

Winter Chemical Certification

Anti and De-ice Chemicals (including additives)

MnDOT- Office of Maintenance

Certifying winter chemicals is important to enable keeping products on state contracts and potentially adding new products to state contracts (Salts, Pretreated Road Salt or Alternative Deicers). Certification does not guarantee a product will be added to contracts or considered an endorsement by the State. This document outlines the procedures and requirements for certifying a winter chemical for MnDOT use in Minnesota. All chemicals need to be certified every five years and must also be on the Clear Roads Qualified Product List. New products can be submitted any time before April 15th for the upcoming winter season. This deadline was set to make sure that the proper testing and evaluation can be completed in a timely manner.

A checklist and sample label have been developed to assist the vendors and/or manufacturers in supplying the required information. Below outlines the certification process:

1. **Vendor Submittal** - All information, data and samples are received by MnDOT.
2. **Prescreening Process** - The information submitted will be reviewed by the MnDOT Maplewood Laboratory, Safety Office, Office of Maintenance, and the Office of Environmental Services.
3. **Lab and environmental assessment** will be completed (approximately 60-90 days). The following lab tests will be evaluated:
 - Deicer and Anti-icer tests: freezing point, solubility, ice melting capacity, corrosive effects on metals, and frictional characteristics.
 - Environmental Assessment: MnDOT Office of Environmental Stewardship (OES) conducts an assessment per their [Hazard Evaluation Process \(HEP\)](#). To facilitate this, the full Clear Roads application must be supplied, including toxicology tests.
4. **Field Testing** – If the Prescreening, Lab and Environmental Assessments are satisfactory the product is approved for field testing and will be added to the MnDOT’s Approved Winter Chemicals List under “Testing”. The chemical will be evaluated in a field test environment for at least one winter season.
5. **Product Certification**- Products that perform well in the field tests will be added to the MnDOT Approved Winter Chemical List. Products may be removed from the qualified list if field problems are experienced (*e.g.* leaching, equipment problems, variation in product, etc.)

The Winter Chemical Certification Checklist has been put together to aid you in compiling your certification packet. Place a checkmark in the box when the information is assembled and include a copy of the checklist with your submittal. ***The processing of your request will be put on hold until all the certification information and samples are received.*** Certification information should be submitted to:

Mn/DOT – Office of Maintenance, MS 722

395 John Ireland Blvd.

St. Paul, Minnesota 55155-1899

(612) 849-1757

Attn: Shannon Holland

Winter Chemical Certification Checklist

Submitted by _____ Date _____

Company _____

Address _____

Contact Person _____ Phone () _____

Name of chemical/product for prescreen: _____

(Note: A separate checklist must be completed for each product submitted.)

- Written certification by a responsible company officer that no **detectable** quantities of the following chemicals are contained in the product:

Chlorinated Dioxins

Chlorinated Furans

Polychlorinated Biphenyls (PCBs)

Octachlorostyrene

Hexavalent Chromium

Polynuclear Aromatic Hydrocarbons

Radioactive materials

Registered Pesticides

☐ **Clear Roads Testing Report and Data**

Testing of the following parameters shall be done in accordance with the testing methodology listed in the Clear Roads specifications, include lab test reports and data. **The strength of the solution tested must be clearly stated on each laboratory report for each product.**

Ammonia – Nitrogen

Total Kjeldahl Nitrogen

Nitrate and Nitrate as Nitrogen

Biological Oxygen Demand

Chemical Oxygen Demand

Freeze point, Solubility and Ice Melting Capacity

Corrosive effects on Metals and Frictional Characteristics

Toxicity Testing:

Fathead Minnow Growth and Survival Bioassay

Ceriodaphnia Dubia Reproductive and Survival Bioassay

Selenastrum Capricornutum Algal Growth

☐ **Product Data Sheet** include the pH data for liquid products.

☐ **Safety Data Sheet** for product and corrosion inhibitor (if applicable)

☐ **Status on the Clear Roads Qualified Products List**

Date Approved: _____ Date Test Status: _____

Winter Chemical Certification Checklist cont.

□ List of chemical constituents in product

The product chemical constituents in a 25% solution should not exceed the following concentrations (If the product to be purchased is premixed with salt brine, provide the following concentrations for both the salt brine alone and the finished premixed product):

Cyanide*	0.20 ppm	(200 ug/L)
Arsenic	0.05 ppm	(50 ug/L)
Barium	10.00 ppm	(10,000 ug/L)
Cadmium*	0.20 ppm	(200 ug/L)
Chromium*	1.00 ppm	(1,000 ug/L)
Copper	0.20 ppm	(200 ug/L)
Lead	0.01 ppm	(10 ug/L)
Mercury	0.0005 ppm	(0.5 ug/L)
Selenium*	5.00 ppm	(5,000 ug/L)
Zinc*	10.00 ppm	(10,000 ug/L)

* = Same limit as Clear Roads certification.

The name of the product and the strength of the solution tested must be clearly stated in each laboratory report.

The product chemical constituents in a 1% solution should not exceed the following concentrations (If the product to be purchased is premixed with salt brine, provide the following concentrations for both the salt brine alone and the finished premixed product):

Total Phosphorus	10 ppm	(10 mg/L)
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The name of the product and the strength of the solution tested must be clearly stated on each laboratory report.

- **Recommended field application rates** and application technique in chart form if available (e.g. dilution rate, pretreatment technique, etc.).
- **Explain how the new product fulfills an existing need** or added value to our current MnDOT's winter chemical toolkit.
- **References and contact information** for agencies currently using the product.
- **No product shall be submitted unless it is at least 70% less corrosive than sodium chloride** (excluding additives to salt brine) using the National Association of Corrosion Engineers (NACE) Standard TM-01-69 (1995 rev.), modified to use 30ml of a 3% chemical product solution per square inch of coupon surface area. Test data and certification that the material meets corrosion criteria must be included.
- **Lab Sample**
Submit three – 8 ounce samples for liquid chemicals or 2 pounds for dry chemicals will be properly labeled (use sample label provided) along with a copy of the product data sheet to the MnDOT Maplewood Lab.

Lab Samples

Product Samples shall be submitted to the MnDOT's Materials Lab concurrently with the Winter Chemical Certification Packet, and please label all samples using the sample label and identify any proprietary information.

MnDOT requires three- 8 ounce liquid samples or two (2) pounds of the dry chemical will be submitted to the MnDOT's Maplewood Laboratory. The sample must be clearly labeled and a copy of the product data sheet.

The product sample should be sent to the MnDOT's Maplewood Lab at:

Office of Materials and Road Research

1400 Gervais Avenue, MS 645

Maplewood, Minnesota 55109

Attn: Winter Chemical Certification

Please use the sample label below on all samples submitted to the MnDOT's Maplewood lab for lab testing. The sample label should be filled out and attached to **each** sample submitted to ensure that your product can be processed upon receipt.

Vendor: _____	Date: _____
Address: _____ _____	
Contact Name: _____	
Phone Number: _____	
Product Name: _____	
<i>Remember to include the Product Data Sheet</i>	

Vendor: _____ Date: _____

Address: _____

Contact Name: _____

Phone Number: _____

Product Name: _____

Remember to include the Product Data Sheet

Vendor: _____ Date: _____

Address: _____

Contact Name: _____

Phone Number: _____

Product Name: _____

Remember to include the Product Data Sheet

Vendor: _____ Date: _____

Address: _____

Contact Name: _____

Phone Number: _____

Product Name: _____

Remember to include the Product Data Sheet