

SECTION 02766 P

GLASS SPHERES BEADS FOR WATERBORNE TRAFFIC PAINT

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Furnish glass beads as described in this special provision for use with waterborne paint in longitudinal lines and pavement messages.

1.2 REFERENCES

The most current version of the following specifications form a part of this specification:

- A. AASHTO M247-81 Standard Specification for Glass Beads Used in Traffic Paint
- B. ASTM D1155 Standard Test Method for Roundness of Glass Spheres
- C. ASTM D1213 Test Method for Crushing Resistance of Glass Spheres
- D. ASTM D1214 Standard Test Method for Sieve Analysis of Glass Spheres
- E. UDOT 2005 Standard Specifications for Road and Bridge Construction

1.3 SUBMITTALS

- A. Submit proposed labeling and packaging containers for individual 50-lb bead packages to UDOT Maintenance 4501 South 2700 West, Box 148250; Salt Lake City, UT 84114-8250 at bid submittal.
- B. Quality Assurance (QA) plan
 - 97733508. Required within five calendar days of bid submittal.
 - 97733509. Detail the methods and procedures used to ensure consistent production and shipment of a material meeting the performance requirements of this specification.
 - 97733510. Identify personnel responsible for carrying out the plan.

- C. Certification: At the time of bid, submit copies of certificates of compliance with these specifications from the manufacturer. Within 14 calendar days of receiving a notice from UDOT of intent to award, submit a certificate of compliance with these specifications from an AASHTO accredited independent laboratory.
- D. Within seven calendar days of the bid submittal, the apparent low bidder submits a two-pound sample of each of the beads proposed to be furnished. The samples constitute a standard of quality. Deliveries of beads are substantially equal in quality to the submitted samples.
- E. Submit samples and reports to UDOT Maintenance Division; 4501 South 2700 West Box 148250; Salt Lake City, UT 84114-8250.

PART 2 PRODUCTS

2.1 MATERIALS

- A. **For longitudinal lines.** Specific Properties: Meet AASHTO M 247 with the following exceptions.
 - 1. Gradation:

No. 18 US sieve, percent retained	20 - 35
No. 30 US sieve, percent retained	50 - 70
No. 50 US sieve, percent retained	95 - 100
 - 2. Coating: Beads shall have a dual coating for optimum adhesion and embedment.
 - 3. Roundness: Using FLH-520 a minimum of 85% true spheres above the number 30 sieve by visual inspection. Below the number 30 sieve beads shall be 80% true spheres per ASTM D 1155.
 - 4. Color / Clarity: Beads shall be colorless / clear and free of carbon residue.
 - 5. Refractive Index: Minimum 1.51 by oil immersion method.
 - 6. Air Inclusions: <5% by visual inspection.
 - 7. Hardness: Beads above the number 30 sieve shall exhibit an average hardness of C70.5 when measured using the Rockwell C scale method and using a minimum sample of 100 beads.
 - 8. Crushing Strength: Beads above the number 30 sieve shall exhibit an average crushing strength of 60,000 psi when measured by the L/D² method and with a minimum sample of 100 beads.
 - 9. Chemical Resistance: Beads shall be resistant to hydrochloric acid, water, calcium chloride, and sodium sulfide per TT-B Federal Specification 1325C sections 4.3.6 to 4.3.9.

B. **For pavement messages.** Specific Properties: Meet AASHTO M 247 with the following exceptions.

1. Gradation:

No. 20 US sieve, percent retained	5 - 10
No. 30 US sieve, percent retained	25 - 45
No. 50 US sieve, percent retained	50 - 70
No. 80 US sieve, percent retained	0 - 5
Pan US sieve, percent retained	0-2
2. Coating: Beads shall have a dual coating for optimum adhesion and embedment.
3. Roundness - The glass beads will have a minimum of 75 percent true spheres.
4. Refractive index: Minimum 1.51 by oil immersion method.
5. Air Inclusions: <10% by visual inspection.

2.2 PACKAGING

A. Package beads in clean, leak proof and moisture proof 2400-pound containers for longitudinal lines and 50-pound packages for pavement messages. Clearly identify the type of paint compatible for use with the beads, the gradation, and the coatings as listed in paragraph 2.1 Materials. Include Net weight of beads and lot or batch number on each package. Proposed labeling is to be submitted to UDOT as required by paragraph 1.3.

B. Secure containers and packages of beads to standard wooden 42"X42" non-returnable type pallets. Pallets are serviceable and of appropriate strength to prevent bags from sagging through the top deck.

Bags on each pallet are secured to the pallet by encasing in a plastic sheeting such as shrink wrapping with a minimum thickness of 6 mils. At delivery all pallet loads are straight and stable, suitable for reshipping without further adjustment.

PART 3 EXECUTION

3.1 INSPECTION AND TECHNICAL SUPPORT

- A. Provide technical support at the manufacturing plant after the contract is awarded for two UDOT engineers. The purpose is to provide an opportunity for the UDOT representatives to review fabrication procedures, production process, and view laboratory certifications. Cover all travel and lodging expenses for this one-day, one-time, plant inspection and training visit.