

**Section 920. PERMANENT PAVEMENT MARKING MATERIALS**

**920.01 General Requirements.** The pavement marking materials shall be lead free and must be selected from the Qualified Product List.

- A. **Packaging and Labeling.** Each container or package shall be plainly marked, on the top and side, with a durable, weather-resistant marking, showing the name and address of the manufacturer, description of the material, product identification number, batch number, date of manufacture, and volume and weight of contents. The pavement marking material supplied shall have been manufactured in the calendar year it is to be applied.

Each roll of cold plastic tape shall be plainly labeled in the core with the same information as required on the outside of packages of multiple rolls.

The hot-applied thermoplastic material shall be packaged in suitable containers to which it will not adhere during shipment and storage. The label on the material shall inform the user that the material shall be heated to a temperature range recommended by the manufacturer.

Glass beads shall be packaged in moisture resistant bags. Containers are to be guaranteed to keep beads dry and undamaged. Each package shall be plainly marked with the name and address of manufacturer, shipping point, trademark or name, the wording "GLASS BEADS," the specification number, the weight, the lot or batch number, and the month and year of manufacture.

- B. **Glass Beads.**

- 1. The glass beads shall meet the following requirements:
  - a. They shall be transparent, clean, smooth and spherically shaped, free from milkiness, pits, or excessive air bubbles.
  - b. They shall have an index of refraction of not less than 1.50.
  - c. They shall have a minimum of 75 percent true spheres.
  - d. After testing for chemical stability, the residual solution shall have an alkalinity number not greater than 2.0.
  - e. They shall be colorless, very light gray, very light gray tinge, or bright white.
  - f. They shall meet the following gradation requirements:

|                       |     |       |       |     |
|-----------------------|-----|-------|-------|-----|
| Sieve Size (No.)      | 20  | 30    | 50    | 100 |
| Total Percent Passing | 100 | 75-95 | 15-35 | 0-5 |

2. Glass beads for specific applications shall be as follows:
  - a. **Waterborne Marking Material.** The beads used in waterborne pavement marking shall have a moisture resistant coating and a silane coating to promote adhesion. When marking rest areas, roadside parks, and car pool lots, glass beads are not required.
  - b. **Regular Dry Marking Material.** The glass beads shall have no coatings.
  - c. **Epoxy Pavement Marking Material.** The type of glass beads shall be determined by the manufacturer.
  - d. **Thermoplastic Pavement Marking Material.** Glass beads used with thermoplastic pavement marking materials shall meet AASHTO M 247 and be applied at the recommended rate. All glass beads shall have a moisture resistant coating. Gradation, index of refraction, imperfect particles, chemical stability, and color will be tested according to MTM 711.
  - e. **Sprayable Thermoplastic Pavement Marking Material.** The type, gradation, and loading rates of the glass beads shall be determined by the manufacturer.
- C. **Raised Pavement Markers.** The markers shall consist of an iron casting with replaceable prismatic retroreflectors for reflecting light from single or opposite directions. All markers shall be selected from the Qualified Products List. Casting shall be nodular iron, conforming to specification ASTM A536-84, Grade 72-45-05, hardened to 52-54RC. The base shall contain one or two prismatic retroreflective lens to reflect incident light from a single or opposite directions. The reflector shall be adhesively attached to the casting.