

WYOMING DEPARTMENT OF TRANSPORTATION

AUTHORIZED SUPPLIERS *PERFORMANCE GRADED ASPHALT BINDER (PGAB)*

SUMMARY

1. Bidder has responsibility to determine status of a supplier. Determine status by reviewing the WYDOT QPL (Wyoming Department of Transportation Qualified Product List) at (<https://webapp.dot.state.wy.us/ao/f?p=1600:1:73900159680::NO:::>)

or contact WYDOT Materials Program at (307) 777-4476.
2. Supplier is authorized to provide specific grades of PGAB on the WYDOT QPL. ***Authorization to supply PGAB for WYDOT projects must be completed at least 30 days prior to first shipment.*** WYDOT does not guarantee the capability, dependability, or availability of any Authorized Supplier listed.
3. Authorization denotes compliance with all requirements specified in current edition of WYDOT Standard Specifications for Road and Bridge Construction and all applicable, subsequent Supplementary Specifications.
4. Split Sample testing - two (2) quarts any time during construction season, or applicable test results via reciprocity from another AASHTO re:source accredited state transportation agency (ref: Section 12, Standard Requirements for PGAB; see below).
5. Mix Design PGAB - ten (10) gallons per mix grade; ship to WYDOT Materials Program as soon as production PGAB available from facility storage tanks (ref: Section 8, Standard Requirements for PGAB; see below)

**Standard Requirements
for
Performance Graded Asphalt Binders**

(Date of last revision: 10 February 2020)

1. SCOPE

- 1.1 This document outlines procedures and requirements for agencies, contractors, and suppliers involved in production, testing, acceptance and use of performance-graded asphalt binders (PGAB).
- 1.2 Following this standard may involve use of hazardous materials, operations, and/or equipment. This standard does not address safety or environmental issues. Agency, Contractor, and Supplier are responsible for establishing appropriate practices and determining applicability of regulatory requirements prior to use.

2. REFERENCED DOCUMENTS

- 2.1 AASHTO Standards:
 - M 320, Standard Specification for Performance-Graded Asphalt Binder
 - M 332, Standard Specification for Performance-Graded Asphalt Binder Using Multiple Stress Creep Recovery (MSCR) Test
 - R 26, Standard Practice for Certifying Suppliers of Performance-Graded Asphalt Binders
 - R 66, Standard Practice for Sampling Asphalt Materials
- 2.2 ASTM Standards:
 - D 3665, Standard Practice for Random Sampling of Construction Materials

3. TERMINOLOGY

- 3.1 Agency - The agency responsible for final acceptance of PGAB.
- 3.2 AR – AASHTO re:source.
- 3.3 AS – Authorized supplier.
- 3.4 Asphalt binder- Asphalt based cement produced from petroleum residue.
- 3.5 BOL - Bill of Lading.

- 3.6 COC - Supplier provides Certificate of Compliance; typically combined with BOL; includes statement that binder tested according to QC Plan with agency.
- 3.7 Contractor - Any company with facilities producing mix asphalt.
- 3.8 FQC Plan - Contractor submits written Field Quality Control plan to agency. Requirements for plan listed in Section 17.
- 3.9 MA - Mix Asphalt.
- 3.10 Initial Testing – Testing to demonstrate each grade of PGAB meets all agency specifications for first plant produced PGAB of season. Initial testing serves as split sample testing comparison between agency and supplier.
- 3.11 PGAB – Performance graded asphalt binder.
- 3.12 QC Plan - Supplier submits written Quality Control plan to agency. Requirements for plan listed in Section 9.
- 3.13 QC Tests - Supplier performs Quality Control test procedures to guide the manufacture of PGAB. Tests can be subset of agency specifications, modified test procedures or may include other test procedures not required in the specification. Supplier shall list and describe these tests in their QC Plan.
- 3.14 QPL – Qualified Product List.
- 3.15 Specification Compliance Testing – Supplier performs testing to verify each grade of PGAB meets all agency specifications. Supplier sets testing frequency in their QC Plan.
- 3.16 Supplier - Any company that stores, modifies, or processes PGAB for redistribution to multiple mix facilities. Supplier is generally responsible party for final production of PGAB meeting agency specifications. Supplier can be refinery, terminal, or Mix Asphalt (MA) producer.
- 3.17 WYDOT – Wyoming Department of Transportation.

4. SIGNIFICANCE AND USE

- 4.1 This standard outlines authorization process to improve PGAB quality and consistency.
- 4.2 This standard defines roles of agency, contractor and supplier in authorization process.
- 4.3 This standard includes supplier requirements to achieve authorized supplier status.
 - 4.3.1 This standard explains minimum components for supplier’s QC plan.

- 4.3.2 This standard lists procedural requirements for shipment of PGAB.
- 4.4 This standard includes agency requirements for PGAB authorization.
- 4.5 This standard includes contractor requirements to ensure quality and consistent PGAB is stored/used at mix plant(s).
- 4.6 This standard describes appeal procedure for dispute resolution.

5. HAZARDS

- 5.1 Observe all applicable safety requirements while following this standard.

6. SAMPLING

- 6.1. Random sampling is paramount to establishment of valid authorization program. Obtain test samples required by this standard in accordance with AASHTO R 66 and ASTM D 3665, except as modified and approved by agency.

7. TESTING REQUIREMENTS

- 7.1 Agency approves laboratory performing specification compliance testing.
- 7.2 Laboratories conducting specification compliance testing must participate in AASHTO re:source proficiency sample testing program for all agency specified tests.
- 7.3 Supplier maintains records of testing performed; provide to agency upon request.
- 7.4. Upon request from agency, provide copy of AASHTO re:source inspection report, including nonconformity responses (for AASHTO accredited laboratories).
- 7.5 Supplier may petition agency to adjust frequency of specification compliance testing based on consistent performance for all specified requirements.
 - 7.5.1 Frequency may be decreased if individual test results meet specified values or are within precision and bias of test method.
 - 7.5.2 With agency approval, testing frequency may be further reduced as long as individual test results meet specification and are within precision and bias of test.
 - 7.5.3 Agency may request increased test frequency based on test results.

8. SUPPLIER REQUIREMENTS

- 8.1 Supplier requests authorization to ship PGAB by complying with requirements of the WYDOT QPL.
- 8.2 Supplier allows agency to visit facilities to observe supplier's quality control activities, inspect facilities and obtain samples. Agency may visit supplier's facilities unannounced but during normal business hours. Agency visits must comply with, and are subject to, supplier's production schedules, safety, visitation, and environmental rules and regulations.
- 8.3 Supplier follows procedures described in approved quality control plan.
- 8.4 Supplier documents each PGAB test result; provide records to agency upon request.
- 8.5 Supplier submits all required reports to agency; format approved by agency.
- 8.6 Supplier complies with governing specifications in satisfactory manner. Agency determines this based on test results furnished by supplier and round robin test results with agency.
- 8.7 Supplier notifies agency and contractor of binder changes during construction. Notice must be written and as follows:
 - (1) Minimum five working days notice prior to:
 - (a) binder from different refinery, or
 - (b) binder from different terminal, or
 - (c) binder having different formulation potentially affecting mixture properties, and
 - (2) Minimum ten working days notice prior to:
 - (a) binder requiring additional mixture evaluation.

Notification does not indemnify supplier or contractor from potential penalties due to project delays.

- 8.8 Supplier conducts initial testing prior to or concurrent with shipment to first agency project of season; perform initial testing on plant produced material; use of lab produced material prohibited.

9. QUALITY CONTROL (QC) PLAN REQUIREMENTS

- 9.1 Supplier's quality control plan includes:
 - 9.1.1 Facility type (refinery, terminal, in-line blending or MA plant).

- 9.1.2 Facility location(s).
- 9.1.3 Contact information for individual responsible for quality at facility(ies).
- 9.1.4 Quality control tests used to guide manufacture of each PGAB grade.
- 9.1.5 Protocols and frequencies for QC, and specification compliance testing.
- 9.1.6 Statement that supplier performs the following corrective actions whenever PGAB failing specification compliance was incorporated into agency project:
- (1) immediately notify agency of shipment in question,
 - (2) identify PGAB,
 - (3) cease shipment until PGAB complies with specification,
 - (4) notify agency prior to resuming shipment; and
 - (5) implement any mutually agreed upon procedures for disposition of material. If mutual agreement not obtained, agency has final authority deciding specification compliance.
- 9.1.7 Statement that supplier prepares summary reports for all specification compliance tests; submit reports to agency upon request.
- 9.1.8 Procedures and policies to prevent loading and delivery of non-specification materials to agency projects; outline, in detail, procedures for product loading.
- 9.1.9 Procedure for checking transport vehicles prior to loading, to prevent contamination. Procedure includes statement that inspection report, signed by responsible inspector, is maintained in supplier's records; available to agency upon request.
- 9.1.10 Statement that supplier must submit written request, if applicable, to agency for authorization to in-line blend additives per AASHTO M 320 / M 332. In addition, supplier must submit:
- (1) sample of additive(s),
 - (2) sample of base binder,
 - (3) formulation used (proportions, etc),
 - (4) AASHTO M 320 / M 332 test results for base binder, and
 - (5) AASHTO M 320 / M 332 test results for blended binder.
- 9.1.11 Description of precautions used to prevent use and/or inclusion of materials prohibited by agency's specifications into binder supplied to agency projects. This includes chemicals, polymers or other materials stored/used at supplier's facility.
- 9.1.12 Procedures to control, monitor, and report exact amount of additive introduced to binder at point of load out for any such facility(ies).

- 9.1.13 Description/list of qualifications for all laboratories and personnel conducting QC and specification compliance testing; include primary and satellite labs, supplier and independent.

10. AGENCY REQUIREMENTS

- 10.1 Agency grants authorization to supplier when specific grade of PGAB is approved on the WYDOT QPL.
- 10.2 Agency verifies supplier laboratory participation in AASHTO re:source proficiency sample program.
- 10.3 Agency performs split sample testing in accordance with Section 12.
- 10.4 Agency notifies contractor directly, in timely manner, when test results fail.
- 10.5 Agency notifies supplier when round robin and split sample test results do not correlate.
- 10.6 Agency provides copy of AASHTO re:source inspection report, including nonconformity responses, upon request from supplier (for AASHTO accredited laboratories).

11. SHIPPING REQUIREMENTS

- 11.1 Supplier provides only authorized PGAB to agency.
- 11.2 Supplier ensures each shipment of PGAB is accompanied by two (2) copies of bill of lading, including:
- (1) name and location of supplier,
 - (2) performance grade of binder,
 - (3) quantity of binder shipped,
 - (4) date of shipment, and
 - (5) statement that binder meets agency specification requirements (certificate of compliance, COC). COC certifies binder manufactured and tested in accordance with supplier's approved QC plan.
- 11.3 Supplier removes non-compliant binder from shipping queue when test results do not conform to agency specifications.

12. SPLIT SAMPLE TESTING

- 12.1 Agency may perform split sample testing with supplier; obtain random samples from supplier's facility.

Note 1 - Obtain split samples from same point in production and shipping process that supplier's samples are taken. Obtain samples from storage tanks or point downstream from in-line blending process.

- 12.2 Agency determines frequency of split sample testing.
- 12.3 Agency and supplier both review sampling and testing procedures including equipment calibrations whenever split sample test data is not within specified precision and bias. When precision and bias statements are not available, results must be within multi-laboratory precision from latest AASHTO re:source proficiency sample testing.
- 12.4 Agency may accept applicable quality acceptance test results from another AASHTO re:source accredited state transportation agency (ie, reciprocity basis) in lieu of obtaining split samples from supplier's facility located out of state (*eg, WYDOT accepts quality acceptance test results from the Montana DOT for PG64-28 from the Cenex-Hardin MT refinery facility used on a current highway project in Montana*).

13. DE-AUTHORIZATION

- 13.1 Authorization may be withdrawn from suppliers when one or more following conditions exist:
 - 13.1.1 Incorporating prohibited materials into PGAB shipped to agency projects.
 - 13.1.2 Failure, in a 60-day period, to consistently supply PGAB meeting specification.
 - 13.1.3 Supplier test data can't be verified by agency, due to supplier negligence.
 - 13.1.4 Supplier not following approved QC plan.
 - 13.1.5 Visit by agency representative to supplier's facility reveals significant quality control issues.
 - 13.1.6 Failure to participate in AASHTO re:source proficiency sample testing.
- 13.2 Authorization is withdrawn when specific grade of PGAB is removed from or expires on the WYDOT QPL.

14. RE-AUTHORIZATION

- 14.1 De-authorized supplier must take corrective action to completely address and remedy all deficiencies and issues causing de-authorization.
- 14.2 Supplier fulfills requirements to become authorized supplier.

15. FIELD SAMPLING

- 15.1 Agency obtains random samples from mix plants for quality assurance/acceptance.
- 15.2 Agency determines frequency of field sampling.
- 15.3 If field test results are not within specification, agency immediately notifies contractor (MA producer) and supplier. Agency and supplier conduct investigation including review of quality control, sampling and testing procedures.
- 15.4 If PGAB fails agency specifications, contractor (MA producer) or supplier investigate possibility of contamination in transport vehicles, field storage tanks, pumps, lines and handling facilities; review storage and handling procedures. Contractor (MA producer) or supplier take prompt corrective action once cause(s) determined. Agency may delay project pending completion of corrective action.

16. REPORTING

- 16.1. Supplier prepares reports described in this standard; format approved by agency.
- 16.2. Agency provides test results to contractor in timely manner.
- 16.3 Contractor provides test results to supplier in timely manner.

**Note: Sections 17 and 18
do NOT apply to WYDOT.**

17. FIELD QUALITY CONTROL (FQC) PLAN

- 17.1 Contractor submits field quality control (FQC) plan annually to agency for approval, prior to first agency project each year. If no changes to previous year's plan, contractor sends letter stating plan on file with agency is current for upcoming year with no changes anticipated/intended. Agency reviews FQC Plan and issues written approval/letter; paving operations can begin after FQC Plan approval.
- 17.2 Contractor revises FQC Plan for any changes to binder handling and submits revised FQC Plan to agency for approval. Agency reviews changes and issues written approval/letter before changes are implemented. Failure to keep FQC Plan current may affect/delay project completion.
- 17.3 Contractor confirms supplier is authorized to provide applicable grade(s) of PGAB for agency project.
- 17.4 Contractor's FQC plan includes:
 - 17.4.1 Statement that contractor is responsible for field quality control of binder.
 - 17.4.2 Description of proper handling techniques for binder to maintain specification compliance of properties during transportation, storage, and production operations.
 - 17.4.3 Facility location(s) for portable and stationary mix plants and contact information for individual responsible for quality at each facility.
 - 17.4.4 Procedure to ensure FQC Plan is followed and corrective actions when plan is not followed.
 - 17.4.5 List of subcontractors responsible for handling binder; include name of company hauling binder unless it is binder supplier or employed by binder supplier.
 - 17.4.6 Responsibilities/roles of each entity in executing FQC Plan.
 - 17.4.7 Description of implementing changes in binder grade or supplier; changes must not cause mixing of different binders; when mixing occurs, do not incorporate binder into mix asphalt placed on project; contractor notifies agency prior to making changes in grade or supplier.
 - 17.4.8 Description of anticipated mode of binder delivery; process of tank inspection prior to initial filling; tanks on project must be completely empty to prevent contamination of binder delivered to project.
 - 17.4.9 Special handling and storage recommendations from supplier if applicable; potential limitations of binder relative to prolonged storage, exposure to prolonged and/or elevated

heating; susceptibility to stratification and/or separation; method used to implement recommendations.

- 17.4.10 Description of capacity and methods of agitation in binder storage tanks.
- 17.4.11 Provisions to avoid damage to binder during suspension of paving operations; maximum storage times and corresponding temperatures.
- 17.4.12 Binder inventory rotation method (i.e., First-In / First-out basis).
- 17.4.13 Onsite sampling and testing protocols such as sampling location, sampling methods, facilities, test procedures and control limits for test results; contractor obtains and retains matching samples of binder concurrent with agency samples; samples may be used for dispute resolution as defined in Section 18.
- 17.4.14 Methods for identifying binder in each storage tank; legible and consistent labeling of each tank.
- 17.4.15 Procedures, equipment, and calibration methods to monitor binder temperatures in tanks; minimum frequency once daily; records available upon request.

18. DISPUTE RESOLUTION PROCEDURE

- 18.1 Contractor notifies supplier directly, in timely manner, when test results fail.
- 18.2 To dispute test results, contractor submits written appeal request within 14 calendar days of receipt of results from agency.
- 18.3 Appeal request includes explanation of circumstances as basis of appeal.
- 18.4 Contractor is responsible to obtain, and retain, its own binder sample (referee) for dispute resolution. If contractor retain sample is not submitted to agency:
 - (1) contractor is responsible to pay all penalties assessed,
 - (2) binder supplier not held liable, and,
 - (3) appeal request is null and void.
- 18.4.1 Agency sends sample to laboratory for full specification compliance testing. Laboratory must be:
 - (1) AASHTO accredited for applicable test methods,
 - (2) Independent from contractor and supplier,
 - (3) Mutually acceptable to both agency and contractor (may include agency's laboratory), and
 - (4) Not original testing laboratory.

~~18.4.2 Laboratory reports referee test results to agency. Test results are binding upon all (agency, contractor, supplier).~~

~~18.5 Agency reviews appeal request and referee test results.~~

~~18.5.1 Agency accepts appeal if both:~~

- ~~(1) merit proven, and~~
- ~~(2) referee test results significantly different from original results.~~

~~Otherwise, agency denies appeal; submits letter of explanation to contractor.~~

~~18.6 Contractor pays costs of testing samples if referee sample test results fail specification for properties tested. Agency pays costs of testing if referee test results meet specifications.~~