

MaineDOT Qualified Products Acceptance Criteria

Epoxy and Resin Bonding Agents

Overview

All new submittals of Epoxy and Resin Bonding Agents are required to be tested through AASTHO Product Evaluation & Audit Solutions (formerly NTPEP) starting 12/31/2021. Any products, approved prior to 12/31/2021, shall be tested through AASTHO Product Evaluation & Audit Solutions (formerly NTPEP) and submit the testing ID# to the Maine DOT Product Evaluation Program by 12/31/2022. In addition, these products must remain current with AASTHO Product Evaluation & Audit Solutions (formerly NTPEP) policy regarding periodic retesting as required by the program.

Criteria

Products on the Epoxy and Resin Bonding Agents QPL shall meet the requirements of the current Maine Department of Transportation Standard Specifications AND AASHTO M235 Type IV, Grade 2 or 3.

Products shall be classified as 100% solids and be a standard two-part (A+B) type epoxy. Mixing ratios shall be clearly stated in the product submission as well as estimated working or open times. Below is a list of properties and their requirements.

Property	Other Information	Requirement
Viscosity	Grade 2, Medium	20 P, minimum
Consistency	Grade 3, Non-Sagging	¼ in., maximum
Gel Time	Automatic Proportioning, mixing, & dispensing equipment	30 minutes, maximum
	Bulk Materials	30 minutes, minimum
Bond Strength	14-day moist cure	1500 psi, minimum
Water Absorption	24 hrs.	1%, maximum
Heat Deflection Temperature	7-day	120° F, minimum
Linear Coefficient of Shrinkage	On cure	0.005 in., maximum
Compressive Yield Strength		10,000 psi, minimum
Compressive Modulus		200,000 psi, minimum
Tensile Strength	(Not required for Grade 3 systems)	7,000 psi, minimum
Elongation at Break		1 %, minimum

Epoxy systems are further characterized by “Class” indicating temperature range of the surface of the hardened concrete to which the anchoring system is to be applied (see table below). This temperature may be considerably different from that of the air. Where unusual curing rates are desired, it is possible to use a class of bonding agent at a temperature other than that for which it is normally intended. For example, a "Class A" system will cure rapidly at room temperature.

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Manufacturers shall clearly state in their product submission which temperature class(s) their product meets. Products may meet the requirements of one or more temperature classes.

Class A: for use below 40 degrees F

Class B: for use between 40- and 60-degrees F

Class C: for use above 60 degrees F

These products are not to be used for any overhead sustained tension applications. Any sustained tension in non-overhead applications will require additional pull-out and creep testing as listed herein v1.0 Page 1 of 3 2023-11-21

EPOXY ACRYLATE ANCHORING MATERIALS- Meeting the physical property requirements of AASHTO M235 Type IV, except for epoxy content. METHYL METHACRYLATE -MMA- ANCHORING MATERIALS- Meeting the physical property requirements of AASHTO M235 Type IV, except for epoxy content.

VINYLESTER POLYESTER-STYRENE ANCHORING MATERIALS- These products may meet certain requirements of AASHTO M235, but not all.

Anchors: Require pull-out and creep testing.

Type 1 - Anchor bolts size M24, 1 inch or greater

Type 2 - Anchor bolts smaller than M24, 1 inch Type 3 - Reinforcing steel anchors

For further information see "Selecting Anchoring Products"

The products listed on the Epoxy and Resin Bonding Agents QPL may be used for Types 2 and 3 anchors. For Type 1 anchors contact the Bridge Program at 207-624-3490.

NOTE: MaineDOT may require a field evaluation before final acceptance and inclusion on the Qualified Products List (QPL). Project personnel are encouraged to perform field verification testing prior to use on their project. Failure of any product on the Qualified Products List to perform as stated will be grounds for removal from the List. Project personnel are encouraged to fill out the Product Evaluation form, available on the QPL website to provide valuable feedback on how products have performed in the field

Anchoring adhesives may be un-pigmented, or gray in color when mixed.

Field and laboratory testing may be required to be performed as a prerequisite to acceptance at the time of product submittal or may be required prior to use of the product on a project to demonstrate pull-out resistance. Pull out tests when required shall be performed in accordance with the requirements of ASTM E488.

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When required, due to specific project needs, for example: anchors under constant tension, creep tests shall be performed according to (AC58) Acceptance Criteria for Adhesive Anchors in Masonry Elements as set forth by the ICC Evaluation Service, Inc.

PRODUCT CONFORMITY: At the discretion of MaineDOT, any shipment of product to a MaineDOT location may be tested, such as by infrared or gas chromatography, for compliance with the SDS and uniformity with the formulation of the approved product (where applicable).

NOTE: MaineDOT may require a field evaluation before final acceptance and inclusion on the Qualified Products List (QPL).

A vendor who wishes to have products preapproved for future use should contact MaineDOT's Product Evaluation Coordinator via email at NewProducts.MaineDOT@maine.gov or by calling (207) 557-1788. More information can also be found on our website, including our electronic submittal and recertification forms.

Submittals

Product Submittal Packets shall include the following information:

- [Electronic New Product Submittal](#) form
- Current Technical Data Sheet
- Current Safety Data Sheet (SDS)
- Third Party, Independent Test Results OR AASTHO Product Evaluation & Audit Solutions (formerly NTPEP) testing ID for those products requiring this testing

Incomplete submittals will not be evaluated for inclusion on MaineDOT's Product Lists.

All reports shall be issued and signed by an authorized laboratory representative. The report shall include date of testing, product name, and the physical and/or chemical requirements stated herein.

Product Changes

Any change in a product, such as formulation, shall require re-testing (through AASTHO Product Evaluation & Audit Solutions (formerly NTPEP) if required) or independent, third-party lab Manufacturers shall notify MaineDOT of products changes and resubmit as a new product for re-evaluation, failure to do so may result in removal of product from MaineDOT's QPL.

Manufacturers shall submit, for re-evaluation, an updated independent analytical laboratory report (or AASTHO Product Evaluation & Audit Solutions (formerly NTPEP) testing ID) prior to approval or purchase by MaineDOT.

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Recertifications

MaineDOT requires re-certification by all manufacturers every five years (except for electrodes used for field welding which are recertified every year) to ensure that product names and formulations have remained the same since the product was originally placed on this list and that products are still relevant and in production. Where applicable, this shall include the most recent AASTHO Product Evaluation & Audit Solutions (formerly NTPEP) testing ID. Additionally, AASTHO Product Evaluation & Audit Solutions (formerly NTPEP) provides for retesting products. A lapse of AASTHO Product Evaluation & Audit Solutions (formerly NTPEP) testing/audit schedule as set forth in the associated workplan shall result in disqualification of the product.

Manufacturers of any products requiring MASH testing must contact MaineDOT Product Evaluation Program of any changes to their products. Manufacturers are responsible for tracking their recertification dates, reminders will not be sent. Failure to recertify products may result in removal from the QPL. Recertifications can be completed using the [Electronic Certificate of Compliance](#) found on our website.

Other Information

The Department continues to evaluate its Acceptance Criteria and reserves the right to revise the criteria and/or withdraw product qualification at any time for any reason without notice. Furthermore, the ability of a product to meet these requirements does not necessarily guarantee addition to the Qualified Products List. Reminder that, products once placed on the Qualified Products List are to be considered prequalified for use only, meaning that they have undergone preliminary review for compliance with MaineDOT, and AASHTO specifications. As with all products, final approval rests with the Designer, Project Manager, Supplier and/or Resident to determine if a product best suits the need of a particular project.

If you are experiencing difficulties reading or printing this page, or have questions regarding the Qualified Products List website, please contact the Product Evaluation Program Coordinator at (207) 557-1788 or by email at: NewProducts.MaineDOT@maine.gov