



Minnesota Department of Transportation
Approved Concrete Adhesive Anchorage
Program

March 11, 2016

The Minnesota Department of Transportation (MnDOT) only accepts concrete adhesive anchorages from the MnDOT Approved Products List (APL) (www.dot.state.mn.us/products). This applies to all concrete adhesive anchorages furnished by Contractors for use on MnDOT projects.

WARNING: Concrete adhesive anchors are not allowed in sustained tensile-load applications.

For concrete adhesive anchorages, a Manufacturer must demonstrate an ability to provide concrete adhesive anchorages meeting the requirements of ICC-ES AC308 using the testing program outlined in ACI 355.4 section 3.3.3 and 3.4 as modified by AC308. Torque controlled anchor systems are not allowed as part of this approval process.

The Manufacturer must comply with the following:

A. Approval

MnDOT will evaluate all concrete adhesive anchorages prior to placement on the APL.

Evaluated products must meet the following requirements:

- A minimum characteristic bond strength in uncracked concrete of 1000 psi or greater (Temperature Range A),
- A minimum characteristic bond strength in cracked concrete of 500 psi or greater (Temperature Range A), and
- A strength reduction factor in wet concrete corresponding to that of a Category 2 anchor under Condition B, as defined in ACI 318 D.4.3.

For a product to be evaluated, submit the following:

- Product code report in conformance with ACI 355.4 Section 3.3.3 as modified by AC308 and as outlined in ACI 355.4 Table 3.3 with AC308 modifications. A code report conforming to ACI 355.4 Section 3.3.2, as outlined in Table 3.2, with AC308 modifications may be submitted in lieu of a code report per Section 3.3.3.
- As part of the report, include test results per AC308 Section 3.4 demonstrating that the adhesive will meet the same strength requirements for hot-dipped galvanized ASTM F1554 threaded rods, stainless steel threaded rods, epoxy-coated reinforcing, and stainless steel reinforcing.
- Demonstrate that the system is certified for use in hammer-drilled or rock drilled holes. If other anchor installation methods are also certified, include as part of the code report test results conforming to ACI 355.4 Section 3.5 with AC308 modifications demonstrating that the adhesive will meet the required strength requirements for each additional installation method.

Conditional approval will only be given to the anchor types and diameters that meet the minimum requirements.

All testing required to meet the above specifications and the furnishing of the corresponding code report will be done at no cost to the Department.

B. Reference Material

Submittal package should include:

- Completed New Products Application Form (Attached)
- Completed Hazardous Evaluation Process (Attached)
- Manufacturer contact name, address, phone number and email address
- Product Data Sheets
- Code report conforming to ACI 355.4 with AC308 modifications as specified in this document
- Manufacturer's Printed Installation Instructions

C. Material

Federal aid projects require that the "Buy American Steel Regulation", U.S. Code of Federal Regulations 23CFR635.410, be followed. This is outlined in Special Provision (1601) SOURCE OF SUPPLY AND QUALITY, see special provisions:

<http://www.dot.state.mn.us/pre-letting/prov/pdf/SP2014.pdf>

D. Performance

If the above criteria are met successfully, the anchorage adhesive will be placed on the APL. If a product does not perform satisfactorily in the field it may be removed from the APL.

This approval will only be for adhesive anchor types and diameters that meet the minimum requirements.

E. Non-Compliance

If future samples of these materials do not meet MnDOT specifications, the product may be removed from the APL.

Note: it is the manufacturer's responsibility to immediately notify MnDOT if any product is changed or modified, or if the product is no longer being produced.

A product's approval will expire three years from the approval date. Resubmit an updated product code report(s) and corresponding material to maintain product approval. Failure to submit a code report may result in the product being removed from the APL.

Reference materials and certification shall be sent to:

Minnesota DOT Attention:
MnDOT Bridge Office Bridge Construction Unit
3485 Hadley Ave. N.
Oakdale, MN 55128
Tel. (651) 366-4500
Fax (651) 366-4497

New Product ID # _____
(For MnDOT Use Only)

Revised 3/9/2009

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. _____ MnDOT _____
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 MnDOT 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

MnDOT Office of Environmental Stewardship
Hazard Evaluation Process
Technical Overview of Technical Memorandum No. 11-04-ENV-01

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/40/0,3343,en_2649_34377_37051368_1_1_1_1,00.html. U.S. EPA Office of Chemical Safety and Pollution Prevention Harmonized Test Guidelines can be found at: <http://www.epa.gov/ocsp/pubs/frs/home/guidelin.htm>.

- a. Leach test results (EPA Method 1312 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:

robert.d.edstrom@state.mn.us