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Tennessee Department of Transportation
Division of Materials and Tests

Performance Graded Asphalt Cement
Certified Supplier Requirements (SOP 3-1)

Purpose- The purpose of this document is to establish the minimum requirements for an asphalt cement supplier to become certified in Tennessee, and therefore provide performance grade asphalt cement on TDOT projects.

Policy- All Performance Grade Asphalt Cement (PGAC) supplied to a TDOT project must come from a certified asphalt supplier and be in compliance with TDOT Specifications (Section 904). To become certified, the supplier or manufacturer must submit a quality control plan (QCP) in accordance with AASHTO R-26, and as modified or required in this procedure, to TDOT for approval. The supplier must also demonstrate a history of quality control data and proof of full QCP implementation.
In-line blending of modifiers at an asphalt plant must be in accordance with the section "In-line blending/batching" below. Modification of neat asphalt by "oxidation" or "air-blowing" is not acceptable.

Procedure- **Definitions** - The *manufacturer*, as further referenced in this procedure, will be the last source to produce or modify the final product. The *supplier* will be the last source to handle the product before being shipped to a hot mix asphalt plant, and the supplier will provide the bituminous certification report with the PGAC shipment. In many instances, the manufacturer and the supplier will be one in the same.

A *lot* is defined as one of:
- the quantity represented by either a barge load or a storage tank.
- When in-line blending, a *lot* will be one week,
- When using a "batch" system, a lot will be thirty (30) days.

Laboratory - Each manufacturer and supplier must have a designated laboratory to either certify the PGAC or to conduct quality control testing. Laboratories used to certify PGAC must participate in semi-annual AASHTO Re:source. proficiency testing for the tests listed below and submit proficiency results to the Department once available. Any laboratory that demonstrates excessive consecutive poor proficiency testing results may be asked to conduct additional extra proficiency sample testing until non-conformities are corrected.

Supplier laboratories that conduct quality control testing shall be equipped to conduct all specified quality control tests at a minimum. Personnel conducting quality control testing must be qualified; either by training from the equipment manufacturer, trained under the direct supervision of an individual who routinely completes AASHTO Re:source demonstrations and proficiency testing, or trained by other highly proficient and competent individuals with asphalt binder testing experience.

Quality Control Plan (QCP) - Each manufacturer and supplier must submit a QCP for approval. Once approved, each manufacturer and supplier shall, at the beginning of each calendar year, send either a new QCP or written notification to the department that no changes will be made to the current QCP on file. The QCP shall contain the information required in accordance with Section 9.1 and 9.2 (or as revised below) of AASHTO R-26.

If applicable, the QCP shall include requirements for in-line blending. In addition, the plan shall include the following:

- A narrative description how PG 70-22, PG 76-22, and PG 82-22 modified asphalt will be blended and handled to assure a consistent product,

Performance Grade Classification – Specify all grades shipped to TDOT projects using the M320 naming convention.

TDOT will accept binder certified as PG67-22 in lieu of PG64-22. Whether, a facility chooses to supply binder as PG67-22 or chooses to recertify it as PG64-22, it shall declare the grade supplied in the QCP and may not change the declared classification mid-year.

Specification Compliance Testing - TDOT requires the following specification compliance testing as required per the most current version of Standard Specification 904.01.

Effective January 1, 2026, Report (info only):

- Glover-Rowe Parameter, AASHTO T-315 tested at 10 rad/s and 25°C (20 hour PAV):
  $GRP=G^* \times \cos^2 \delta / \sin \delta$
- R-Value, AASHTO T-313 tested at -12°C:
  $R=\log(2) \times \log(S/3000)/\log(1-m)$

Specification Results shall be certified and documented on Departmental Form DT-0293PG and submitted with each shipment to the Department via the Contractor.

Quality Control Testing -TDOT requires the following as a minimum for quality control testing:

- Rotational Viscosity (AASHTO T 316) (275 degrees F)
- Dynamic Shear , $G^*/\sin \delta$ (unaged) (AASHTO T 315)

For PG 70-22, PG 76-22 and PG 82-22, one of the following three testing options must also be included:

- Non-Recoverable Creep Compliance (J_{nr}) and % Difference in Non-Recoverable Creep Compliance between 0.1kPa and 3.2kPa (AASHTO T-350)
- Original Phase Angle

Testing Frequency - TDOT requires the following testing frequency

Facility	Specification Testing	Quality Control Test
Storage Tanks	• Each lot • Any time a tank is added to	• Once per week
In-line Blending	• Each lot (weekly)	• Once per day while in-line blending
Batching and Live Storage Tanks	• Each lot (monthly)	• Before transferring material into live storage tanks • Once per day while shipping from live storage tanks

Certification and Records:

- All lots must be in full compliance before being shipped to a TDOT project.
- **Email certification for each lot to: tdot.bindermtr@tn.gov**

- Each manufacturer and supplier shall keep a record of all specification compliance and quality control test results on file for immediate review by the TDOT. All records shall be retained for a minimum of 5 years.

- If test results indicate a lot is not in compliance with TDOT Specifications, in addition to the requirements in Section 9.2 of AASHTO R 26, the supplier must provide a list of all shipments (date, quantity, contract number) to which the questionable material was shipped.

In-line Blending/Batching:

- In-line blending of a certified PG 64-22, a certified PG 76-22, or a known concentrate to produce a PG 70-22, PG 76-22 or PG 82-22 will be allowed. The manufacturer shall utilize a static in-line blending system to provide a uniform, homogenous PGAC. Before in-line blending can occur, the conceptual plan must be pre-approved by TDOT and the manufacturer shall provide a detailed plan describing how the materials will be blended to meet this policy. When loading directly into a tanker and prior to any material being accepted, the supplier shall demonstrate to TDOT that it can produce material meeting the multiple grades through the blending system on the "fly" (i.e. switch from one grade to another). The producer shall keep precise documentation showing the amount of each grade and/or concentrate that was blended into each tanker. These records shall be available to TDOT when requested. When blending directly into trucks, the "rack operator" must have meters, or other mechanisms, visible to assure that the two components are being blended in the proper proportions

- The manufacturer may produce batches of PG 70-22, PG 76-22, and PG 82-22 from a known concentrate and PG 64-22.

Terminal Added Anti-stripping Agent, Warm Mix, or other aditivies:

When any additive is to be supplied by the Asphalt Terminal, the material shall be introduced and mixed into the asphalt binder. At no time shall additive be pre-blended with AC and then stored.

- The blending system shall be capable of being calibrated, checked and monitored for accuracy and amount used.

- The additive shall either be blended with AC immediately prior to being introduced into a transport tank, or shall be loaded simultaneously with the AC. In either case, the additive shall be introduced at a uniform rate that is proportional to the flow of AC. The additive shall be simultaneously loaded for a minimum of 80% of the asphalt binder loading time.

- A thermostatically controlled heating system shall be utilized. The system shall be capable of heating and maintaining the additive tank's contents and distribution system at the temperature recommended by the additive manufacturer. Additive storage temperatures shall not exceed 150° F.

- The asphalt binder delivery ticket shall show the rate, (or quantity), brand and grade of the additive.

- Terminals shipping asphalt binders blended with anti-stripping agents must test final blended materials as part of the terminal testing program either as certification or quality control.

Quality Assurance- Split samples, random sampling and Round Robin testing - The manufacturer shall split samples for specification compliance testing and provide one to TDOT for verification testing. Samples for quality control testing shall be split and one sample retained at the supplier's facility for 30 days in case a dispute were to arise.

The manufacturer/supplier shall coordinate pickup or shipment of the split sample with the M&T Field Services Office that the terminal falls within. (Out of state terminals shall coordinate with the nearest M&T Field Services Office.) Submission of the samples is the manufacturer/suppliers' responsibility. Terminals that do not submit QA verification sampling may be removed from the producer list.

Samples are not required Between November and February if not providing material to TDOT contracts.

The TDOT, at any time, may request additional quality control samples to be taken and tested by the supplier or by TDOT, for assurance purposes.

The TDOT, at any time, may request the manufacture or supplier to participate in round robin proficiency testing. TDOT will provide a reasonable time period for the test results to be submitted.

The TDOT will have the right to visit each approved supplier to review quality control activities and records, to obtain random check samples, or to inspect production.

Shipment- All shipments from the supplier must be accompanied with a completed Form DT-0293PG (Performance-Graded Asphalt Material Certification) and stamped by a Certified Public Weigher Licensed in Tennessee.

Approval- Manufacturer or Suppliers may apply to become approved terminals on TDOT's Approved Supplier List as follows:

- Terminals Outside of Tennessee and Approved Suppliers of another State may apply for approval on the basis of: submission of an acceptable QCP, 1-gallon sample of each grade to be approved and, good standing as a supplier by the State DOT in their location.

- New Terminals regardless of location may apply for approval on the basis of: submitting an acceptable QCP and three consecutive satisfactory monthly samples.

Inactive Terminals- Out of state terminals which are not actively being used in mixtures on TDOT projects (2 years of no projects or submitted JMFs) will be deemed inactive. Inactive terminals may not supply to TDOT projects.

Producers may voluntarily opt into being inactive.

Inactive terminals may maintain approved status by maintaining the QCP. Inactive terminals that are approved may reactivate by providing a 1-gallon sample, good standing with the DOT of the state of location and notification to the Department prior to shipping.

Suspension/Removal of Approval – The Department may suspend or remove approval of any terminal location based on consecutive failed samples or failure to follow the approved QCP.