

ATTACHMENT I

Commonwealth of Pennsylvania
Department of Transportation

SPECIFICATION FOR GLASS BEADS

July 30, 2002

1. **SCOPE.** This specification covers moisture-proof glass beads for application with traffic paint, epoxy or other pavement marking materials to improve the night visibility of the lines.
2. **GENERAL REQUIREMENTS.** Glass beads shall conform to AASHTO M247, except as follows:
 - 2.1 **Gradation.** Glass beads shall have the following percent beads passing the specified sieve:

Sieve No.	Glass Beads Passing the Specified Sieve (%)			
	Type A	Type B	Type C	Type D
10	—	100	—	—
12	—	95-100	100	—
14	—	80-95	95-100	—
16	100	10-40	80-95	100
18	—	0-5	10-40	—
20	—	0-2	0-5	95-100
25	—	—	0-2	65-90
30	75-95	—	—	—
35	—	—	—	10-45
50	15-35	—	—	0-10
100	0-2	—	—	0-5

- 2.2 **Roundness.** The glass beads shall have a minimum of 75 percent true spheres overall, 70 percent true spheres per sieve, and no more than 3 percent angulars overall.
3. **COATING.** Type A, B, and D glass beads shall have a coating to enhance moisture resistance, embedment and adherence with the binder. Type C glass beads shall not have a moisture-resistant coating, but may have an adhesion coating.
4. **RECYCLED GLASS.** Glass beads shall be manufactured using at least 50 percent recycled glass.
5. **PACKAGING FOR DEPARTMENT PURCHASES.** Glass beads shall be furnished in 50-pound (22.68 kg), moisture-proof bags or in 2,000-pound (907.2 kg), moisture-resistant, reusable cardboard boxes, whichever the Department designates. Each skid shall have 2,000 pounds (907.2 kg) of glass beads and the entire skid shall be shrink-wrapped.

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5.1 50-pound Bags. Paper for the 50-pound (22.68 kg) bags to be pinch bottom open-mouth type constructed of four layers of 50# natural Kraft paper with a 0.008" high-density polyethylene liner to retard moisture.

5.2 2,000-pound Boxes. Cardboard boxes for beads ordered in bulk shall be rectangular or square and hold 2,000 pounds (907.2 kg) each. They shall be constructed from a one or two-piece outer container with either a cardboard inner liner or laminated layer for added strength. A polyethylene liner is required for moisture-resistance in addition to the inner liner. A corrugated slip-sheet shall be inserted inside the polyethylene liner to hold the liner in place for bead removal. Boxes shall not be wax coated so that they are acceptable for recycling.

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