

## Evaluation Table

<b>PEP ID:</b>	<b>XXXXX</b>
<b>Manufacturer:</b>	<b>Name of Manufacturer</b>
<b>Product Name:</b>	<b>Name of Product</b>

1007 – Retroreflective Sheeting  
 1007 Type XI Retroreflective Sheeting  
 ADOT Specification: 1007  
 Additional Requirements: ASTM D4956  
 Responsible Section: Traffic Group

<b>Material Property</b>	<b>Specification/ Test Method</b>	<b>Requirement</b>	<b>Results</b>	<b>Pass / Fail</b>
Coefficient of Retroreflection	ASTM D4956 Section 6.2	Shall meet or exceed the minimum requirements for the appropriate type of sheeting (see table 10 below)		
Daytime Color	ASTM D4956 Section 6.3	Shall conform to requirements of Tables 2 and 11 (see tables below)		
Accelerated Outdoor Weathering Requirements,  Desert Climate	ASTM D4956 Section 6.4  1007-7	Shall be weather resistant and show no appreciable cracking, scaling, pitting, blistering, edge lifting, or curling, or more than 1/32-in. (0.8-mm) shrinkage or expansion		
Colorfastness	ASTM D4956 Section 6.5	After the specified outdoor weathering, the specimen shall conform to the requirements of Tables 2 and 11 (see tables below)		
Shrinkage	ASTM D4956 Section 6.6	Shall not shrink in any dimension more than 1/32" in 10 minutes or 1/8" in 24 hours		
Flexibility	ASTM D4956 Section 6.7	Sheeting shall be sufficiently flexible to show no cracking		
Liner Removal	ASTM D4956 Section 6.8	The liner, when provided, shall be easily removed without soaking in water or other solutions, and shall not break, tear, or remove adhesive from the sheeting		
Adhesion	ASTM D4956 Section 6.9  1007-6*	The adhesive backing of the retroreflective sheeting shall produce a bond that will support a 1 3/4-lb (0.79-kg) weight for adhesive class 1*		

<b>Material Property</b>	<b>Specification/ Test Method</b>	<b>Requirement</b>	<b>Results</b>	<b>Pass / Fail</b>
Impact Resistance	ASTM D4956 Section 6.10	Shall show no cracking or delamination outside of the actual area of impact		
Nighttime Color	ASTM D4956 Section 6.11	shall conform to the requirements of Table 13 (see table below)		

\*Reflective sheeting and film adhesives shall be Class I as specified in ASTM D4956

**Material Property: Minimum Coefficient of Retroreflection (R<sub>A</sub>)**  
**ASTM D4956 Section 6.2 - Table 10**

Observation Angle	Entrance Angle	White	Yellow	Orange	Green	Red	Blue	Purple	Brown
0.20°	-4°	580	435	200	58	87	26	23	17
Results									
0.20°	+30°	220	165	77	22	33	10	8.8	7.0
Results									
0.50°	-4°	420	315	150	42	63	19	17	13
Results									
0.50°	+30°	150	110	53	15	23	7.0	6.0	5.0
Results									
1.00°	-4°	120	90	42	12	18	5.0	4.8	4.0
Results									
1.00°	+30°	45	34	16	5.0	7.0	2.0	1.8	1.0
Results									
<b>Pass / Fail</b>									
Observation Angle	Entrance Angle	Flourescent Yellow-Green		Flourescent Yellow		Flourescent Orange			
0.20°	-4°	460		350		175			
Results									
0.20°	+30°	180		130		66			
Results									
0.50°	-4°	340		250		125			
Results									
0.50°	+30°	120		90		45			
Results									
1.00°	-4°	96		72		36			
Results									
1.00°	+30°	36		27		14			
Results									
<b>Pass / Fail</b>									

**Material Property: Daytime Luminance Factor (Y %)**  
**ASTM D4956 Section 6.3 - Table 2**

Color	White	Yellow	Orange	Green	Red	Blue	Purple	Brown
Minimum	27	15	10	3.0	2.5	1.0	2.0	1.0
Maximum	n/a	45	30	12	15	10	10	9.0
Result								
Pass / Fail								
	Flourescent Yellow-Green		Flourescent Yellow		Flourescent Orange		Flourescent Pink	
Minimum	60		40		20		25	
Maximum	n/a		n/a		n/a		n/a	
Result								
Pass / Fail								

**Material Property: Daytime Color**  
**ASTM D4956 Section 6.3 - Table 11**

Color	Requirement	Results	Pass/Fail*
White	Meets Acceptable Chromaticity Box Boundaries?		
Yellow	Meets Acceptable Chromaticity Box Boundaries?		
Orange	Meets Acceptable Chromaticity Box Boundaries?		
Green*	Meets Acceptable Chromaticity Box Boundaries?		
Red	Meets Acceptable Chromaticity Box Boundaries?		
Blue*	Meets Acceptable Chromaticity Box Boundaries?		
Purple	Meets Acceptable Chromaticity Box Boundaries?		
Brown	Meets Acceptable Chromaticity Box Boundaries?		
Flourescent Yellow-Green	Meets Acceptable Chromaticity Box Boundaries?		
Flourescent Yellow	Meets Acceptable Chromaticity Box Boundaries?		
Flourescent Orange	Meets Acceptable Chromaticity Box Boundaries?		
Flourescent Pink	Meets Acceptable Chromaticity Box Boundaries?		

\* The saturation limit of green and blue may extend to the border of the CIE chromaticity locus for spectral colors.

**Outdoor Weathering Photometric Requirements for All Climates (80% @ 36 months)\***  
**Material Property: Minimum Coefficient of Retroreflection (R<sub>A</sub>)**  
**ASTM D4956 Section 6.4 - Table 12**

Observation Angle	Entrance Angle	White	Yellow	Orange	Green	Red	Blue	Purple	Brown
0.20°	-4°	464	348	160	46.4	69.6	20.8	18.4	13.6
Results									
0.20°	+30°	176	132	61.6	17.6	26.4	8	7.04	5.6
Results									
<b>Pass / Fail</b>									
Observation Angle	Entrance Angle	Flourescent Yellow-Green		Flourescent Yellow		Flourescent Orange			
0.20°	-4°	368		280		140			
Results									
0.20°	+30°	144		104		52.8			
Results									
<b>Pass / Fail</b>									

\*Testing at shorter intervals may be done to gather additional information. When sheeting is specified for construction work zone applications, the outdoor weathering shall be twelve months.

**After Outdoor Weathering - Material Property: Daytime Luminance Factor (Y %)**  
**ASTM D4956 Section 6.5 - Table 2**

Color	White	Yellow	Orange	Green	Red	Blue	Purple	Brown
Minimum	27	15	10	3.0	2.5	1.0	2.0	1.0
Maximum	n/a	45	30	12	15	10	10	9.0
Result								
<b>Pass / Fail</b>								
	Flourescent Yellow-Green		Flourescent Yellow		Flourescent Orange		Flourescent Pink	
Minimum	60		40		20		25	
Maximum	n/a		n/a		n/a		n/a	
Result								
<b>Pass / Fail</b>								

**After Outdoor Weathering - Material Property: Daytime Color**  
**ASTM D4956 Section 6.5 - Table 11**

<b>Color</b>	<b>Requirement</b>	<b>Results</b>	<b>Pass/Fail*</b>
White	Meets Acceptable Chromaticity Box Boundaries?		
Yellow	Meets Acceptable Chromaticity Box Boundaries?		
Orange	Meets Acceptable Chromaticity Box Boundaries?		
Green*	Meets Acceptable Chromaticity Box Boundaries?		
Red	Meets Acceptable Chromaticity Box Boundaries?		
Blue*	Meets Acceptable Chromaticity Box Boundaries?		
Purple	Meets Acceptable Chromaticity Box Boundaries?		
Brown	Meets Acceptable Chromaticity Box Boundaries?		
Fluorescent Yellow-Green	Meets Acceptable Chromaticity Box Boundaries?		
Fluorescent Yellow	Meets Acceptable Chromaticity Box Boundaries?		
Fluorescent Orange	Meets Acceptable Chromaticity Box Boundaries?		
Fluorescent Pink	Meets Acceptable Chromaticity Box Boundaries?		

\* The saturation limit of green and blue may extend to the border of the CIE chromaticity locus for spectral colors.

**Material Property: Nighttime Color**  
**ASTM D4956 Section 6.11 - Table 13**

Color	Requirement	Results	Pass/Fail*
White	Meets Acceptable Chromaticity Box Boundaries?		
Yellow	Meets Acceptable Chromaticity Box Boundaries?		
Orange	Meets Acceptable Chromaticity Box Boundaries?		
Green	Meets Acceptable Chromaticity Box Boundaries?		
Red	Meets Acceptable Chromaticity Box Boundaries?		
Blue	Meets Acceptable Chromaticity Box Boundaries?		
Purple	Meets Acceptable Chromaticity Box Boundaries?		
Brown	Meets Acceptable Chromaticity Box Boundaries?		
Fluorescent Yellow-Green	Meets Acceptable Chromaticity Box Boundaries?		
Fluorescent Yellow	Meets Acceptable Chromaticity Box Boundaries?		
Fluorescent Orange	Meets Acceptable Chromaticity Box Boundaries?		

\* The saturation limit of green and blue may extend to the border of the CIE chromaticity locus for spectral colors.

**Material Property: Weather Testing and Durability Requirements**  
**ADOT Specification 1007-7, 1007-8**

ASTM Sheeting Type	Color	Required Durability Rating, Years	Result Durability Rating, Years	Pass / Fail
XI	Flourescent Yellow	7		
XI	Flourescent Orange	3		