
Standard Practice for

Evaluation of Different Superpave™ Gyratory Compactors (SGCs) Used in the Design and the Field Management of Superpave Mixtures

AASHTO Designation: PP 47-02 (2004)



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1. SCOPE

- 1.1. This method covers the procedure for evaluation of different Superpave™ Gyratory Compactors (SGCs) used in the design and the field management of Superpave mixtures. Evaluation of SGCs should include the SGC used for the mix design, the SGC used for production quality control (QC) and the SGC used for production quality assurance (QA). The evaluation will assist in the identification of within-procedure differences that may impact the field management of asphalt mixes.
- 1.2. *This practice may involve hazardous materials, operations, and equipment. This standard does not purport to address all of the safety concerns associated with its use. It is the responsibility of the user of this procedure to establish appropriate safety and health practices and to determine the applicability of regulatory limitations prior to use.*

2. REFERENCED DOCUMENTS

- 2.1. *AASHTO Standards:*
- PP 35, Evaluation of Superpave™ Gyratory Compactors (SGCs)
 - R 30, Mixture Conditioning of Hot-Mix Asphalt (HMA)
 - R 35, Superpave Volumetric Design for Hot-Mix Asphalt (HMA)
 - T 166, Bulk Specific Gravity of Compacted Hot-Mix Asphalt Mixtures Using Saturated Surface-Dry Specimens
 - T 168, Sampling Hot-Mix Asphalt Paving Mixtures
 - T 312, Preparing and Determining the Density of Hot-Mix Asphalt (HMA) Specimens by Means of the Superpave Gyratory Compactor

3. SUMMARY OF METHOD

- 3.1. This method is intended to provide a uniform process to assist in the identification of within-procedure differences that may impact the field management of asphalt mixes.
- 3.2. The design, QC, and/or QA SGCs shall be evaluated. All SGCs shall satisfy PP 35 and shall be operated according to T 312.

- 3.3. Laboratory-prepared or production mix may be utilized in the evaluation.
- 3.4. Documentation of within-procedure differences and assessment of compacted specimens shall be utilized in the evaluation.
- 3.5. The evaluation shall be conducted in two phases. The initial evaluation shall use multiple operators and existing within-procedure handling practices. The second phase, if required, shall utilize a single operator and consistent, within-procedure handling practices, and one laboratory shall be used in the determination of the compacted bulk specific gravities (G_{mb}) of the SGC specimens.

4. SIGNIFICANCE AND USE

- 4.1. SGCs fabricated according to T 312 and satisfying PP 35 create cylindrical specimens from loose, hot-mix asphalt (HMA) through a gyratory (kneading) effort. AASHTO PP 35 ensures that different manufacturer models of SGCs are statistically comparable based upon a single-laboratory, single-operator evaluation. However, within-procedure differences may impact the comparability of SGCs. In addition, variability within the manufacturing process may result in mechanical differences in SGC performance.

5. LABORATORY DEFINITIONS SPECIFIC TO THIS STANDARD

- 5.1. The laboratories used in the evaluation are identified in the following sections:
- 5.1.1. *Mix Design Laboratory*—The laboratory, SGC, and operator that produced the mix design for the mixture being evaluated.
- 5.1.2. *Field Quality Control Laboratory*—The laboratory, SGC, and operator used by the contractor to ensure the quality of the production process.
- 5.1.3. *Field Quality Assurance Laboratory*—The laboratory, SGC, and operator used by the specifying agency to assure the quality of production mixes.
- 5.1.4. *Independent Quality Assurance Laboratory*—The laboratory, SGC, and operator employed to arbitrate differences in contractor and specifying agency results.

6. PROCEDURE: PHASE I—INITIAL EVALUATION

- 6.1. The specifying agency shall identify the laboratories to be included in the evaluation.
- 6.1.1. The actual operator responsible for each laboratory shall be used in the initial phase of the evaluation.
- 6.2. Prior to compaction of any specimens, each operator shall verify the SGC calibration according to T 312.
- 6.3. The evaluation mix shall conform to one of the following sections:
- 6.3.1. *Laboratory Prepared Mix*—A mix similar to the anticipated production mix should be used. The mix should use the same asphalt binder anticipated for production. One laboratory shall prepare