive activity.



De-icing operations are used to break up snow and ice that has already bonded with the pavement. De-icing activity are reactive, being implemented after the snow/ice has bonded to the pavement.



Road Checks

There is no substitute for the visual observation of weather and road conditions. Visual observations remain an important tool for making operational decisions, even when we have access and experience with technology like Roadway Weather Information Systems (RWIS). RWIS is a weather data gathering and road monitoring systems technology. Use of this technology provides decision-making information for Maintenance Supervisors. Road check patrols can also aid in the decision making process.

Chemical Application before a Storm

Liquid chemicals or pre-wetted solids can be used as an initial anti-icing treatment. Whichever is used, the timing of the application should be consistent with the underlying objective of preventing the development of bonded snow or ice.

Applications, in advance of a storm, are critical in preventing bonded snow-pack. Early applications, when pavement conditions are no worse than wet, slushy, or slightly snow covered will produce the desired results.

Note: *Residual chemicals from previous operations should not be relied upon as a bonding deterrent for initial anti-icing activities.*

Pre-Treatment

For snowstorms, the initial liquid chemical applications should be made as a “pre-treatment” in advance of a storm or soon after the storm has begun.

A pre-treatment can be very effective as long as the storm doesn’t start out with above freezing temperatures where rain may wash the chemical off of the road.

Ideally, the application of salt brine onto dry pavement can significantly slow the bonding process. But, liquid chemicals can be effectively applied to wet, slightly slushy, or lightly snow covered roadways too.

Late liquid treatments, when there is more than a light covering of snow, can result in excessive dilution of the chemical, risking failure.

Pre-treatment should always be coordinated with plowing when conditions warrant.

Benefits from liquid pre-treatments include: Better traction and improved pavement conditions, early in a storm. However, these benefits are usually short-lived. Therefore, subsequent chemical applications should be made. In essence, pre-treatment applications can be thought of in terms of “buying time” at the early stages of a storm.

Salt brine for pre-treatment and for pre-wetting is to be made using rock salt. Pre-treatment at the rate of 44 gallons of brine, per lane mile can delay the need for additional pre-wetted solids by 30 to 45 minutes at the beginning of a storm, depending on the temperature and/or the ferocity of the storm.

Pre-wetting Solid Chemicals

Pre-wetted salt is the most effective and cost efficient way to combat ice and snow, making liquid applications an integral part of MoDOT’s snow/ice removal operations.

Applying dry material to dry pavement, may result in losing up to 80 percent of the material. Therefore, moisture prevents loss of material and can turn solids into a solution form. MoDOT’s new ground speed spreaders will help reduce these problems allowing solids and liquids to be applied simultaneously.

* Pre-wetted Solid Application