



General

Warm mix asphalt (WMA) technologies used by the California Department of Transportation (Caltrans) must be on the Caltrans Authorized Material List (AML) for Warm Mix Asphalt Technologies before use on a construction project. The procedures below outline the authorization criteria requirements for:

1. Adding a new product to the AML.
2. Renewing an existing product's authorization date.

WMA technologies allow a reduction in the temperatures at which asphalt mixes (Hot Mix Asphalt (HMA)/Rubberized Hot Mix Asphalt (RHMA)) are produced and placed. WMA technologies must comply with *Section-39, "Hot Mix Asphalt" of the Standard Specifications*.

Caltrans has implemented a WMA technologies authorization criterion that incorporates testing and supplier evaluation through the National Transportation Product Evaluation Program (NTPEP).

Caltrans reserves the right to remove a product from the AML at any time.

For WMA additive technologies a new submittal is required if the composition or formulation changed.

A product name change with no change to formulation will require a certified letter requesting the name change.

New Product Authorization Criteria

For new products not on the AML follow the procedures listed below.

The Manufacturer/Supplier will provide the following:

1. Completed Authorized Material List Submittal Form (TL-9502)
2. Report that includes the following:
 - a. Chapter 1: Overview
 - i. Brief overview of how the technology works.
 - ii. Include a statement identifying if the technology is Polyphosphoric Acid (PPA) compatible.

Authorization Criteria for Warm Mix Asphalt Technologies

- iii. Details on required plant modification to accommodate the technology.
 - iv. Details on how Caltrans Material Plant Quality Program (MPQP) requirements will be met.
 - v. Copy of the WMA additive technology Safety Data Sheet (SDS) and the Fourier-transform infrared spectroscopy (FTIR) provided by NTPEP.
 - vi. Active WMA NTPEP Number.
- b. Chapter 2: Laboratory Test Results
- i. Test results for ASTM D8225 "Standard Test Method for Determination of Cracking Tolerance Index of Asphalt Mixture Using the Indirect Tensile Cracking Test at Intermediate Temperature" (IDEAL-CT). IDEAL-CT test results must be reported through an ASTM D3666 (Asphalt Mixture) "Specification for Minimum Requirements for Agencies Testing and Inspecting Road and Paving Materials" accredited laboratory.
 - 1. Testing laboratory will prepare loose mix samples and cure them in a forced-air draft oven at 275 F for 4 hours \pm 10 minutes.
 - 2. Cured loose mix samples are then compacted into specimens using the reduced temperature recommended by the WMA manufacturer.
 - ii. NTPEP and IDEAL-CT test results must clearly indicate that the HMA with the WMA technology performs equal to or better than the HMA of the control mix.
- c. Chapter 3: Field Test Results
- i. A minimum of two field experiments with a minimum of one-year in-service life. Each experimental project must include HMA without WMA as a control section and a section with HMA utilizing the WMA. The control and WMA sections must be placed end-to-end in the same lane (not in adjacent lanes). Sections should have an AADT of at least 10,000 with at least 10% trucks. Each section should have been monitored after construction (as a baseline) and again after 12 months or longer (i.e., at least one year of traffic).
 - ii. Each project summary must include:
 - 1. Name of the organization, monitoring program, and lead investigator undertaking field testing (including AMRL certification number).
 - 2. Project locations and details (including traffic).



3. Superpave mix design information.
 4. Mix production and construction data (include production temperature (must be between 240°F – 325°F), placement temperatures, summary of QC measurements, and any other documented observations.
 5. Tabulated summary of observations from each visit. Explanations for any differences between the HMA and WMA sections.
 6. Photographs at each monitoring visit showing all distresses. Photographs must show equal or better performance by the WMA section to the HMA control section.
- d. Chapter 4: Reference list of reports cited in the text and other reports prepared on the WMA technology.
 - e. Chapter 5: List of State DOT and/or local agency contacts and associated documentation (e.g. project special provisions) applicable to the construction of the test sections.

If WMA technology utilizes an additive, Caltrans may request one pint can of WMA additive.

Caltrans will review the report and if approved, the technology will be placed on the AML for Warm Mix Asphalt Technologies.

Submit your completed packages through the Product Evaluation Program at new.products@dot.ca.gov.

Reauthorization of Existing Products

If you have an existing product on the AML that is approaching its reauthorization date, follow the procedure below.

To maintain an existing product on the AML, the manufacturer/supplier must:

1. Remain in good standing with an active NTPEP Number.
2. Email to WMA.Administrator.OAP@dot.ca.gov IDEAL-CT test data through an ASTM D3666 accredited laboratory two (2) months prior to the seven-year reauthorization date.
3. If the WMA technology utilizes an additive, provide Caltrans with one pint can of material and SDS two (2) months prior to the annual reauthorization date. Send sample and SDS to:

The California Department of Transportation (Caltrans)



California Department of Transportation

Authorization Criteria for Warm Mix Asphalt Technologies

Materials Engineering and Testing Services (METS)
Binder and Hot Mix Asphalt Laboratory
5900 Folsom Boulevard
Sacramento, CA 95819

- a. An infrared scan will be performed by Caltrans' Chemistry Testing Branch. Significant changes in chemistry will result in a need to resubmit the WMA technology as a new product for approval.

If you have questions, contact WMA.Administrator.OAP@dot.ca.gov.