

Test Procedure for

ASPHALT BINDER QUALITY PROGRAM



TxDOT Designation: Tex-545-C

Effective Date: **December 2022 – November 2023**

1. SCOPE

- 1.1 The Asphalt Binder Quality Program (ABQP) provides the requirements and procedures for the Materials and Tests Division (MTD) to inspect and approve asphalt binders and related products at the source of manufacture.
 - 1.1.1 Use this procedure for approval of the following types of material, as specified in Item 300, “Asphalts, Oils, and Emulsions,” of the Department’s Standard Specifications and in DMS-6310, “Joint Sealants and Fillers”:
 - asphalt cement (AC),
 - cutback asphalt,
 - asphalt emulsion,
 - performance graded (PG) binder,
 - asphalt recycling agent,
 - polymer-modified emulsion crack sealer,
 - emulsified joint sealant (Classes 9 and 10), and
 - other specialty materials addressed by Item 300.
 - 1.1.2 Refer to [Tex-538-C](#), “Quality Monitoring for Joint Sealers and Related Materials,” for other items such as hot applied or synthetic polymer joint sealants, hot applied crack sealants, and bituminous marker adhesives.
 - 1.1.3 The MTD maintains the Material Producer List (MPL) of all materials conforming to the requirements of the ABQP. Materials appearing on the MPL, entitled “[Asphalt Binders](#),” require no further testing unless deemed necessary by the Engineer. Materials not appearing on the MPL may not be used on Department projects.
 - 1.1.4 Suppliers wishing to provide asphalt binders for use on Department projects must gain acceptance to the ABQP in accordance with this **test** procedure.
 - 1.1.5 Other acceptance methods may be required by the plans and specifications for individual projects or materials.

2. DEFINITIONS

- 2.1 Supplier—the entity that provides approved materials addressed by this test procedure to a Department project.
 - 2.1.1 Off-site facilities such as refineries and blending plants are the primary suppliers.

- 2.1.2 Terminals or storage facilities are considered the suppliers of all materials they ship to Department projects, even if the binders are originally from other approved sources.
- 2.1.3 Contractors, who blend materials, add modifiers, or otherwise process binders on-site are considered the suppliers of those finished products.
- 2.2 Modifier—any material added to a basic asphalt binder to adjust or alter the finished grade of the binder. This includes materials that enhance or assist the effect of other modifiers. Examples include polymer, rubber, re-refined engine oil bottoms (REOBS), polyphosphoric acid (PPA), and chemical enhancers.
- 2.3 Additive—any material added to a basic asphalt binder with the intention of altering the performance of the paving mixture. Examples include warm mix additives and anti-strip agents.
- 2.4 Asphalt Laboratory—the Asphalt Binder Branch of the Flexible Pavements Section of MTD. The Asphalt Laboratory is responsible for administration of this program.
- 2.5 Full-Specification Testing—testing performed by the supplier to demonstrate that the product in question conforms to all of the requirements of Item 300 (or DMS-6310, in the case of emulsified joint sealants).
- 2.6 Quality Control (QC) Testing—testing performed by the material supplier to verify that the production process is generating consistent products. This typically does not include the full spectrum of tests required by the specifications and may include tests that are outside of the specification.
- 2.7 Prequalification Sampling and Testing—sampling and testing performed independently by MTD to verify compliance with the specifications. Passing prequalification test reports are issued to grant approval to supply specific products to Department projects.
-

3. PRE-QUALIFICATION PROCEDURE

- 3.1 Pre-Qualification Request:
- 3.1.1 Submit a request for evaluation under [Tex-545-C](#) to DMS_Prequal@txdot.gov. Include the following information in the request:
- company name;
 - physical and mailing addresses;
 - contact person, phone number, and email address; and
- 3.1.2 With the pre-qualification request, provide a quality plan that includes the following for each facility addressed:
- address and contact information;
 - brief narrative description of the facility including number of tanks, loading racks, rail or barge facilities, and general types of products;
 - site map showing locations of tanks, loading racks, rail lines, buildings, and other major features;
 - proposed binder grades to be provided to the Department;
 - listing of modifiers and additives used in each grade with approximate concentration ranges indicative of the makeup of the product;
 - general description of binder manufacturing process, including blending processes;
 - organizational chart and biographical information and qualifications for key personnel;

- training and calibration procedures that will be used (and records kept) to assure that technicians perform tests according to correct procedures and that equipment is maintained and calibrated (Facilities may reference their AMRL accreditations, where applicable, rather than describing these procedures.);
- name, location, and qualifications of any off-site laboratories that provide testing service;
- schedule of routine QC testing for all products;
- schedule and frequency of full specification testing for all products;
- normal frequency of prequalification sampling and testing by MTD and basis of approval;
- description of methods used for monitoring or analyzing test results to identify production problems, inconsistencies, or deficiencies (This might include control charts, statistical analyses, trial formulations, or other procedures.);
- procedures for addressing failing test results; and
- transport inspection **to avoid contamination** and loading procedures to ensure proper material handling and shipment of the correct materials.

3.1.3 MTD will review the submittals and may ask for revisions or additional information.

3.2 Qualification:

3.2.1 Upon approval of the quality plan, MTD will add each facility addressed by the plan to the MPL as a pre-qualified asphalt binder source.

3.2.2 Seek approval for specific grades of asphalt binder by submitting samples to the Department on the schedule established in the quality plan or as requested by MTD.

3.3 The Department reserves the right to sample and test materials at any time and to reject material that does not meet the contract requirements.

4. QUALITY MONITORING (QM) REQUIREMENTS

4.1 Reporting:

4.1.1 Submit regular reports of activities related to the quality plan in electronic form to MTD.

4.1.2 Submit the following monthly reports for each calendar month by end of the 10th working day of the following month:

- monthly summary of all quality control testing and results, including control charts of QC testing **as requested by the Department** and full specification testing prepared in accordance with [Tex-552-C](#), "Preparing Control Charts for Asphalt Binders," and any actions taken to address failures or other material problems; and
- monthly summary of showing the total quantity of each grade of material shipped from each facility. This should include material delivered to the Department, to Department projects, or to Contractors who may reasonably use the material for Department work.

4.1.3 **Submit monthly full-specification testing of all products following Section 5.3.2 requirements.**

4.1.4 Submit a quarterly report indicating whether there are any changes to the facility or manufacturing process that differ materially from the quality plan and describing those changes. Submit quarterly reports for each **3 mo.** quarter of the calendar year by the end of the 10th working day of the following quarter.

- 4.1.5 Submit all monthly reports pertaining to Section 4.1.2 using the Department-provided spreadsheet.
- 4.1.6 MTD will notify the suppliers of any delinquent reports or documentation and may suspend approval of materials until all reports are current.
- 4.2 Random Sampling:
- 4.2.1 Department representatives may visit suppliers' facilities as deemed necessary, and without notification, to collect samples, verify compliance with the quality plan, or investigate any issues related to the materials.
- 4.2.2 The Department may collect random check samples from tanks, loading facilities, or transports.
- 4.2.3 Department visitors will comply with facility safety policies.
- 4.3 **Suspension:**
- 4.3.1 Facility that ships materials to Department projects without a valid prequalification test report with a sample identification number indicating approval period, (referred to as a "lab number"), will be suspended from shipping the material grade until a valid lab number is issued by MTD.
- 4.3.1.1 Additionally, the supplier must provide the Department the documentation of the supplier's process to verify any material being shipped has a current lab number. The supplier must also provide a detailed analysis of the circumstances around the shipment in question, why the current process didn't work, and action items that the supplier will implement to stop such shipments in the future. Failure to submit the documentation within 15 days will result in a 60-day suspension for the material grade produced at the facility.
- 4.3.2 If the supplier ships asphalt binder to Department projects without a current Lab Number for a second time within 1 yr. of the first instance, regardless of the material grade, MTD will suspend the supplier's Lab Number for all products shipped (1st and 2nd instances) for 60-days. Furthermore, the supplier will be required to submit a revised QC plan to MTD along with a detailed report as described in Section 4.3.1.1. The revised QC plan should include a section on the supplier process to validate materials before shipment.
- 4.3.3 If the supplier ships asphalt binder to Department projects without a current Lab Number for a third time within 2 yr. of the first instance, the supplier will be disqualified and removed from the MPL list. The supplier can submit a request for requalification after 120 days of being disqualified.
- 4.4 Disqualification:
- 4.4.1 Facilities that do not supply any material to the Department for 1 yr. will be removed from the MPL unless a new pre-qualification request and updated quality plan is submitted before end of that period.
- 4.4.2 Facilities may be disqualified for noncompliance for any of the following reasons:
- failure to meet the reporting requirements of this test procedure and the facility quality plan,
 - failure to perform quality or testing activities identified in the quality plan,
 - failure to respond to Department communications or requests, or
 - unresolved problems with materials used on Department projects.
- 4.4.3 The Department will work with the supplier to find remedies to any nonconformities or problems.
- 4.4.4 If the supplier is unresponsive or uncooperative, or has repetitive quality issues, the Department will transmit a demand letter for remedy with a due date for compliance.

- 4.4.5 Failure to comply with the demand letter by the required date will result in disqualification and removal from the MPL. Facilities removed from the MPL may not supply asphalt binders until requalified. **The supplier can submit a request for qualification after 120 days of being disqualified.**
- 4.4.6 In some cases, MTD will require specific actions or documentation in addition to the basic qualification procedure. This could include prerequisite inspection of facilities or material testing plans; additional lab certification requirements, such as AASHTO re: source certification; changes to testing frequencies or additional monitoring requirements in the facility quality plan; or other remedies deemed necessary by MTD.
-

5. SAMPLE SUBMISSIONS

- 5.1 Conduct all sampling in accordance with [Tex-500-C](#), "Sampling Bituminous Materials, Pre-Molded Joint Fillers, and Joint Sealers," with witness by the Engineer if the samples are to be submitted to MTD for testing.
- 5.1.1 The Department will assign an inspector to witness sampling whenever practical.
- 5.1.2 MTD will assign a window of several days for routine prequalification sampling to take place for the facility. This sampling window may not match the sampling window for other facilities. Coordinate with the inspector to determine the exact date and time.
- 5.1.3 The inspector will label, package, and ship samples to MTD and may take pictures to document sampling procedures.
- 5.1.4 Contact the Asphalt Laboratory for instructions if no inspector is available.
- 5.2 Collect split samples when desired or when splits are requested by the inspector.
- 5.3 Provide a certificate of analysis (COA) with all samples submitted for approval.
- 5.3.1 The COA must represent a sample taken from the same product stream or tank within **one** day of submission of the sample.
- 5.3.2 The COA must clearly show:
- name, location, and contact information for the material supplier;
 - dates of sampling and testing;
 - name and contact information of the laboratory performing the analysis, if an outside laboratory is used; and
 - full-specification **testing results performed by the supplier to demonstrate that the product in question conforms to all the requirements of Item 300** for the sample.
- 5.3.3 The COA may be provided after the shipment of the sample. However, MTD will not release testing results **or the status of any test** for the sample until the COA has been provided.
-

6. GENERAL APPROVAL PROCESS

- 6.1 Unless other specific arrangements have been made with either MTD or the Engineer, do not deliver material to Department projects until MTD issues **a lab number**. **Supplier shipping material to Department projects without a valid lab number will be subject to suspension as described in Section 4.3.**
-

- 6.1.1 The Asphalt Laboratory will distribute test reports by fax or email.
- 6.1.2 The test report will include:
 - date the report is issued,
 - name and location of the supplier,
 - grade of material,
 - period of approval,
 - quantity of material approved, if applicable, and
 - lab number.
- 6.1.3 The period of approval will normally conform to a time period that is convenient for tracking, (for example, **month, quarter, semi-annual, or annual**) independent of the sampling window assigned by MTD.
- 6.1.4 The Asphalt Laboratory will issue test reports for failing samples. These reports will not include a lab number and do not indicate approval of the material.
- 6.2 Approval granted by any test report will expire at the end of the period or quantity shown on the prequalification test report. Test reports will show the valid dates for the approval, which are based on the testing schedule in the approved quality plan.
- 6.2.1 MTD may require more frequent sampling and testing at its discretion.
- 6.3 Resolve any discrepancies or referee testing, if allowed, before delivering material to Department projects.
- 6.4 Include the following information on the invoice or loading certificate for each shipment of binder:
 - supplier's name and location;
 - consignee and destination;
 - type and grade asphalt;
 - time period of approval, for periodically approved materials;
 - temperature, date, and time of loading;
 - lab number;
 - highway project number and requisition number, if applicable;
 - specific gravity at 60°F (15.5°C), and;
 - net weight.
- 6.4.1 Incorrectly identified materials will not be accepted.
- 6.4.2 Provide COAs and MTD test reports to the Contractor and Department project personnel upon request.

7. TESTING CHARGES

- 7.1 The Department does not charge for testing of passing samples.
- 7.2 The Department will assess a charge for failing samples, as required by Title 43 of the Texas Administrative Code (Title 43, Part I, Rule 13.8, "Testing Asphalt.")

- 7.2.1 MTD may allow the supplier to submit a second sample for retesting.
- 7.2.2 If the second sample passes, there will be no charge for either sample.
- 7.2.3 Additional samples after a retest will be treated as new submissions.
- 7.2.4 Contact the Asphalt Laboratory for a schedule of test charges.
- 7.3 Do not submit samples for purposes other than approval for use on Department projects, except by special arrangement.
-

8. ADVANCED ACCEPTANCE

- 8.1 In some cases, to avoid delays in material supply, MTD may approve materials before testing is complete.
- 8.1.1 The decision to allow or deny advanced acceptance is at the discretion of MTD and is based on the performance history of the supplier for the grade in question.
- 8.1.2 As a minimum, the **three** most recent submissions of that grade from the supplier must meet the specifications.
- 8.1.3 Results submitted in a COA should provide reasonable assurance that the sample will pass when tested by the Asphalt Laboratory. (The results are not “borderline.”)
- 8.2 Contact the Asphalt Laboratory to request advanced acceptance.
- 8.2.1 Perform testing on the material no more than **one** day before the request.
- 8.2.2 Provide a COA for the material by fax or email before the request.
- 8.2.3 Sample the material and submit to MTD on the day of the request.
- 8.3 If advanced acceptance is granted, the Asphalt Laboratory will immediately issue a preliminary prequalification test report with a lab number.
- 8.3.1 MTD will withdraw approval and rescind the lab number if:
- the sample is not received by the Asphalt Lab within **three** business days, or
 - the sample does not pass all specifications when tested by the Asphalt Lab.
- 8.3.2 The material supplier accepts all risk up to and including nonpayment for shipments if advanced acceptance of the material is withdrawn.
-

9. ADDITIONAL INFORMATION

- 9.1 For more information on this subject and on related materials, contact the Asphalt Laboratory by voice at (512) 506-**5242**, by fax at (512) 506-5825, or by email at MTD_Aspphalt@txdot.gov.
-

10. ARCHIVED VERSIONS

- 10.1 Archived versions are available.
-