



Minnesota Department of Transportation
Approved Special Surface Finish Program
August 28, 2008

The Minnesota Department of Transportation (MnDOT) will only accept special surface finishes from the MnDOT Approved Products List. This applies to all special surface finishes sold to contractors for use on MnDOT projects.

This program covers the approval process and requirements for both:

1. Texture Coating System
2. Protective Coating system

The Manufacturer must comply with the following:

Texture Coating System

The products described below shall consist of three components: a cementitious plaster mix, a polymer modified bonding agent, and an acrylic masonry paint. The acrylic masonry paint is used both within the plaster mix to give it an initial tint, and it is used to coat the plaster mix, after it has cured.

The plaster mix should be composed of approximately 1 part white cement, two parts Type I/II portland cement, and nine parts silica sand, of which 95% passes the 600 µm sieve (no. 30) and 95% is retained on the 212 µm sieve (no. 70).

Plaster Mix and Bonding Agent Product Description: Provide cement-based, polymer-modified, waterproof, tinted textured plaster mix and bonding agent for concrete surfaces formulated for exterior application. Product shall be permeable to water vapor pressure release through the plaster without blistering or delaminating.

- Adhesive Strength.....2.0 Mpa after 28 days
(Shear Bond Adhesion Testing Method)
- Freeze-thaw Resistance.....No cracks or delamination after 300 cycles
(ASTM C 666, Method B)
- Accelerated Weathering.....No visible defects (5000 hour exposure)
- Water Absorption.....3½% maximum (ASTM C 67 Testing Method)
- Tensile Strength.....Minimum 2.0 MPa after 28 days (ASTM C 190)
- Flexural Strength.....Minimum 6.2 MPa after 28 days (ASTM C 348)
- Compressive Strength.....Minimum 27.0 MPa after 28 days (ASTM C 109)

Acrylic Masonry Paint Product Description: Provide 100% acrylic masonry paint. It shall be compatible with the plaster mix and bonding agent, and meet the

requirements of MnDOT Specification 3584.

Submittals

a. General: Submit all required information and data to the Concrete Engineer in a coordinated and timely fashion so as to avoid delays in reviewing the specifications for the material. Allow sufficient time so that construction will not be delayed as a result of the time required to properly process submittals, including time for resubmittal, if necessary.

No extension of time will be authorized because of the Contractor's failure to transmit submittals to the Engineer sufficiently in advance of the work.

b. Product Data: Submit manufacturer's technical information, label analysis, and application instructions for each material proposed for use

c. Laboratory Test Reports: Submit test reports in accordance with MnDOT Specification 1603 for concrete finishing products. Reports shall be certified by an independent testing laboratory.

In the absence of tests by an independent testing laboratory, approved products shall have a minimum of five consecutive years of in-service field testing, monitored by MnDOT, demonstrating successful protection from the damaging effects of deicing chemicals.

Protective Coating System

The products described below shall consist of two components: a cementitious plaster mix and a polymer modified bonding agent.

Plaster Mix and Bonding Agent Product Description: Provide cement based, acrylic polymer modified, waterproof coating textured plaster mix and bonding agent coating for concrete and masonry surfaces formulated for exterior application. Product shall be permeable to water vapor pressure release through the plaster without blistering or delaminating and offer superior resistance to chloride ion penetration.

- Adhesive Strength.....2.2 Mpa after 28 days
(Shear Bond Adhesion Testing Method)
- Freeze-thaw Resistance.....No cracks or delamination after 300 cycles
(ASTM C 666, Method B)
- Chloride Ion Resistance.....At 0-1/2" depth Base Concrete – 0.275% chloride
(AASHTO-T-259-801)
- Tensile Strength.....Minimum 7.2 MPa after 28 days (ASTM C 190)
- Salt Scaling Resistance.....After 50 freeze-thaw cycles 0 rating, no scaling
(ASTM C 673)

- Flexural Strength.....Minimum 13.5 Mpa after 28 days (ASTM C 348)
- Compressive Strength.....Minimum 49.6 Mpa after 28 days (ASTM C 109)

Submittals

a. General: Submit all required information and data to the Concrete Engineer in a coordinated and timely fashion so as to avoid delays in reviewing the specifications for the material. Allow sufficient time so that construction will not be delayed as a result of the time required to properly process submittals, including time for resubmittal, if necessary.

No extension of time will be authorized because of the Contractor's failure to transmit submittals to the Engineer sufficiently in advance of the work.

b. Product Data: Submit manufacturer's technical information, label analysis, and application instructions for each material proposed for use.

c. Environmental Acceptance: The product will be evaluated by the MnDOT Office of Environmental Services using the Hazardous Evaluation Process (HEP) to determine any potential impacts that could result from use of the product. See the attached HEP for information that must be submitted before the product will be evaluated.

d. Laboratory Test Reports: Submit test reports in accordance with MnDOT Specification 1603 for concrete finishing products. Reports shall be certified by an independent testing laboratory.

In the absence of tests by an independent testing laboratory, approved products shall have a minimum of five consecutive years of in-service field testing, monitored by MnDOT, demonstrating successful protection from the damaging effects of deicing chemicals.

The list of approved products may be found on the MnDOT Concrete Product List website at <http://www.dot.state.mn.us/products/index.html>

Submit product data and test results to:

Minnesota DOT
Attention: MnDOT Concrete Engineering Unit
1400 Gervais Ave.
Maplewood MN 55109

Tel. (651) 366-5576

MnDOT Office of Environmental Services
Hazardous Evaluation Process

The MnDOT Office of Environmental Services developed the Hazard Evaluation Process (HEP) as a tool to determine potential environmental impacts that could result from use of a product and consequently, if the product is acceptable for use on MnDOT infrastructure. The following information must be submitted by the vendor in order for MnDOT to complete the HEP:

1. Vendor information
 - a. Name of Company
 - b. Address
 - c. Technical Contact Name and Telephone Number
 - d. Application Date
 - e. Product Trade Name
 - f. Product Chemical Name
 - g. Product Data Sheet

2. Provide Material Safety Data Sheets for all chemicals in the product/waste material.

3. Regulatory Approvals & Status:
 - a. Licenses
 - b. Approval
 - c. Permits
 - d. TSCA Listing

4. Chemical Status:
 - a. Provide Individual Chemical & Physical Properties (OECD¹ Methods 102, 103, 104, 105, 111, 112, 113, 117, 121);
 - b. Identify chemicals with molecular weights greater than 1000 Daltons (OECD Methods 118, 120 or equivalent);
 - c. Certification that final product would not be considered a hazardous waste under Minnesota Rules Chapter 7045 if disposed of unused;
 - d. Names and Chemical Abstract Numbers (CAS numbers) of the reportable substances in the product (40 CFR 302);

The following product-specific information must be submitted if known. If information for a representative test is unknown it must be stated as such. EPA SW-846 test method information can be found at: <http://www.epa.gov/epaoswer/hazwaste/test/main.htm>. OECD product test method information can be found at: <http://www.oecd.org/home/> or http://www.oecd.org/document/23/0,2340,en_2649_34379_1948503_1_1_1_1,00.html. U.S. EPA Office of Prevention, Pesticides and Toxic Substances Harmonized Test Guidelines can be found at: <http://www.epa.gov/opptsfrs/home/guidelin.htm>.

- a. Leach test results (EPA Method 1311 and OECD Method 312 with subsequent analysis for test substance or equivalent method);
- b. Biodegradation (OECD Method 301C, 301D, 302C, 304A, 307, 309 or equivalent method);
- c. Ecotoxicity to include three trophic levels (OECD Method 201, 207, 208, 210, 211 or equivalent method, OPPTS Method 850.5400, 850.1300, 850.6200, 850.4100, 850.4150, 850.1400 or equivalent method);
- d. Other available test data that provide individual chemical fate, exposure and pathway information.

¹ Organization for Economic Co-operation and Development methodology for product testing is preferred but equivalent methods may be acceptable.

Questions regarding the MnDOT Hazard Evaluation Process can be sent to: Laura.Lyle@state.mn.us