Evaluation Table

705 Preformed Polymer Pavement Marking
705 Preformed Pavement Marking - Type I (Permanent, Long-Line)
ADOT Stored Specification: 705PVMRK
Responsible Section: Traffic Group

Material Property	Specification / Test Method	Requirements
Purpose	705PVMRK 705-1(B)	Type I shall be a general purpose high durability retroreflective, pliant, polymer layer for preformed long line and short line striping, symbols, and legends to be used for final permanent pavement markings.
Use	705PVMRK 705-2.01(A)	Type I preformed pavement marking material shall consist of a prefabricated white or yellow layer of specified thickness and width that shall be capable of being affixed to Portland Cement Concrete or non-bleeding bituminous pavements per the manufacturer's requirements, either on the pavement surface or, when specified on the plans, inlaid into a cutout groove.
Durability	705PVMRK 705-2.01(A)	The preformed polymer layer shall be weather resistant and through normal traffic wear shall show no appreciable fading, lifting, loss of skid resistance, or shrinkage or significant tearing, roll back, or other signs of poor adhesion throughout the useful life of the marking.
Thickness	705PVMRK 705-2.01(A)	The polymer layer without adhesive shall be a minimum of 0.065 inch thick
Adhesive Backing	705PVMRK 705-2.01(A)	The polymer layer shall have a precoated, factory-applied pressure sensitive adhesive backing.
Warranty	705PVMRK 705-2.01(A)	All white and yellow Type I pavement markings shall be warrantied by the manufacturer to retain color and adherence to the pavement, and to retain a minimum retroreflectance of 100 millicandelas/m^2/lux for a minimum of two years for symbols, legends, and transverse pavement markings, and six years for longitudinal pavement markings.
Warranty	705PVMRK 705-2.01(A)	The warranty shall state that the manufacturer will provide new material to replace defective Type I markings at no additional cost to the Department.

Material Property	Specification / Test Method	Requirements
Resins and Plasticizers, % by weight, min	705PVMRK 705-2.01(B)	20
Reflective Glass Beads, % by weight, min*	705PVMRK 705-2.01(B)	20*
Color	705PVMRK 705-2.01(C)(1) ASTM D6628	The pigments shall be selected and blended to provide a white or yellow marking layer which conforms to standard highway colors
Bend Test	705PVMRK 705-2.01(C)(2)	The polymer layer shall be sufficiently flexible so that at a temperature of 78 to 82 degrees F an unmounted piece of material (without adhesive and paper backing), 3 by 6 inches in size, may be bent over a 1 inch mandrel until the end faces are parallel and 1 inch apart without showing any fracture lines in the uppermost surface.
Tensile Strength, psi, min	705PVMRK 705-2.01(C)(3) ASTM D638	The polymer layer (without adhesive or paper backing) shall have a minimum tensile strength of 40 pounds per square inch when a specimen 6 inches long by 1 inch wide is tested in accordance with the requirements of ASTM D638. The rate of pull of the test shall be 0.25 of an inch per minute. The test shall be conducted at a temperature between 70 and 80 degrees F. The elongation shall be no greater than 75 percent.
Pull Test	705PVMRK 705-2.01(C)(4)	A 6-inch long by 1-inch wide section of the polymer layer (without adhesive and paper backing) shall support a dead load weight of 4 pounds for not less than five minutes at a temperature between 70 and 80 degrees F.
Abrasion Resistance, grams, max loss in weight	705PVMRK 705-2.01(C)(5) ASTM D4060	The polymer layer shall have a maximum loss in weight of 0.25 grams in 500 revolutions when abraded according to ASTM D4060.
Skid Resistance, BPN, minimum	705PVMRK 705-2.01(C)(6) ASTM E303	The surface of the material shall provide a minimum resistance value of 45 British Pendelum Number (BPN) when tested according to ASTM E303.
Glass Beads, Roundness*	705PVMRK 705-2.06(B)(1) ASTM D1155	A minimum of 75 percent of the beads shall be waterwhite true spheres free from imperfections of all types including air inclusions, film, scratches, clusters, and surface scoring.
Glass Beads, Refractive Index, minimum*	705PVMRK 705-2.06(B)(2) ASTM C1648	1.50 at 25° +/- 5° C

Material Property	Specification / Test Method	Requirements
Glass Beads, Gradation*	705PVMRK 705-2.06(B)(3) AASHTO M 247	Shall conform to AASHTO M 247 Type 1 and Type 3.
Glass Beads, Heavy Metal Composition, ppm*	705PVMRK 705-2.06(B)(4) EPA Method 3052 EPA Method 6010B	Arsenic: < 75 ppm
Glass Beads, Heavy Metal Composition, ppm*	705PVMRK 705-2.06(B)(4) EPA Method 3052 EPA Method 6010B	Antimony: < 75 ppm
Glass Beads, Heavy Metal Composition, ppm*	705PVMRK 705-2.06(B)(4) EPA Method 3052 EPA Method 6010B	Lead: < 100 ppm