

**Test Procedure for**

**ASPHALT BINDER QUALITY PROGRAM**

**TxDOT Designation: Tex-545-C**

**Effective Date: February 2017 – August 2019**



**1. SCOPE**

1.1 The Asphalt Binder Quality Program (ABQP) provides the requirements and procedures for the Construction Division, Materials and Pavements Section (CST/M&P) 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 The Materials and Pavements Section of the Construction Division (CST/M&P) 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.

1.1.3 Suppliers wishing to provide asphalt binders for use on Department projects must gain acceptance to the ABQP by pre-qualification under either of **two** approaches described in Sections 8–9 of this procedure.

- ▲ Seek approval for individual tanks or batches of finished binders, as described in Section 9; or
- ▲ Seek approval to supply binders for a specific time period, as described in Section 10.

1.1.4 Sections 2–8 of this procedure apply to **both** of these approaches.

- 1.1.5 Other acceptance methods may be required by the plans and specifications for individual projects or materials.

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## 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 Laboratory of the Asphalt, Chemical, and Calibration Branch of CST/M&P. The Asphalt Laboratory is responsible for administration of this program.

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## 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](mailto: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
  - approval sought for:
    - individual tanks or batches of finished binders, as described in Section 9, or
    - supplying binders for a specific time period, as described in Section 10.
- 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, general types of products, and capacity;
- 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 quality control (QC) tests for all products;
- schedule of full specification testing for all products;
- normal schedule of independent sampling by CST/M&P 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 and loading procedures to ensure proper material handling and shipment of the correct materials.

3.1.3 CST/M&P will review the submittals and may ask for revisions or additional information.

3.2 Qualification:

3.2.1 Upon approval of the quality plan, CST/M&P 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 CST/M&P.

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 CST/M&P.

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 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 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-month quarter of the calendar year by the end of the 10th working day of the following quarter.

4.2 *Random Sampling:*

4.2.1 Department personnel may visit suppliers' facilities as deemed necessary 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 *Disqualification:*

4.3.1 Facilities that do not supply any material to the Department for 1 year will be removed from the MPL unless a new pre-qualification request and updated quality plan is submitted before end of that period.

4.3.2 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.

- 4.3.3 The Department will work with the supplier to find remedies to any nonconformities or problems.
- 4.3.4 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.
- 4.3.5 Failure to comply with the demand letter by the required date will result in disqualification.

## 5. SAMPLE SUBMISSIONS

- 5.1 Conduct all sampling in accordance with Tex-500-C, with witness by the Engineer if the samples are to be submitted to CST/M&P for testing.
  - 5.1.1 The Department will assign an inspector to witness sampling and deliver the samples to CST/M&P whenever practical.
  - 5.1.2 Contact the Asphalt Laboratory for instructions if no inspector is available.
- 5.2 Provide a certificate of analysis (COA) with all samples submitted for approval.
  - 5.2.1 The COA must represent a sample taken from the same product stream or tank within 1 day of submission of the sample.
  - 5.2.2 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
    - test results demonstrating that the material meets the specifications for the intended grade.

## 6. GENERAL APPROVAL PROCESS

- 6.1 Unless other specific arrangements have been made with either CST/M&P or the Engineer, do not deliver material to Department projects until CST/M&P issues a test report with a sample identification number indicating approval, (referred to as a “lab number”).
  - 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 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 test report. Test reports **will show the valid dates for the approval**.

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;
- tank and seal numbers for material approved by tank;
- batch number for material approved by batch;
- period of approval for materials under approved quality plans;
- temperature, date, and time of loading;
- lab number;
- highway project number and/or requisition number, if applicable;
- specific gravity at 77°F (25°C) for AC and PG binders, or at 60°F (15.5°C) for cutbacks and emulsions, and;
- net weight.

6.4.1 Incorrectly identified materials will not be accepted.

6.4.2 **Provide COAs and CST/M&P 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 CST/M&P 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.
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## 8. ADVANCED ACCEPTANCE

- 8.1 In some cases, to avoid delays in material supply, CST/M&P may approve materials before testing is complete.
- 8.1.1 The decision to allow or deny advanced acceptance is at the discretion of CST/M&P and is based on the performance history of the supplier for the grade in question.
- 8.1.2 As a minimum, the 3 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 1 day prior to the request.
- 8.2.2 Provide a COA for the material by fax or email prior to the request.
- 8.2.3 Sample the material and submit to CST/M&P on the day of the request.
- 8.3 If advanced acceptance is granted, the Asphalt Laboratory will immediately issue a preliminary test report with a lab number.
- 8.3.1 CST/M&P will withdraw approval and rescind the lab number if:
- ▲ the sample is not received by the Asphalt Lab within 5 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.
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## 9. APPROVAL BY TANK OR BATCH VOLUME

- 9.1 Use this method when **seeking approval for** discrete quantities of finished product or blend stocks stored in tanks.
- 9.1.1 Provide covered tanks of a size commensurate with the quantity of material produced so that excessive sampling will not be required.
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- 9.1.2 Set storage and loading temperatures as desired, as long as they are within the limits shown in the current Department specifications.
- 9.1.3 Provide a satisfactory means of effectively sealing the inlet or fill line.
- 9.1.4 Equip tanks with convenient sampling ports at least 3 ft. above the bottom of the tank. AASHTO T 40 shows recommended designs for sampling valves.
- 9.1.5 For blended materials, provide convenient sampling ports at the loading facilities.
- 9.1.6 Provide clear, unique identifying numbers for each tank.
- 9.2 When the material in a finished product tank is ready for shipment, submit a sample from the tank as described in Section 5.
  - 9.2.1 At the time of sampling, with witness by the Engineer, seal the inlet or fill line of the tank with a numbered railroad-type seal.
  - 9.2.2 Include the tank number, seal number, and the volume of material in the tank on all documentation relating to the sample.
  - 9.2.3 Approval of the material, if granted, is for the volume of material in the tank at the time of sampling. Approval of the material expires when:
    - approved volume is consumed,
    - seal on the tank is broken or removed,
    - any material is added to the tank, or
    - after 60 days for AC or PG binders, or 30 days for emulsions or cutbacks.
- 9.3 When the supplier is ready to blend specification grade materials from blend stocks using an inline mixer, obtain a sample from the first load and submit the sample as described in Section 5.
  - 9.3.1 At the time of sampling, seal the inlet lines of the blending stock tanks with numbered railroad-type seals and report the volume of blending stocks on hand.
  - 9.3.2 Assign a unique batch number to the sample.
  - 9.3.3 Include the batch number and seal numbers on all documentation relating to the sample.
  - 9.3.4 Submit a sample as described in Section 5, with a unique batch number, for each grade to be produced from the same blending stocks.
  - 9.3.5 Approval of the materials, if granted, is for shipments of the sampled grades made from the blending stocks on hand at the time of sampling. Approval of these materials expires when:
    - seal on either blend stock tank is broken,
    - material is added to either blend stock tank, or



▲ after 60 days for AC or PG binders, or 30 days for emulsions or cutbacks.

9.4 The Department may collect random check samples from tanks, loading facilities, or transports.

9.4.1 The material supplier may capture the check samples with witness by the inspector.

9.4.2 No COA is required with random samples.

## 10. APPROVAL BY SPECIFIC TIME PERIOD

10.1 Use this method when seeking approval for specific time intervals established in the facility quality plan.

10.2 Submit samples as described in Section 5.

10.2.1 Submit samples before the beginning of the normal approval period (maximum 15 days early) to avoid lapse of approval.

10.2.2 Include the requested approval period on all documentation related to the sample.

10.2.3 CST/M&P may require more frequent independent sampling and testing during initial implementation of the plan.

10.2.4 No COA is required with random samples.

10.3 Approval will be based on the review of supplier test data and the Asphalt Laboratory's quality assurance (QA) testing.

10.4 Approval of the material, if granted, is for the period and grade shown on the Asphalt Lab's test report.

## 11. ADDITIONAL INFORMATION

11.1 For more information on this subject and on related materials, contact the Asphalt Laboratory of CST/M&P by voice at (512) 506-5820, by fax at (512) 506-5825, or by email at [CST\\_AspphaltLab@txdot.gov](mailto:CST_AspphaltLab@txdot.gov).

## 12. ARCHIVED VERSIONS

12.1 Archived versions are available.