
Standard Method of Test for

Glass Beads Used in Pavement Markings

AASHTO Designation: TP 97-11



**American Association of State Highway and Transportation Officials
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1. SCOPE

- 1.1. The procedures for testing glass beads used in traffic markings are described in this method. This includes the method for obtaining a representative test sample, preparation of the test specimens, and performing the specified tests.
- 1.2. *This test method is divided into the following parts:*
 - 1.2.1. Section 3, Sampling Glass Beads During Production;
 - 1.2.2. Section 4, Sampling Shipments of Glass Beads Vertically from Bulk Containers;
 - 1.2.3. Section 5, Gradation;
 - 1.2.4. Section 6, Roundness;
 - 1.2.5. Section 7, Refractive Index;
 - 1.2.6. Section 8, Flow Characteristics Test—Referee Method;
 - 1.2.7. Section 9, Moisture Resistant Coating Test—Referee Method;
 - 1.2.8. Section 10, Flotation Test—Referee Method;
 - 1.2.9. Section 11, Adherence Coating Oven Test—Referee Method;
 - 1.2.10. Section 12, Alternative Flotation Test—As Permitted by Purchasing Agency;
 - 1.2.11. Section 13, Alternative Moisture Resistance Test—As Permitted by Purchasing Agency; and
 - 1.2.12. Section 14, Alternative Adherence Test—As Permitted by Purchasing Agency.
- 1.3. The values stated in SI units are to be regarded as the standard.
- 1.4. *This standard 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 standard to consult and establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. REFERENCED DOCUMENTS

2.1. *ASTM Standards:*

- D 75/D 75M, Standard Practice for Sampling Aggregates
- D 1155, Standard Test Method for Roundness of Glass Spheres
- D 1214, Standard Test Method for Sieve Analysis of Glass Spheres
- E 105, Standard Practice for Probability Sampling of Materials
- E 1617, Standard Practice for Reporting Particle Size Characterization Data
- E 1994, Standard Practice for Use of Process Oriented AOQL and LTPD Sampling Plans

2.2. *Other Standard:*

- ANSI/ASQ Z.4 and Z1.9, Sampling Procedure and Tables for Inspection by Attributes

3. SAMPLING GLASS BEADS DURING PRODUCTION

- 3.1. The sampling shall be random in the following ratios—45 kg (100 lb) of sample (in full bags) per 4535 kg (10,000 lb)/ASQ Z1.4 and Z1.9 may be used to monitor the quality of the product so that it meets the requirement of the applicable detail specification. The supplier shall state in a Declaration of Conformity the sampling plans and test methods used. Accumulation of large quantities during the production sampling process shall be reduced to appropriate size by use of a splitter.

Note 1—The use of splitters to reduce the large sample of glass beads to the appropriate testing quantity is critical in minimizing sampling errors.

4. SAMPLING SHIPMENTS OF GLASS BEADS VERTICALLY FROM BULK CONTAINERS

- 4.1. Sample from 200-L (55-gal) drums or other bulk containers utilizing a sample probe, as described in Figure 1, approximately 1.2 m (48 in.) long [0.6 meters (24 in.) long for 22.5-kg (50-lb) pails or sacks].