

# Winter Chemical Certification

## Anti and De-ice Chemicals (including additives)

MnDOT- Office of Maintenance

Certifying winter chemical is important so that your existing and new products are available on State contracts (Salt, Pretreated Salt or Alternative Chemicals). This document outlines the procedure and requirement for certifying winter chemical for use in the Minnesota. All chemicals need to be certified every five years and must be on the PNS Qualified List. New product can be submitted anytime before April 15<sup>th</sup> 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 has been developed to assist the vendors and/or manufacturer in supplying the required information. Below outlines the certification process:

1. **Vendor Submittal** - All information, data and samples are received by Mn/DOT.
2. **Prescreening Process** - The information submitted will be reviewed by the Mn/DOT Maplewood Laboratory, Safety Office, Office of Maintenance, and the Office of Environmental Services.
3. **Lab testing and environmental assessment** will be completed (approximately 60-90 days). The following lab tests will be conducted:
  - Deicer tests: freezing point, solubility, ice melting capacity, corrosive effects on metals, and frictional characteristics.
  - Anti-icer tests: freezing point, solubility, ice melting capacity, corrosive effects on metals, and frictional characteristics.
4. **Field Testing** – the product is approved for field testing and will be added to the Mn/DOT’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 Mn/DOT Approved Winter Chemical List. Products may be removed from the qualified list if field problems are experienced (ie. 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 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  
(651) 366-3578  
Attn: Thomas Peters, P.E.

## 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

- PNS Testing Report and Data**

Testing of the following parameters shall be done in accordance with the testing methodology listed in the Pacific Northwest Snowfighters' 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
- Frictional Analysis
- 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.
- Material Safety Data Sheet** for product and corrosion inhibitor (if applicable)
- Status on the Pacific Northwest Snowfighters 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 PNS certification.

**The name of the product and the strength of the solution tested must be clearly stated on 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 Mn/DOT'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 Mn/DOT Maplewood Lab.

**Lab Samples**

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

Mn/DOT requires three- 8 ounce liquid sample or two (2) pounds of the dry chemical will be submitted to the Mn/DOT'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 Mn/DOT'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 Mn/DOT's Maplewood lab for lab testing. The sample label should be filled out and attach to **each** sample submitted to ensure that your product can be processing upon receipt.

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