

## SECTION 02765

# PAVEMENT MARKING PAINT

### PART 1 GENERAL

#### 1.1 SECTION INCLUDES

- A. Furnish VOC Compliant Solvent Based or Acrylic Water Based pavement marking paint meeting Federal Specification TTP-115 F for Low Volatile Organic Compounds (VOC) of 1.25 lbs/gal.
- B. Apply to asphaltic or concrete pavement as edge lines, center lines, broken lines, guide lines, symbols and other related markings.
- C. Remove pavement markings.

#### 1.2 REFERENCES

- A. AASHTO M 247: Glass Beads Used in Traffic Paint.
- B. ASTM D 562: Consistency of Paints Measuring Krebs Unit (KU) Viscosity Using the Stormer-Type Viscometer.
- C. ASTM D 711: No-Pick-Up Time of Traffic Paint.
- D. ASTM D 2205: Selection of Tests for Traffic Paints
- E. ASTM D 2743: Uniformity of Traffic Paint Vehicle Solids by Spectroscopy and Gas Chromatography.
- F. ASTM D 3723: Pigment Content of Water-Emulsion Paints
- G. ASTM D 3960: Determining Volatile Organic Compound (VOC) Content of Paints and Related Coatings.
- H. ASTM D 4451: Pigment Content of Paints

- I. ASTM D 5381: X-Ray Fluorescence (XRF) Spectroscopy of Pigments and Extenders.
- J. Federal Standards 595B, 37875, 33538, and 11105.

### **1.3 ACCEPTANCE**

- A. UDOT ENGINEER:
  - 1. Randomly samples pavement marking paint and submits to Central Chemistry Lab for acceptance.
  - 2. Randomly generates the location of each test and removes all loose or excess beads from the line prior to testing.
  - 3. Visually inspects each line to verify bead adhesion and compliance with specified line dimensions requirements.
  - 4. Verifies that the paint and beads are being applied within specified tolerances a minimum of once each production day.
  - 5. Verify quantities used by measuring both paint and bead tanks prior to and after application.
- B. Repaint any line or symbol failing to meet bead adherence and dimensional requirements.
- C. Repaint any line or symbol failing to meet the minimum application requirements for paint or beads.

## **PART 2 PRODUCTS**

### **2.1 PAINT**

- A. Choose an approved pavement marking paint from the UDOT Research Division “Accepted Products Listing.” Follow Federal Standards 595B, 37875, 33538, and 11105. Meet the following requirements for VOC Compliant Solvent Based Paint or Acrylic Water Based Paint:

| <b>CIELAB (L*a*b*) D65/10°</b> |                 |                 |
|--------------------------------|-----------------|-----------------|
| <b>White</b>                   | <b>Yellow</b>   | <b>Red</b>      |
| L* 91.9 to 95.6                | L* 70.0 to 72.7 | L* 31.4 to 33.4 |
| a* -1.8 to -2.1                | a* 22.5 to 24.8 | a* 51.6 to 52.6 |
| b* 3.8 to 2.2                  | b* 89.7 to 73.9 | b* 34.1 to 35.1 |

1. No-track time: Not more than 5 minutes when tested according to ASTM D 711.
2. Volatile Organic Compounds Content: Less than 1.25 lbs/gal ASTM D 3960.
3. Free of lead, chromium, or other related heavy metals ASTM D 5381.
4. Pigment: Percent by weight: Acrylic Water Based minimum of 62.0 ± 2.0 VOC Compliant Solvent minimum of 52.0. ASTM D 3723.
5. Total Solids: Percent by weight: Acrylic Water Based minimum of 77.0 VOC Compliant Solvent minimum of 70.0. ASTM D 2205.
6. Acrylic water based paint must contain a minimum of 40 percent, by weight, 100 percent acrylic cross-linkable emulsion as determined by infrared analysis and other chemical analysis available to UDOT. ASTM D 2205 and UDOT Manual of Instruction Section 996.
7. VOC compliant solvent based paint must contain 37.5 percent, by weight, copolymer alkyd-resin ASTM D 2205.
8. ASTM D 562, ASTM D 2743, ASTM D 4451 and ASTM D 5381: Tests used to verify paint samples meet “Accepted Products Listing.”

## **2.2 GLASS SPHERE (BEADS) USED IN PAVEMENT MARKING PAINT**

- A. Specific Properties:
1. Meet AASHTO M 247.
  2. Meet type II, uniform gradation.

## **PART 3 EXECUTION**

### **3.1 PREPARATION**

- A. Line Control.
  - 1. Establish control points at 100 ft intervals on tangent and at 50 ft intervals on curves.
  - 2. Maintain the line within 2 inches of the established control points and mark the roadway between control points as needed.
    - a. Remove paint that is not placed within tolerance of the established control points and replace at no expense to the Department. Refer to article 3.4.
- B. Remove dirt, loose aggregate and other foreign material and follow manufacturer's recommendations for surface preparation.

### **3.2 APPLICATION**

- A. Pavement Marking Paint: Apply at the following rates:
  - 1. 4 inch Solid Line: From 270 to 350 ft/gal
  - 2. 4 inch Broken Line: From 1080 to 1400 ft/gal
  - 3. 8 inch Solid Line: From 135 to 175 ft/gal
- B. Replace pavement markings that are less than 14 wet mils in thickness.
- C. No payment for pavement markings placed in excess of 18 wet mils in thickness.
- D. Painted Legends and Symbols 1 gallon per 100 square feet.
- E. Glass Sphere (Beads): Apply a minimum of 8 lbs/gal of paint, the full length and width of line and pavement markings.
- F. Begin striping operations no later than 24 hours after ordered by the Engineer.
- G. At time of application apply lines and pavement markings only when the air and pavement temperature are:
  - 1. 40 degrees F and rising for VOC Compliant Solvent Based Paint.
  - 2. 50 degrees F and rising for Acrylic Water Based Paint.
- H. Comply with Traffic Control Drawing TC-16

### **3.3 CONTRACTOR QUALITY CONTROL**

- A. Application Rate: Verify that the paint and beads are being applied within specified tolerances prior to striping.

### **3.4 REMOVE PAVEMENT MARKINGS**

- A. Use one of these removal methods:
  - 1. Grinding
  - 2. High pressure water spray
  - 3. Sand blasting
  - 4. Shot blasting.
- B. Use equipment specifically designed for removal of pavement marking material.

END OF SECTION