

1/12/2021

Pavement Marking Evaluation and Acceptance Program

Introduction

The Pavement Marking Qualification and Acceptance Program helps ensure quality pavement marking materials and reflective elements are used on MnDOT construction projects, by MnDOT Maintenance, and by the State Striping Business. Pavement marking materials and reflective elements seeking inclusion on MnDOT's Qualified Products List (QPL) will follow the process outlined in the [Product Evaluation for Inclusion on the Qualified Products List \(QPL\)](#). Once a product is listed on MnDOT's QPL, the product must continuously comply with the [Ongoing Pavement Marking Material Acceptance Program](#).

The pavement marking materials covered by this Program include Water-Based Traffic Paint, Multi-Component Liquid Pavement Markings (epoxy, polyurethane, polyurea, MMA, etc.), pavement marking tapes, thermoplastics, and reflective elements for all liquid pavement marking materials. This program does not cover temporary raised pavement markers.

There are two major parts to this program:

1. [Product Evaluation for Inclusion on the Qualified Products List \(QPL\)](#).
2. [Ongoing Pavement Marking Material Acceptance Program](#).

Scope

This program applies to all pavement marking materials used on MnDOT construction projects, by MnDOT Maintenance, and by the State Striping Business. Participation in this program is a requirement for participation in Minnesota's cooperative purchase contracts for pavement marking materials and reflective elements.

Other political subdivisions are encouraged to review these requirements for adoption by their agency. Technical assistance by MnDOT is available on request, please see the [MnDOT Contact Information](#).

Product Evaluation for Inclusion on the Qualified Products List (QPL)

Upon successful completion of this evaluation, pavement marking materials or reflective elements will be considered a Qualified Product by MnDOT. The evaluation process is a 4 step process, each step must be successfully completed before the next step can begin:

1. [Application Submittal](#)
2. [Product Sample, Occupational Safety Review, and Hazard Evaluation Process \(HEP\) Review](#)
3. [Field Testing](#)
4. [Final Qualification](#)

Application Submittal

The Product Evaluation process will be initiated by the manufacturer of a pavement marking material or reflective element. All applications must be made electronically and include the following:

- A complete **Application Form**: Please use the most current application form, which can be found on MnDOT's [Approved/Qualified Products](#) website.
- **Installation Specification**: Please provide the installation specifications and website location.
- **Safety Data Sheet (SDS)**: Please provide all Safety Data Sheets (SDSs) needed for installation of the product, including any sealers/primers needed for bituminous and/or concrete surfaces.
- **Quality Control Plan**: The plan shall detail the frequency and types of tests performed on each lot produced as well as raw materials, where appropriate. It must, also, demonstrate the manufacturer maintains a laboratory to scientifically control the product to assure accuracy and quality of the product.
- **Manufacturing Capability Report**: The report must show that the manufacturer has an in-operation plant adequate for manufacturing of the specific pavement marking material or reflective element. This report must include assurance that the manufacturer is capable of producing batch or lot sizes consistent with the quantities to be delivered for pavement marking projects. This statement must also contain information that the plant has successfully produced similar material and quantity over the past two years.
- **Technical Assistance Contacts**:
 - Please include the name, telephone number and email address of at least one technical representative available to instruct in the application of the pavement marking material. This representative shall be familiar with the application equipment process and materials, and shall have successful experience in applying pavement marking materials or reflective elements.
 - Please also include the name, telephone number, and email address of at least one technical representative available to provide assistance to the MnDOT Materials Laboratory personnel engaged in quality assurance operations.
- **Statement of Agreement**: A statement (most often presented as a letter) agreeing to the provisions of this [Pavement Marking Evaluation and Acceptance Program](#), and meeting the most recent [MnDOT Standard Specifications for Construction](#) (see 2582, 3354, 3356, 3590, 3591, and 3592; not all specifications may be appropriate for all pavement marking materials/products). In the Statement of Agreement, please reference the date of the [Pavement Marking Evaluation and Acceptance Program](#) document and the year of the [MnDOT Standard Specifications for Construction](#).
- For all products, except Reflective and/or Wet Reflective Elements (i.e. Glass or Ceramic Beads):
 - **NTPEP Test Data**: Test data from within the last 5 years for at least one snow season from a NTPEP Test deck in a Snowplow state.
- For Preformed Thermoplastic and Preformed Tape products only:
 - Provide the **British Pendulum Number (BPN)** for the product and a **Report** from an independent testing facility establishing the BPN.

- Provide the outline, syllabus, overview, or similar for the **Manufacturer Installation Certification Training** or similar program. The training shall address surface preparation and all application requirements and techniques necessary for successful installation of the product.

All information submitted as part of the application process will be considered public data. Do not submit intellectual property.

MnDOT may request additional information from the applicant. The applicant must provide the requested information to MnDOT within 3 months of MnDOT's request. Applicants are responsible for meeting this deadline. If MnDOT does not receive the requested information within 3 months, the application will expire, and MnDOT will take no further action on the application. MnDOT will not notify an applicant of an expired application. If an application expires, the applicant may submit a new application packet to MnDOT, which shall include all the requirements set out above.

MnDOT will review the submitted application to determine if the information provided is acceptable. The manufacturer will be informed in writing of the results of this review.

Product Sample, Occupational Safety Review, and Hazard Evaluation Process (HEP) Review

During this step of the evaluation process, the manufacturer must supply product samples and the appropriate information to complete the Hazard Evaluation Process and Occupational Review.

Acceptance of pavement marking materials under this program is based on the manufacturer's certification and quality control testing. MnDOT will check samples obtained from the manufacturer. The manufacturer must submit to the MnDOT Materials Laboratory an **Initial Product Sample Package**, which includes the following:

- Sample of product:
 - For liquid products, one pint of the product.
 - For preformed thermoplastic or tape, one sheet/roll of the product.
 - For all beads/elements, one quart of the product.
- Copies of all internal **Quality Control Test Results**.
- A manufacturer's written **Certification** certifying that the product meets the appropriate MnDOT specifications. The Certification shall list the batch or lot number of the shipment.

The **Occupational Safety Review** is completed by MnDOT's Office of Administration to determine risks associated with storing and using the product. They will review the Safety Data Sheets (SDSs) provided during the [Application Submittal](#) and determine if the product is acceptable for use by and around MnDOT personnel.

The **Hazard Evaluation Process (HEP)** was developed by MnDOT Office of Environmental Stewardship. It is 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. More information about the Hazard Evaluation Process can be found at [Hazard Evaluation Process – General \(PDF\)](#) and [Hazard Evaluation Process – Glass & Ceramic Beads \(PDF\)](#).

Provisional Approval

The application and test results will be reviewed to determine if the product should be given provisional approval and move forward to field testing. The provisional approval is a limited approval; the terms of this approval will be included in the provisional letter. The provisional approval may (at the request of the manufacturer) be extended twice with each extension lasting one year. Products receiving provisional approval can be included on the Pavement Marking Qualified Products List (QPL) as a provisionally approved product.

Field Testing

After receipt of provisional approval, the pavement marking material is eligible for evaluation on actual construction and maintenance projects. MnDOT reserves the right to determine the duration and type of the evaluation needed for each product.

It is the manufacturer's responsibility to:

- Find appropriate test location(s).
- Obtain the approval of both the Construction Project Engineer and Office of Traffic Engineering (OTE) Pavement Marking Engineer for the substitution of material on test location project.
- Notify the OTE Pavement Marking Engineer of the test location at least 5 business days prior to installation.
- If required, submit a [sample verification package](#). Please see the [sample verification package](#) section of this document for more information.
- Complete the Data Logging System File or Contractor Striping Report Form as required by the MnDOT Construction Contract and submit this information to the OTE Pavement Marking Engineer and Construction Project Engineer via email.

During the field testing period, MnDOT will evaluate the material's initial retroreflectivity and perform periodic inspections.

Final Qualification

The results of the field testing will be reviewed to determine if the product is eligible for inclusion on the Pavement Marking Qualified Products list (QPL). The manufacturer will be informed in writing of the results of this review.

If the product is eligible and the manufacturer would like the product listed on MnDOT's QPL, the manufacturer must provide the website address for the product. The website should include the following:

- A link to the product's Safety Data Sheet.
- A link to the product's installation specifications (Please note: Installation guides or instructions are not needed for ASTM Type 1 beads).

Please note: If the web address does not exist or is not provided; then, the product will not be included on MnDOT's QPL.

Once on the qualified product list (QPL), it is the manufacturer's responsibility to notify MnDOT of any and all changes to the chemical and/or physical makeup of the approved product.

Non-compliance to the provisions of this program may result in the removal of a product from the qualified products list (QPL).

Failure of the product at any time may result in the removal of a product from the qualified products list (QPL).

Ongoing Pavement Marking Material Acceptance Program

Once a pavement marking material is placed on the qualified products list (QPL), it may be used on MnDOT construction projects, by MnDOT Maintenance, and by the State Striping Business. To ensure that the materials used will provide the same service as those tested during the initial [Product Evaluation for Inclusion on the Qualified Products List \(QPL\)](#), the following acceptance program has been established.

Acceptance of pavement marking materials and reflective elements under this program is based on the manufacturer's certification and quality control testing. MnDOT will spot-check samples obtained from contractor stock and/or from project sites. Discrepancies in test results between manufacturer's lab and the MnDOT Materials laboratory that indicate significant deviation from MnDOT specifications, which cannot be resolved, may result in removal of a material from the Qualified Products List (QPL).

Sample Verification Package

Prior to the installation of a liquid pavement marking or drop-on glass bead products on a MnDOT roadway, the manufacturer must submit a sample verification package to the [MnDOT Materials Laboratory](#). Sample verification packages are not needed for wet reflective elements, preformed thermoplastic, or tape products. If the product is a wet reflective element preformed thermoplastic or tape, do not submit a sample verification package.

The MnDOT Materials Laboratory will test the verification samples in accordance with ASTM Standards, Federal Test Methods, and/or MnDOT Methods as detailed in the MnDOT specifications. Other test methods may be used at MnDOT's discretion.

Please note: Only submit sample verification package for lot and batches of product that will be used on MnDOT roadways. Do NOT submit samples of products that are used on local (non-MnDOT) roadways.

For liquid or drop-on glass bead products, the **sample verification package** will include the following:

- **Sample:** A sample of each batch or lot manufactured in the quantity required by the specifications.
- **Quality Control Test Results:** All internal quality control tests completed for all batches or lots to be used on MnDOT projects or roadways. These reports shall include the name and address of the purchaser and state project number, as appropriate.
- **Shipping Information:** The shipping information for all batches and lots to be used on MnDOT projects or roadways. This information shall include the name and address of the purchaser and state project number, as appropriate.

- **Manufacturer's Written Certification:** For each shipment, submit a Manufacturer's written certification that product meets the appropriate MnDOT specifications.

MnDOT Contact Information

MnDOT Materials Laboratory

Samples, test data, certifications and shipping information shall be sent to:

Allen Gallistel
MnDOT Materials Laboratory
1400 East Gervais St
Maplewood MN 55109
Phone: 651-366-5545

Office of Traffic Engineering

Inquiries for this evaluation program can be directed to:

Tiffany Kautz (tiffany.kautz@state.mn.us)
Traffic Standards Engineer
Phone: 651-234-7388

Questions about MnDOT's Pavement Marking practices and policies can be directed to:

Ethan Peterson (ethan.peterson@state.mn.us)
Pavement Marking & Crashworthy Engineer
Phone: 651-234-7380