

MnDOT - E8 Expansion Joint Seal Material Qualification Procedure

1. Material Qualification Procedure

a. Send a personalized submittal package to:

MnDOT Bridge Office
Attn: Mark Spafford
3485 Hadley Avenue North
Oakdale, MN 55128-3307
Telephone: (651) 470-9862
mark.spafford@state.mn.us

b. Submittal package will include:

- Completed New Products Application Form (attached)
- Manufacturer contact name, address, phone number and email address
- Product Data Sheets (include physical properties for all components)
- Safety Data Sheets (SDS), including the SDS for any adhesives used to apply the product
- Performance History References in a cold, heavy salt spray environment (other State DOTs are recommended, if available)
- Any independent lab testing available on the submitted joint system, if available
- Physical sample of each component of the system
- Certification that products meet Minnesota Statute 115A.9651 requirements for heavy metals and VOC requirements

c. Completed MnDOT Office of Environmental Stewardship Hazard Evaluation Process Documentation (attached)

d. System Qualification Requirements

- Minimum movement capability $\geq \pm 35\%$ of nominal material size
- Watertight system
- Traffic durable
- Ability to function in a temperature range of 120°F to -30°F
- Resistant to deicing agents, fuel, and other road related chemicals
- Report UV stability
- Report Life Expectancy
- Provide design details for turn-up at the curb or barrier
- Color should dark gray or black

2. MnDOT Field Performance Evaluation

The E8 Expansion Joint Seal Qualification Procedure will include a field performance evaluation over a two-year period. Following verification that the product meets the System Qualification Requirements and successfully completes the Environmental Services Hazardous Evaluation, MnDOT will contact the product manufacturer to initiate the field performance evaluation phase.

MnDOT will select the test site (a test bridge with a 4-inch E8 expansion joint at the end of a concrete approach panel), coordinate the schedule and traffic control, and provide labor and equipment to perform the installation. The manufacturer will supply the materials and any specialty equipment or tools required for installation, at the manufacturer's expense. The manufacturer's technical representative must be present at the installation of the E8 expansion joint seal and provide written certification that the material is installed in accordance with their recommended procedures.

MnDOT will evaluate field performance based on visual observation of the percentage of failure along the length of the joint. Failure is defined as a combination of any of the following failure modes along the length of the joint:

- *Seal Components Missing (SM)*: The joint seal is missing or pulled out from the joint opening.
- *Adhesion Failure (AF)*: Visual separations or openings between the seal and the adjoining interface or the seal has fallen or dropped below the original installation depth.
- *Material Failure (MF)*: Visual cracks, splits, delamination, deterioration, or breakdown of any material or component of the seal system. Wear, abrasion, or other deterioration on the surface of the seal that compromises watertightness.
- *Water Saturation (WS)*: E8 expansion joint seal is saturated and/or holding water inside the joint material.

Visual observations will be performed after each respective winter season for two years and documented on an E8 Expansion Joint Seal Evaluation Worksheet (attached). To successfully meet field performance expectations, the joint seal must not exhibit any failure.

If the field performance of the product meets expectations following the first winter, MnDOT will grant *provisional approval* of the product for use on a limited number of projects. Contact the person listed on the APL website to initiate.

Following completion of the two-year field performance evaluation phase, MnDOT will notify the product manufacturer of the final performance evaluation result. If the submitted E8 Expansion Joint Seal system successfully meets the performance evaluation criteria, the system will be allowed on MnDOT's Approved Products List for E8 Expansion Joint Seal materials, <http://www.dot.state.mn.us/products/concrete/e8expansionjointseal.html>. The Department reserves the right to remove any product from the approved products list based on future field performance.

(For MnDOT Use Only)

State of Minnesota
Department of Transportation
New Product Preliminary Information Form

INSTRUCTIONS: Answer ALL questions. Where a question is not applicable enter "N/A".
Attach additional sheet(s) as required with reference to item number.

Date: _____

1. Trade Name _____

Manufacturer _____

Phone No. (_____) _____

Address _____ City _____ State _____ Zip _____

Patent pending Yes ___ No ___ Patent No. _____

2. Local Distributor _____ Phone No. (_____) _____

Address _____ City _____ State _____ Zip _____

3. Recommended Primary
Use: _____

4. Describe product, material equipment or process:

5. Describe any limitations or use restrictions:

6. Material composition (attach laboratory test results, storage requirement, shelf life,
Material Safety Data Sheet and disposal procedure):

7. Outstanding feature or advantage claimed:

8. Date introduced on market _____ . Alternate for what existing product?

9. a. Total Estimated Cost Per Unit Material (including delivery) _____
b. Total Estimated Cost Per Unit Furnished and Installed _____
10. Does product meet requirements of any of the following specifications?
(Give specific number.)
AASHTO _____ ASTM _____ Fed. Spec. _____ Mn/DOT _____
Others (state and attach specifications) _____
11. Indicate whether this product has been evaluated by a national or regional product
evaluation program? (Attach any results.)
_____ HITEC _____ NTPEP _____ Others (specify)
12. Cite use by other agencies and persons to be contacted concerning experience with use,
including how many years used, and whether use has been experimental or routine (list
names, titles, mailing address and phones):

13. Note here and attach any test results, reports, etc., from the organizations above:

14. Is a documented quality control process available for this product?

15. Who has been contacted within Mn/DOT about this product? _____

Has this person been sent a copy of this form? _____
16. Additional comments: _____

Name and Title of person completing this form:

Address, State, Zip:

Date: _____ Phone: () _____
Email Address: _____

_____ Manufacturer _____ Representative

05/13/2022

Technical Overview: Hazard Evaluation Process (HEP) Policy OE010

The MnDOT Office of Environmental Stewardship 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. Manufacturer information
 - Name of company
 - Address
 - Technical contact name, email, and telephone number
2. Product information
 - Product trade name and chemical name, if applicable
 - Product Technical Data Sheet
 - Safety Data Sheets (SDS) for all chemicals in the product/waste material
3. Chemical Status:
 - Provide individual chemical & physical properties: melting point, boiling point, water solubility, storage stability, dissociation constant, partition coefficient, vapor pressure, soil adsorption coefficient, and hydrolysis (EPA Methods 830.7200, 830.7220, 830.7840, 830.6317, 830.7370, 830.7570, 830.7950, 835.1230, and 835.2130; or equivalent methods)
 - Identify chemicals with molecular weights greater than 1000 Daltons (OECD Methods 118, 120 or equivalent)
 - Proof that final product would not be considered a hazardous waste (EPA Toxicity Characteristic Leaching Procedure 1311, under Minnesota Rules Chapter 7045) if spilled or disposed of
 - Provide names and Chemical Abstract Numbers (CAS numbers) of the reportable substances in the product (40 CFR 302)
4. Product-specific testing information

The following product-specific information must be submitted if known. If information for a representative test is unknown it must be stated as such. Testing for this information must follow standardized testing procedures, such as U.S. EPA [SW-846 test methods](#), [OECD product test methods](#), or U.S. EPA Office of Chemical Safety and Pollution Prevention [Harmonized Test Guidelines](#).

- Chemical leaching (EPA Method 1312 with subsequent analysis for metals and test substance, or equivalent method)
- Biodegradation (EPA Methods 835.3110, 835.3190, 835.3215, 835.3300, 835.4100 or equivalent method)
- Ecotoxicity to include three trophic levels (EPA Methods 850.1300, 850.1400, 850.4100, 850.4150, 850.5400, and 850.6200 or equivalent method)
- Other available test data that provide individual chemical fate information