

REFLECTIVE PAVEMENT MARKERS

SECTION 970 MATERIALS FOR RAISED RETRO-REFLECTIVE PAVEMENT MARKERS AND BITUMINOUS ADHESIVE

970-1 Raised Retro-Reflective Pavement Markers.

970-1.1 Composition: The marker shall consist of materials conforming to ASTM D 4280.

970-1.2 Physical Requirements: The physical size of the RPM shall conform to the requirements of ASTM D 4280. Laboratory and field samples for RPMs and bituminous adhesives shall meet the requirements of ASTM D 4280 and include the following requirements:

The minimum area of each reflective face shall be 2.5 in² [1,600 mm²]. The minimum base size shall be 12 in² [7,750 mm²].

970-1.2.1 Designation of Marker Type, Color and Classification: The marker description shall be in order of type, color and reflective surface condition in accordance with the following charts.

RPM Type		
A	2 way reflective	1 color
B	1 way reflective	1 color
D	1 way reflective	2 colors (one way reflective with nonreflecting white surface on opposite side)
E	2 way reflective	2 colors

Reflective Face Color *					
Color	White	Yellow	Red	Blue	Green
Code	W	Y	R	B	G

* The color of the marker shall meet the requirements of ATSM D 4280.

RPM Class			
Class	Description	Expected Normal Service	ASTM Surface Designation
A	Temporary marker	Up to six months	none
B	Permanent marker	Long life	H, hard abrasion resistant lens
D	Work zone marker	Per project requirement	none
E	Temporary work zone	Up to five days	none

970-1.3 Performance Requirements: The RPM shall meet the performance requirements as specified in ASTM D 4280 Section 6.2 for coefficient of luminous intensity, flexural strength, compressive strength, resistance to cracking and thermal cycling. Test method FM 5-566 shall be applied to evaluate marker performance.

970-1.3.1 Class A markers: Meet the coefficient of luminous intensity requirements of ASTM D 4280, which the abrasion treatment is not required. Class B markers (abrasion resistant) shall meet the coefficient of luminous intensity requirements of ASTM D 4280 after abrasion and shall be designated by the manufacturer in accordance with ASTM D 4280.

970-1.3.2 In-service Minimum Reflective Intensity: The reflective pavement marker shall retain a minimum coefficient of luminous intensity for 18 months of not less than 30% of the values shown in Table 1 of ASTM D 4280. Replacement of pavement markers should be planned after the coefficient of luminous intensity drops below 0.02 cd/lx.

970-1.4 Application Properties: Application properties shall meet the requirements of Section 706.

970-1.5 Packaging and Labeling: Shipment shall be made in containers which are acceptable to common carriers and packaged in such a manner as to ensure delivery is in perfect condition. Each package shall be clearly marked as to the name of the manufacturer, type, color, quantity enclosed and date of manufacture. Show the designation of the marker in accordance with ASTM D 4280.

970-1.6 Certification: For initial product approval, the marker manufacturer and bituminous adhesive manufacturer shall furnish to the State Materials Office a certified test report from an approved independent test laboratory that affirms the materials meet all requirements specified. After initial product approval, the manufacturer shall submit copies of this test report and verification in accordance with this specification, Section 706 and FM 5-566 to the State Materials Office for ongoing contracts. If the results of tests performed on these products indicate failure to comply with any specific requirement of the product or indicate significant inconsistencies in material properties, new qualification tests may be required for the particular material. Any marked variation from the original test values for a material will be considered sufficient evidence the composition and/or properties of the materials have changed.

970-2 Bituminous Adhesive For Pavement Markers.

970-2.1 General: Bituminous adhesive as recommended by the marker manufacturer shall be used for bonding the markers to the pavement. The adhesive used shall be a product included on the Qualified Products List.

970-2.2 Specific Requirements for Bituminous Adhesives: The bituminous adhesive shall meet the properties of adhesives per ASTM D 4280 Section A1, including filler-free and filler alone properties.

970-2.3 Performance Requirements: The performance of the adhesive shall be determined in accordance with the test methods listed in ASTM D 4280.

970-3 Qualified Products List (QPL).

Manufacturers seeking approval for a Raised Retro-Reflective Pavement marker or bituminous adhesive shall submit an application, Material Safety Data Sheet (MSDS) and certification in accordance with 6-1. Final acceptance will be based on tests and verification in accordance with this Specification.