

SECTION 321720
RETROREFLECTIVE SPRAYABLE THERMOPLASTIC PAVEMENT STRIPING AND MARKING

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes: All labor, materials, equipment, tools, accessories, transportation, and services as required for Retroreflective Sprayable Thermoplastic Pavement Striping and Marking. This specification covers a cold spray applied, retroreflective, thermoplastic traffic marking material that is suitable for producing durable traffic stripes and pavement markings on Portland cement concrete or asphalt concrete pavements. This material is applied to road surfaces in a cold state using a standard airless spray equipment with stainless steel components. Within 5 minutes of the application, reflectorizing glass beads are applied to the surface of the applied thermoplastic striping material. UThis material shall produce durable, adherent, retroreflective traffic stripes and pavement markings that are capable of resisting deformation by traffic.
- B. Related Requirements
 - Section 321200, Flexible Paving
 - Section 321300, Rigid Paving

1.02 PRICE AND PAYMENT PROCEDURES

- A. Refer to Section 012000, Price and Payment Procedures.

1.03 REFERENCES

- A. Section 84, Traffic Stripes and Pavement Markings of the City Standard Specifications.
- B. State of California Specifications Designation: 8010-004, Inspection, Testing and Other Requirements for Protective Coatings.
- C. California Test Methods (CTM); No. 423 and No. 660 (latest revision).
- D. California Department of Transportation, Standard Specifications, May 2006.
- E. Federal Standard Designation: No. 595b, color #33538.
- F. U.S. Environmental Protection Agency (EPA), SW-846, Methods 3052 and 6010B.
- G. American Association of State Highway and Transportation Officials, (AASHTO) Designation: M 247 and AASHTO Designation: T 250.
- H. American Society for Testing and Materials, (ASTM) Designations; D 476, D 2794, D 3335, D 3718, D 4563, D 4764, D 5380, D 5381, D 6359, D 6628, E 11, E 28, E 313, E 1710, and G 155.
- I. Commission International de l'Eclairage (C.I.E.) 1931 Chromaticity Diagram.
- J. California Code of Regulations: Title 22.

1.04 ADMINISTRATIVE REQUIREMENTS

- A. Sequencing: Per Manufacturer's Recommendations

1.05 SUBMITTALS

- A. Product Data: Submit a complete list of all materials proposed for use. The list shall show the specific label name of each product for each coat of finish. After review by the Engineer, no deviation from the list will be permitted without further approval.
- B. Glass beads: Submit proposed glass beads before use. Only reviewed and approved glass beads can be used.
- C. Samples: Provide sample finishes on the actual surfaces to be sprayed to verify appearance. Approved samples will become the standard for the work. Sample should be 1ft long minimum.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Materials: Attention is directed to Section 6, Control of Materials of the City Standard Specifications and these Special Provisions. All materials required to complete the work under this contract shall be furnished by the Contractor.

1.07 SITE CONDITIONS

A. Ambient Conditions

No paint shall be applied when moisture is present on the surface to be painted or when the air temperature is below 50 degrees or above 120 degrees F. Painting shall not be done when winds are sufficient to cause spray dust.

1.08 WARRANTY

- A. Final Guarantee: Contractor shall provide guarantee per Section 7-1.23, Final Guarantee of the City Standard Specifications.

PART 2 - PRODUCTS

2.01 RETROREFLECTIVE SPRAYABLE THERMOPLASTIC PAVEMENT STRIPING AND MARKING REQUIREMENTS

A. SealMaster Liquid Thermoplastic Traffic Marking Paint

1. Manufacturer: Shall be SealMaster, or approved equal.
2. Product: Shall be SealMaster Liquid Thermoplastic Traffic Marking Paint.
3. Finish: Shall be Glass Beads:
Glass beads to be applied to the surface of the molten thermoplastic material shall be 1.9 IOR high-index virgin glass beads, from Potters Industries Inc (1-800-552-3237). or approved equal. Gradation, drop rate and coating shall be per manufacturer's specification. Drop rate shall not be less than 8 pounds per 100 square feet.

B. **Other Requirements:**

3. Shelf Life:
The material shall maintain the requirements of this specification for a minimum period of one (1) year from the date of manufacture. Any materials failing to do so shall be replaced at the expense of the manufacturer. Ordered thermoplastic shall be no more than 120 days old (based on date of manufacture) upon delivery to the project site. The date of manufacture shall be clearly marked on each bag of thermoplastic.
4. Air Pollution Compliance:
This material shall comply with all applicable air pollution control rules and regulations. The thermoplastic material shall not emit fumes that are toxic or injurious to persons or property when it is heated to application temperature. The material shall not emit excessive smoke during heating or application.

C. Material Safety Data Sheets:

Material Safety Data Sheets shall be provided by the manufacturer to include health hazard information on the material when it is heated to application temperature.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Verification of Conditions

Verify that the work to be striped is clean and dry to receive each coat of thermoplastic per manufacture specification. Should the Contractor find surfaces and conditions unacceptable, he shall at once report such conditions to the City and cease operations on the portion of the work affected. Application of thermoplastic shall occur only upon acceptance of surface and working conditions, and the Contractor shall be held responsible for the results. Clean all surfaces before striping by compressed air or other effective means. Pavement surfaces to receive thermoplastic shall be in condition to insure complete bonding of the applied material, and shall be subject to inspection and approval before such work commences.

B. Inspections
On delivery, the thermoplastic will be sampled for compliance to specification. Material not meeting the specification shall be removed and replaced by the manufacturer at their expense, including all costs for handling, testing, and shipping.

C. Testing
All tests shall be performed according to the specified test methods, latest revision. The retroreflectivity of the thermoplastic striping shall be measured as specified in ASTM D6359-99 using a retroreflectometer meeting ASTM E1710-97 by Contractor in 30 minutes and in one week after the thermoplastic striping is applied. Results of the readings shall be submitted to the City and project manager for approval.

3.02 PREPARATION

A. Protection of In-Place Conditions
Surrounding areas, surfaces and appurtenances already in place shall be protected during installation of pavement markings.
Take special care to prevent spilling paint materials on surfaces not intended to receive them.

3.03 PREPARATION FOR DELIVERY

B. Markings
Each individual unit/container of product shall be labeled. This label shall include: State Specification number (#PTH-02SPRAY), color, type of binder, manufacturer's name and address, date of manufacture and batch number. Lead-free yellow materials shall be marked "Lead-Free". All markings on containers shall be legible and permanent. Markings shall not smear or rub off container. Containers failing to meet marking requirements will not be accepted. The containers and labeling shall meet all applicable US Department of Transportation and Interstate Commerce Commission regulations. Concerning the content, each container shall be labeled with the warnings or precautions required by Local, State and Federal laws and requirements.

3.04 INSTALLATION

A. The installation of the retroreflective sprayable thermoplastic pavement striping and marking shall be per the manufacturer's recommendations.

3.05 CLEANING

A. Take special care to keep surrounding surfaces clean as the work progresses, and upon completion carefully remove all thermoplastic from surfaces not intended to receive it. Use no materials or methods that will damage surfaces.
B. All excess glass beads shall be vacuumed from the surface. Surrounding surfaces shall be clean of ANY glass beads.

END OF SECTION