

Bureau of Materials Materials Approval Procedures

MAP Number: 137-24

Effective Date: January 1, 2025 Approved By: *Edward Inman*

PROCEDURE FOR APPROVAL OF WARM MIX ASPHALT ADDITIVES AND PROCESSES

PURPOSE:

To establish a procedure to approve Warm Mix Asphalt (WMA) additives and processes for addition to the NJDOT Bureau of Materials Qualified Product List (QPL).

REFERENCES:

New Jersey Department of Transportation Standard Specifications for Road and Bridge Construction Sections 902.01.04, 902.02.03, and NJDOT Test Method B-10

AASHTO R 29, T 30, T 308, T 340, T 166, T 209, and T 283 ASTM D 6931 and D 8225

PROCEDURE:

A. NEAUPG Qualified WMA Technologies

All products on the Northeast Asphalt User/Producer Group (NEAUPG) Qualified WMA Technologies List as of the closing date of the list will be automatically transferred to the NJDOT Bureau of Materials Qualified Product List (QPL).

B. Initial Request for Producer's Approval

The producer must request in writing for the approval of the product. Include the following information on the written request:

- 1. The name, address, and contact information for the producer.
- 2. The product name.
- 3. Statement that the Warm Mix Asphalt (WMA) additive or process meets the requirements of Section 902.01.04 in NJDOT 2019 Standard Specifications for Road and Bridge Construction.
- 4. Materials Safety Data Sheet for the product.
- 5. Experience using WMA technology in other states, including the following.
 - Location(s)
 - Quantity of WMA placed
 - Traffic volume ESALs preferred (AADT with % trucks acceptable)
 - Submit all pertinent test results and data (include information on PG binders used and related PG binder test data)
- 6. WMA technology supplier will provide test results for both the WMA and the corresponding HMA control mix meeting the following requirements (Note Test specimens must be made from plant produced WMA).
 - 75 gyration mix design
 - PG 64S-22 binder grade

- 9.5 or 12.5 mm Surface Course
- HMA without RAP
 - WMA without RAP produced at or below 275°F
 - WMA technology added at rate based on manufacturer's recommendations
- 7. The following test results must be submitted for both the HMA and WMA mixtures that were sampled after plant production (PG binder may be sampled before production if WMA technology is added at refinery). Information regarding production temperatures and silo storage times for each mix must be provided along with;
 - Gradation (AASHTO T 30)
 - Asphalt Content (AASHTO T 308)
 - Volumetric Properties per NJDOT Standard Specifications Table 902.02.03-3 (List any special WMA sample conditioning/preparation and non-standard test temperatures).
 - Moisture Susceptibility (AASHTO T 283)
 - Determining Rutting Susceptibility of Hot Mix Asphalt using the Asphalt Pavement Analyzer (AASHTO T 340) or High Temperature IDT (ASTM D 6931)
 - IDEAL-CT Index (ASTM D8225) or Overlay Tester (NJDOT B-10) at 25°C
 - Asphalt binder Performance Grade (AASHTO R 29)
- 8. Copy of the AASHTO Accreditation Program Certification of Accreditation for the laboratory performing the testing. The laboratory must be an independent, third party and must be AASHTO accredited for the testing of Asphalt Mixtures including the following test methods: ASTM D 6931, ASTM D 8225, AASHTO R 29, T 340, T 283, T 30, T 308, T 166, and T 209. Documentation of AASHTO accreditation must be current and coincide with the dates during which the tests were performed.

Email the request for approval to the ME or mail the request to the following:

Mailing Address (USPS):

Manager, Bureau of Materials (Thiokol Bldg. 4) New Jersey Department of Transportation P.O. Box 600 Trenton, NJ 08625-0600

C. Bureau of Materials Review

Street Address (UPS, FedEx, etc.):

Manager, Bureau of Materials (Thiokol Bldg. 4) New Jersey Department of Transportation 930 Lower Ferry Road West Trenton, NJ 08628

Upon receipt of the sample and documentation, the NJDOT Bureau of Materials will review the test results for conformity with the testing requirements listed below.

- 1. Tensile strength ratio (AASHTO T 283) meets minimum requirement of 80 percent
- 2. Average APA (AASHTO T 340) rut depth ≤ 7 mm or Average High Temperature Indirect Tensile Strength (ASTM D 6931) ≥ 25 psi
- 3. Average IDEAL-CT (ASTM D 8225) Index ≥ 130 or Average Overlay (NJDOT B-10) results ≥ 200 cycles
- 4. WMA and corresponding HMA control mix must meet NJDOT Standard Specification requirements for gradation and volumetric properties (Tables 902.02.03-1 and 902.02.03-3)
- 5. High temperature grade of the WMA binder must not decrease more than 6 degrees from the control binder, and the low temperature grade of the WMA binder must not increase more than 6 degrees from the control binder.

If results are acceptable, the product will be added to the QPL. If any of the documentation is not acceptable, a letter will be sent to the WMA manufacturer describing the discrepancy and informing the manufacturer what further actions are required.

D. Disqualification:

- 1. Changes in Material. The Department may at any time sample material from the projects for evaluation. If the material does not meet Specifications or if test results are substantially different from the original test results, NJDOT may remove the material from the QPL.
- 2. Complaints. NJDOT will evaluate reports of poor performance of the product by Department users and will remove from the QPL products that displayed unacceptable performance in the field.

Requalification

The ME will reevaluate a product which has been disqualified and removed from the QPL only after submission of a formal request along with acceptable evidence that the problems causing the disqualification have been resolved.

The ME may require the manufacturer to requalify the product for any of the following reasons:

- 1. To ensure that obsolete products are not kept on the list, the ME may request written confirmation from the manufacturer that the product is still available and has not changed formulation. Failure to respond to the Bureau's written request will result in the product being removed from the list.
- 2. If the formulation of the product has changed, the ME may require that the new formulation be requalified.
- 3. If the Department's standard specifications change or if the referenced ASTM or AASHTO standards change, the ME may require requalification to ensure that the product meets the new specification.
- 4. If the product has been on the QPL, for five years or longer, the ME may request samples to test for requalification.