

2212 - PREFORMED THERMOPLASTIC PAVEMENT MARKING MATERIAL

SECTION 2212

PREFORMED THERMOPLASTIC PAVEMENT MARKING MATERIAL

2212.1 DESCRIPTION

This specification covers preformed thermoplastic materials suitable for use as reflecting pavement markings on either asphalt or concrete pavements. A manufacturer recommended heat source fuses the markings to the asphalt or concrete pavements. Glass beads are pre-mixed into the material furnished, and also must be applied to the surface either before or after fusion to the pavement. Upon cooling, the material produces an adherent reflectorized marking of specified thickness and width, capable of resisting deformation by traffic.

2212.2 REQUIREMENTS

a. General.

- (1) Provide the material in white and/or yellow as specified.
- (2) Provide material with a minimum thickness of 0.1 inch as supplied by the manufacturer.
- (3) Provide material that is resistant to deterioration due to exposure to sunlight, water, oil, gasoline, salt, or adverse weather conditions.
- (4) After application, the material must exhibit no appreciable deformation or discoloration, remain tack free, and not lift from the pavement under normal traffic conditions within a road temperature range of 20 to 150°F.
- (5) Provide material that is capable of conforming to pavement contours, breaks, and faults through the action of traffic at normal pavement temperatures.

b. Color. Provide yellow material that meets the minimum chromaticity coordinates in **TABLE 2212-1**:

| 1 | | 2 | | 3 | | 4 | |
|-------|-------|-------|-------|-------|-------|-------|-------|
| X | Y | X | Y | X | Y | X | Y |
| 0.475 | 0.450 | 0.490 | 0.433 | 0.520 | 0.450 | 0.495 | 0.475 |

c. Retroreflectivity. Provide preformed thermoplastic that meets the minimum retroreflectivity requirements in **TABLE 2212-2**, using an acceptable 30-meter retroreflectometer.

| COLOR | millicandelas/sq m/lux (min.) |
|--------|-------------------------------|
| White | 300 |
| Yellow | 225 |

d. Thermoplastic Material and Premix Beads.

- (1) Provide thermoplastic material that complies with AASHTO M 249 with exception of the relevant differences due to the material being supplied in a preformed state.
- (2) All pigments must be heavy metal free, including, but not restricted to lead, cadmium, and mercury.

e. Glass Beads for Drop-on Application. Provide glass beads that are specifically manufactured to be compatible with the thermoplastic system, and comply with AASHTO M 247, Type I.

2212.3 TEST METHODS

a. Thermoplastic Material and Premix Beads. AASHTO T 250

b. Glass Beads for Drop-On Application. AASHTO M 247

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c. Field Evaluation. KTMR-9, Field Evaluation of Pavement Marking Materials.

2212.4 PREQUALIFICATION

a. Manufacturers interested in prequalifying material under this specification must provide at least 100 linear feet of each color to the Engineer of Tests, Materials and Research Center, 2300 Van Buren, Topeka, KS 66611. Also, include a copy of the quality control test report for each lot of material, material safety data sheets, and a complete set of installation recommendations and instructions. If the material complies with all laboratory requirements, the manufacturer will be contacted to arrange for the field evaluation.

b. Provide material that complies with **subsection 2212.2**. In addition, the following Field Evaluation will be conducted:

- **Field Evaluation.** The material will be subjected to traffic conditions on both portland cement and asphalt surfaces for 6 months during the period of July through February. During this time, the material cannot pick up and retain road grime that causes more than a slight graying of the surface. A strong contrast must remain between the striping material and the pavement surface. At the end of the evaluation period, the material must be intact with no evidence of lifting, curling, breaking or displacement. After 6 months, the material must maintain minimum retroreflectivity values of 150 millicandelas/sq m/lux for white and 100 millicandelas/sq m/lux for yellow.

Field evaluation may be waived if a complete field test has been performed on the identical product by another state department of transportation or AASHTO test facility that includes both hot and cold weather conditions, and was a minimum of 6 months in duration. Forward an official copy of the test report along with evidence that the product referenced is identical to that submitted for prequalification to the Engineer of Tests for evaluation.

c. Provide personnel and equipment to apply manufacturer supplied material from the lots tested above to the test deck selected by the KDOT.

d. The material will be evaluated for compliance with all requirements of this specification, and the manufacturer will be notified of the results. The Bureau of Materials and Research will maintain a list of qualified materials and installation instructions. Products will remain on the prequalified list as long as field performance is satisfactory and the results of verification testing are consistently acceptable. Report any changes in formulation to the Engineer of Tests for review and evaluation to determine if requalification is necessary.

2212.5 BASIS OF ACCEPTANCE

a. Thermoplastic Material.

- (1) Prequalification as required by **subsection 2212.4**.
- (2) Receipt and approval of a Type C certification as specified in **DIVISION 2600** for each lot of material used.
- (3) Visual observation of performance on the project.

b. Glass Beads for Drop-on Application. Receipt and approval of a Type D certification as specified in **DIVISION 2600**