



**INDIANA DEPARTMENT OF TRANSPORTATION
DIVISION OF MATERIALS AND TESTS**

**HMA MIX DESIGN LABORATORY REQUIREMENTS
ITM No. 574-24**

1.0 SCOPE.

- 1.1 This procedure covers the requirements for a laboratory to be added, maintained, and removed from the Department's [Qualified Products List](#) (QPL) of HMA mix design laboratories.
- 1.2 This procedure may involve hazardous materials, operations and equipment and may not address all of the safety problems associated with the use of the test method. The user of this ITM is responsible for establishing the appropriate safety and health practices and determining the applicability of regulatory limitations prior to use.

2.0 REFERENCES.

2.1 AASHTO Standards.

- T 11 Materials Finer Than 75- μ m (No. 200) Sieve in Mineral Aggregates by Washing
- T 30 Mechanical Analysis of Extracted Aggregate
- T 84 Specific Gravity and Absorption of Fine Aggregate
- T 85 Specific Gravity and Absorption of Coarse Aggregate
- T 164 Quantitative Extraction of Asphalt Binder from Hot Mix Asphalt
- T 166 Bulk Specific Gravity of Compacted Hot Mix Asphalt (HMA) Using Saturated Surface-Dry Specimens.
- T 209 Theoretical Maximum Specific Gravity and Density of Hot Mix Asphalt Paving Mixtures
- T 269 Percent Air Voids in Compacted Dense and Open Asphalt Mixtures
- T 283 Resistance of Compacted Bituminous Mixture to Moisture Induced Damage
- T 304 Uncompacted Void Content of Fine Aggregate
- T 308 Determining the Asphalt Binder Content of Hot Mix Asphalt (HMA) by the Ignition Method
- T 312 Preparing and Determining the Density of Hot Mix Asphalt (HMA) Specimens by Means of the Superpave Gyrotory Compactor
- T 331 Bulk Specific Gravity and Density of Compacted Asphalt Mixtures Using Automatic Vacuum Sealing Method
- T 344 Evaluation of Superpave Gyrotory Compactor (SGC) Internal Angle of Gyration Using Simulated Loading

2.2 ASTM Standards.

- D4791 Flat Particles, Elongated Particles, or Flat and Elongated Particles in Coarse Aggregate
- D5821 Determining the Percentage of Fractured Particles in Coarse Aggregate
- D8159 Automated Extraction of Asphalt Binder from Asphalt Mixtures

3.0 TERMINOLOGY. Definitions for terms and abbreviations will be in accordance with the Department's Standard Specifications Section 101 and the following:

- 3.1 AASHTO re:source Laboratory Assessment Program (LAP). The LAP provides assessment and evaluation of laboratory equipment and techniques in relation to the testing of materials. <https://aashtoresource.org/lap>
- 3.2 AASHTO re:source Proficiency Sample Program (PSP). The PSP is a construction materials sample program. Samples are distributed to laboratories for testing. The sample program can be used as a tool to monitor quality. <https://aashtoresource.org/psp>
- 3.3 Mix Design Laboratory. A laboratory used for HMA mix design in accordance with Standard Specifications 401.05 and 410.05. The laboratory shall have the necessary space, equipment, and supplies for the tests to be performed.

4.0 SIGNIFICANCE AND USE. This ITM explains the requirements for a laboratory to be added, maintained, and removed from the QPL.

5.0 QUALIFICATION. The requirements to become and maintain status as a Qualified HMA Mix Design Laboratory include the following:

5.1 Initial and continuing participation in the AASHTO re:source laboratory assessment program for:

(a) Aggregate:

AASHTO T 11, T 84, T 85, T 304, and ASTM D4791

(b) Asphalt Mixture:

AASHTO T 30, T 166, T 209, T 269, T 283, T 312, T 331

At least one of the following:

AASHTO T 164, T 308, or ASTM D8159

- 5.2** Submittal of the AASHTO re:source laboratory assessment with comments addressing all footnotes (special emphasis on comments and repeat write-ups)
- 5.3** Initial and continuing participation in the AASHTO re:source Proficiency Sampling Program for:
 - (a)** HMA Ignition Oven or Extraction (T 308 or T 164/D8159)
 - (b)** HMA Design Gyrotory samples
 - (c)** Fine Aggregate (T 11, T 27, T 84, T 304)
 - (d)** Coarse Aggregate (T 11, T 27, T 85)
- 5.4** Submittal of the AASHTO re:source proficiency sample results with comments addressing all ratings of two or less

6.0 DEPARTMENT RESPONSIBILITIES.

- 6.1** The Department will maintain the QPL of HMA Mix Design Laboratories.
- 6.2** The Department will continue to monitor the AASHTO re:source LAP and PSP, and associated ratings and comments. Failure to participate or address unsatisfactory ratings or comments may result in removal from the QPL.
- 6.3** The removal of a laboratory from the QPL of HMA Mix Design Laboratories will be the responsibility of the State Materials Engineer, Division of Materials and Tests. The laboratory shall have the right to appeal the removal from the QPL to the Director, Division of Materials and Tests.

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