

**KANSAS DEPARTMENT OF TRANSPORTATION  
SPECIAL PROVISION TO THE  
STANDARD SPECIFICATIONS, 2015 EDITION**

**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 90 mil (0.09 inch) as supplied by the manufacturer, without any additional drop-on beads.
- (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 thermoplastic that meets the requirements of ASTM D 6628.

**c. Retroreflectivity.** Provide preformed thermoplastic that meets the minimum retroreflectivity requirements in **TABLE 2212-1**, using an acceptable 30-meter retroreflectometer.

| <b>TABLE 2212-1: PREFORMED THERMOPLASTIC<br/>RETROREFLECTIVITY REQUIREMENTS</b> |                                      |
|---|--------------------------------------|
| <b>COLOR</b>  | <b>millicandelas/sq m/lux (min.)</b> |
| 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 according to the thermoplastic manufacturer's recommendations that comply with AASHTO M 247 or specification provided by the manufacturer. Beads will be submitted by the manufacturer and tested at the MRC lab according to type before use on KDOT projects

**f. Verification Testing** The Engineer will take verification samples. Verification samples of thermoplastic will be taken from 1 lot of each color per project. Send the samples to MRC for testing and evaluation. Do not sample preformed symbols. Lots previously tested by MRC will be exempt from testing, and may be exempt from sampling if coordinated with MRC.

### 2212.3 TEST METHODS

**a. Thermoplastic Material and Premix Beads.** AASHTO T 250

**b. Glass Beads.** AASHTO T 346

### 2212.4 PREQUALIFICATION

**a.** Manufacturers interested in prequalifying material under this specification must provide at least 50 linear feet of each color to the Engineer of Tests. 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.

**b.** If the material complies with all laboratory requirements, the manufacturer will be contacted to arrange for the field evaluation. The field evaluation will consist of 2 or 3 test projects at times and locations as determined by the Bureau of Transportation Safety and Technology. Manufacturers must specify if the material may be used on both asphalt and concrete surfaces or only on asphalt or concrete surfaces.

Duration of the test project will be dependent on the submittal of test data from the AASHTO National Transportation Product Evaluation Program (NTPEP). Forward an official copy of the test data along with evidence that the material referenced is identical to that submitted for prequalification to the Engineer of Tests for evaluation. Materials with no test data will have a test project duration of 18 months; materials with test data will have a test project duration of 12 months. Materials will be evaluated initially and every 3 to 6 months throughout the duration of the test project for retroreflectivity, color and durability.

**c.** 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 Construction and Materials will maintain a list of qualified materials and installation instructions.

**d.** 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.

**b. Glass Beads for Drop-on Application.**

(1) Receipt and approval of a Type D certification as specified in **DIVISION 2600.**

(2) Copy of the MRC test report for each lot of beads used on the project that shows compliance with the specification.