

EXPECTED IMPLEMENTATION JULY 2019

971 PAVEMENT MARKING MATERIALS.

(REV 2-8-19) (FA 2-11-19) (7-19)

SUBARTICLE 971-2.2 is deleted and the following substituted:

971-2.2 Specific Properties: The large (Type 3 or larger) glass spheres used for drop on beads shall have an adhesion coating. Type 1 glass spheres used for drop on beads shall have a dual coating. Beads used in the intermix of materials are not required to be coated.

The following physical requirements apply:

Property	Test Method	Specification
Roundness*	AASHTO PP 74	Min: 70 % by weight
Roundness**	AASHTO PP 74	Min: 80% by weight
Refractive Index*	Becke Line Method (25+/-5C)	1.5 minimum
Refractive Index**	Becke Line Method (25+/-5C)	1.9 minimum

*Type 1, 3, 4 and 5 beads
**High Index beads

Sieve Size	Percent by Mass Passing Designated Sieve (AASHTO PP 74)				
	Grading Designation				
	Type 1 (AASHTO)	Type 3 (FP 96)	Type 4 (FP 96)	Type 5 (FP 96)	High Index
No. 8				100	
No. 10			100	95 - 100	
No. 12		100	95 - 100	80 - 95	
No. 14		95 - 100	80 - 95	10 - 40	
No. 16	100	80 - 95	10 - 40	0 - 5	100
No. 18		10 - 40	0 - 5	0 - 2	
No. 20	95 - 100	0 - 5	0 - 2		95 - 100
No. 25		0 - 2			
No. 30	75 - 95				55 - 85
No. 40					15 - 45
No. 50	15 - 35				0 - 5
No. 80					
No. 100	0 - 5				

SUBARTICLE 971-2.4 is deleted and the following substituted:

971-2.4 Containers: The spheres shall be furnished in new 50 pound moisture-proof bags or 2000 pound triwall boxes. All containers shall meet Interstate Commerce Commission requirements for strength and type.

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SUBARTICLE 971-3.2 is deleted and the following substituted:

971-3.2 Composition:

Component	Test Method	Criteria
Total Solids, by weight	ASTM D2369	minimum 75%
Pigments, by weight	ASTM D3723	minimum 57%
Vehicle Solids % of Vehicle*		minimum 40%
TiO ₂ , Type II Rutile (white paint only)	ASTM D476	minimum 1.0 lb/gal
Volatile Organic Content, (VOC)	ASTM D3960	maximum 150 g/L

*Vehicle Solids % of Vehicle = $\frac{(\% \text{ total solids} - \% \text{ pigment})}{(100 - \% \text{ pigment})}$

SUBARTICLE 971-4.2 is deleted and the following substituted:

971-4.2 Composition:

Component	Test Method	Criteria
Total Solids, by weight	ASTM D2369	75% minimum
Pigments, by weight	ASTM D3723	57% minimum
Vehicle Solids, % on Vehicle*		40% minimum
TiO ₂ , Type II Rutile (white paint only)	ASTM D476	1.0 lb/gal minimum
Volatile Organic Content, (VOC)	ASTM D3960	150 g/L maximum

*Vehicle Solids % of Vehicle = $\frac{(\% \text{ total solids} - \% \text{ pigment})}{(100 - \% \text{ pigment})}$
Vehicle solids shall be 100% acrylic emulsion polymer.

SUBARTICLE 971-4.3 is deleted and the following substituted:

971-4.3 Physical Requirements: Test laboratory samples in accordance with ASTM E811 and E1349. Samples shall meet the following criteria:

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Property	Test Method	Minimum	Maximum
Density	ASTM D1475	13.5 ± 1.4 lb/gal	N/A
Viscosity at 77°F	ASTM D562	80 KU	100 KU
Fineness of Grind	ASTM D1210	3(HS)	
Dry Opacity at 5 mils WFT	ASTM D2805	0.92	-
Bleed Ratio	ASTM D969	0.95	-
Flexibility	ASTM D522 Method B	Pass	-
Abrasion Resistance	ASTM D4060	Pass	-

R

SUBARTICLE 971-5.2 is deleted and the following substituted:

971-5.2 Composition:

A

Component	Test Method	White	Yellow
Binder	ASTM D 4797	20% minimum	20% minimum
TiO ₂ , Type II Rutile	ASTM D476	10% minimum	-
Glass Spheres	ASTM D 4797	40% minimum	40% minimum
Yellow Pigment		-	% minimum per manufacturer
Calcium Carbonate and Inert Filler (-200 mesh sieve)		30% maximum	37% maximum

Percentages are by weight.

F

SUBARTICLE 971-9.2 is deleted and the following substituted:

971-9.2 Composition:

T

Component	Test Method	White	Yellow
Binder	ASTM D 4797	20% minimum	20% minimum
TiO ₂ , Type II Rutile	ASTM D476	10% minimum	-
Reflective Elements	ASTM D 4797	% minimum per manufacturer	% minimum per manufacturer
Yellow Pigment		-	% minimum per manufacturer
Calcium Carbonate and Inert Filler (-200 mesh sieve)		% minimum per manufacturer	% minimum per manufacturer

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Component	Test Method	White	Yellow
Note: Percentages are by weight.			

SUBARTICLE 971-10.2 is deleted and the following substituted:

971-10.2 Composition:

Component	Test Method	White
Binder	ASTM D 4797	18% minimum
TiO ₂ , Type II Rutile	ASTM D476	10% minimum
Reflective Elements	ASTM D 4797	30% minimum per manufacturer
Skid Resistant Elements		10% minimum per manufacturer
Note: Percentages are by weight.		