

SECTION 02768 PAVEMENT MARKING MATERIALS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Methods and materials for installing pavement marking materials including Pavement Marking Tape, Solvent-Free and Lead-Free Epoxy, Methyl-Methacrylate, and Thermoplastic legends.

1.2 RELATED SECTIONS

- A. Section 01555 Traffic Control

1.3 SUBMITTALS

- A. Manufacturer Warranty:
 - 1. Provide a full warranty covering 100 percent of the pavement marking materials.
 - a. Manufacturer is responsible for quality control of the materials, proper placement by the Contractor or subcontractor, and all other factors that affect the service life of the materials.
 - b. In the event of a performance failure, remove and/or replace 100 percent of the markings for all failed sections at no cost to Department.
 - c. Failed sections are defined in this Section, Part 2 for each pavement marking material.
- B. Warranty Bond:
 - 1. The manufacturer provides a warranty bond for the total bid price of the material. The total bid price will be calculated by using the quantity of pavement marking material listed in the engineers estimate and the average unit bid price for said material obtained from the Construction Division's Project Development Business System (PDBS).
 - 2. Warranty period covers the specified service life of the materials, and begins after all pavement markings are installed and accepted.
 - 3. Submit proof of bond to the Engineer before placing the material.
- C. Traffic Control: Refer to Section 01554.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. In accordance with manufacturer's recommendations.
- B. Provide Material Safety Data Sheets (MSDS) upon delivery of material.

1.5 MANUFACTURER SERVICE REQUIREMENT

- A. Provide technical support to the Contractor during the placement of the marking materials, including information about handling, storage, placement, and other training that may preserve the quality of the installed markings.

1.6 SERVICE LIFE TESTING

- A. Department performs service life testing.
- B. Performance measures: Retro-reflectivity, color contrast and stability, and durability under all traffic volumes and wear conditions, unless stated otherwise.
- C. Retro-reflectivity is measured using a Federally approved instrument (30 m geometry).
- D. When performing Service Life Testing, take readings on clean surface areas free of debris.

PART 2 PRODUCTS

2.1 PAVEMENT MARKING TAPE

- A. Preformed adhesive tape with a raised profile for longitudinal lines on all pavement surfaces.
- B. Preformed adhesive tape with a flat or raised profile for legends and symbols on all pavement surfaces.
- C. Minimum service life for the following applications under all traffic volumes and wear conditions:
 - 1. Longitudinal lines: 48 months.
 - 2. Legends and symbols: 18 months.
- D. Performance Measures for Retro-reflectivity, Color Contrast/stability, and Durability.
 - 1. Minimum Retro-reflectivity:
 - a. White longitudinal lines: 125 millicandelas.
 - b. Yellow longitudinal lines: 125 millicandelas.
 - c. Legends and symbols: 125 millicandelas.
 - 2. Minimum Color Contrast and Stability: For white markings, provide a minimum yellowness index of 30 when measured with a portable colorimeter (XYZ C/2).
 - 3. Minimum Durability Level: 90 percent of the longitudinal line on any 1000 ft segment or 90 percent of the legend and symbol must be present.
 - 4. Failure to meet any of the specified performance measures on at least 90 percent of the longitudinal line, in any 1000 foot segment, or 90 percent of a legend or symbol is considered a complete failure of that marking. Replace under the warranty terms.

2.2 SOLVENT-FREE EPOXY

- A. 100 percent lead free, two-component (resin and hardener) epoxy system for longitudinal lines, legends, and symbols and for all pavement surfaces.
- B. Minimum service life for the following applications under all traffic volumes and wear conditions:
 - 1. Type 1 - Fast dry
 - a. Longitudinal: Center, skip, and edge lines: 24 months.
 - b. Legends and symbols: 12 months.
 - 2. Type 2 - Slow dry
 - a. Longitudinal: Center, skip, and edge lines: 48 months.

- b. Legends and symbols: 24 months.
- C. Performance Measures for Retro-reflectivity, Color Contrast/stability, and Durability.
 - 1. Minimum Retro-reflectivity:
 - a. White longitudinal lines: 125 millicandelas.
 - b. Yellow longitudinal lines: 125 millicandelas.
 - c. Legends and symbols: 125 millicandelas.
 - 2. Minimum color stability: Yellowness Index of White Paint on concrete or asphalt surfaces: 30 or less.
 - 3. Minimum Durability Level: 90 percent of the longitudinal line on any 1000 ft segment or 90 percent of the legend and symbol must be present.
 - 4. Failure to meet any of the specified performance measures on at least 90 percent of the longitudinal line, in any 1000 foot segment, or 90 percent of a legend or symbol is considered a complete failure of that marking. Replace under the warranty terms.
- D. Retain a one pint sample from each lot or batch used.
 - 1. 24 months for Type I
 - 2. 48 months for Type II.
- E. Repaint pavement markings that are below 16 wet mils in thickness.
 - 1. No payment for materials placed in excess of 20 wet mils in thickness.
- F. Use beads according to manufacturer's recommendations.

2.3 METHYL METHACRYLATE

- A. Use a two-component pavement marking system compliant with Federal VOC regulations used for longitudinal lines, legends and symbols and for use on all pavement surfaces.
- B. Profiled, Non-profiled, Inlaid, Inverted Profile with bump, Inverted Profile without bump, Spray.
- C. Minimum surface life for the following applications, under all traffic volumes and wear conditions:
 - 1. Longitudinal lines: 48 months.
 - 2. Legends and symbols: 18 months.
- D. Performance Measures for Retro-reflectivity and Durability.
 - 1. Minimum retro-reflectivity:
 - a. White Longitudinal markings: 125 millicandelas.
 - b. Yellow Longitudinal markings: 125 millicandelas.
 - c. Legends and Symbols : 125 millicandelas.
 - 2. Minimum Durability level: 90 percent of the longitudinal line on any 1000 ft segment or 90 percent of the legend and symbol must be present.
 - 3. Failure to meet any of the specified performance measures on at least 90 percent of the longitudinal line, in any 1000 ft segment, or 90 percent of the legend or symbol is considered a complete failure of the marking. Replace under the warranty terms.
- E. Remove and replace pavement marking that is below 80 wet mils in thickness.
 - 1. No payment for materials placed in excess of 100 wet mils in thickness.
- F. Use beads according to manufacturer's recommendations.

2.4 THERMOPLASTIC

- A. Used for legends and symbols only on all pavement surfaces.
- B. Heat-fused preformed and Hot Melt pavement marking materials.
- C. Minimum Service Life for Legends and Symbols, under all traffic volumes and wear conditions:
 - 1. Legends and Symbols: 24 months.
- D. Performance Measures for Retro-reflectivity, and Durability.
 - 1. Minimum Level of Retro-reflectivity: 125 millicandelas.
 - 2. Minimum Durability: 90 percent of the each legend or symbol must be present.
 - 3. Failure to meet any of the specified performance measures on at least 90 percent of the legend or symbol is considered a complete failure of that legend or symbol. Replace under the warranty terms.
- E. Hot-melt Thermoplastic:
 - 1. Remove and replace legends and symbols that are below 80 wet mils in thickness.
 - 2. No payment for materials placed in excess of 100 wet mils in thickness.

PART 3 EXECUTION

3.1 PREPARATION

- A. Conduct surface preparations in accordance with manufacturer's recommendations.

3.2 APPLICATION

- A. Apply Pavement Marking Materials according to manufacturer's specifications.

END OF SECTION