

9940000 RETROREFLECTIVE AND NONREFLECTIVE SHEETING FOR TRAFFIC
CONTROL DEVICES
COMMENTS FROM INDUSTRY REVIEW

Ellen Harelstad
651-736-0166
erharelstad@mmm.com

Comment: (10-13-09)

1. Section 1.2 refers to ASTM type VII and section 3.1 refers to performance requirements of ASTM type VII. Please note that ASTM D4956 has discontinued the use of the designation "type VII" and most recent revision of ASTM D4956 does not contain any Type VII performance requirements. Sheeting materials previously classified as ASTM Type VII have been reclassified as ASTM type VIII. As currently proposed then, "FDOT type VII" would include materials classified as ASTM Type VIII and above in accordance with ASTM D-4956.

2. Section 3.1 - A claim of 70% brightness for screen printed samples is relevant to screening inks and screening practices. The specification would be clarified and less open to interpretation with the insertion of "Coefficients of retroreflection for screenprinted transparent color areas on white sheeting when processed according to manufacturer recommendations, shall not be less than 70% of the value for the corresponding color."

3. Section 3.1.2 and Section 5 make reference to "type VI fluorescent pink and fluorescent yellow", however specification does not include requirements, such as coefficient of retroreflection, for type VI fluorescent yellow.

Response: (11-13-09)

1. We are aware of the ASTM method change and did not consider the change as necessary. However for clarification purposes you are correct. We will make the change.
From the Specifications Office: Change has been made.

2. The Department has not applied a 70% coefficient for screen printed sheeting. We have held these products to the same performance standard as plain sheeting. This change in the specification was a clarification and not a change.
From the Specifications Office: No changes made.

3. Type VI fluorescent yellow parameters are included in the ASTM D4956 method.
From the Specifications Office: No changes made.

Stefanie Maxwell
850-414-4314
stefanie.maxwell@dot.state.fl.us

Comments: (10-19-09)

1. Section 994-3.1: Last sentence. Fungal resistance testing is not required. Why are we no longer requiring this? If it is not fungal resistant, it could impact the retroreflectivity of the sign.

2. Section 994-3.3: Last sentence. At failure, no color shall fade into another ASTM D-4956 defined color's x, y chromaticity coordinates. This seems to be an opposite way of saying that the color should not fall/fade out of the defined color box.

Response: (11-13-09)

1. I concur. The ASTM D4956 method requires that the user must specify if this test is necessary. The sentence should strike out the word "not".

From the Specifications Office: Change has been made.

2. I concur. This should be deleted.

From the Specifications Office: Change has been made.

Bob Dion
386-740-0665
bob_dion@urscorp.com

Comments: (10-26-09)

Please change the subarticle number for Qualified Products List from 994-1.2 to 994-1.3. 994-1.2 is Classifications.

Response:

From the Specifications Office – This has been corrected.

Chris Gaudette
Reflexite Corporation
860-676-7181

Comments: (11-13-09)

- 1) ASTM D4956-09 no longer has a type VII designation. The current draft references performance of the Type VII (special) in accordance with ASTM D4956 type VII except as amended in section 994-1.2, 994-3.1
- 2) For section 994-3.2, the % for changes due to color is not consistent through the geometries in the tables presented. That is to say that the function of color on a retroreflective material can be a percentage of the white materials performance. There may be some differences in tables due to rounding.

If we look at the fluorescent pink table, the % changes of the fluorescent pink material compared to the ASTM type VI white are provided in the table below.

Observation Angle	Entrance Angle	White	FL FI Pink	%
0.2°	-4°	500	160	32.0
0.2°	30°	200	100	50.0
0.50°	-4°	225	100	44.4
0.50°	30°	85	40	47.1

Reflexite would recommend that a consistent % be utilized for each of the geometries within the table. In ASTM, for fluorescent colors, the % of 80, 60, and 30 are utilized for fluorescent yellow-green, fluorescent yellow, and fluorescent orange, respectively.

Reflexite will be proposing to ASTM D4956 the addition of fluorescent pink to each of the tables that specify fluorescent materials. The recommendation will be 36%. The Type VI values will be:

Observation Angle	Entrance Angle	White	Prop. FI Pink	%
0.2°	-4°	500	180	36.0
0.2°	30°	200	72	36.0
0.50°	-4°	225	80	35.6
0.50°	30°	85	30	35.3

- 3) The chromaticity coordinates currently provided for fluorescent pink are those defined by the FHWA Final Rule to 23 CFR part 655, November 2003. However, in July 2008, a NPRM by the FHWA was closed that proposed changes to these coordinates. A final rule has not been issued as of yet. The proposed coordinates are:

	1		2		3		4		5	
Color	x	y	x	y	x	y	x	y	x	y
Fluorescent Pink	0.600	0.340	0.450	0.332	0.430	0.275	0.536	0.644	0.644	0.290

Reflexite believes that these proposed chromaticity coordinates are appropriate for this color and Florida's specification.

Response:

1. Please see comments for Ellen Harlestead.

2. This section of the specification was not part of the changes and will need to be addressed at another time by a technical expert.

From the Specifications Office: No changes made.

3. This is a valid point and should be addressed in the future when the proposed coordinates are adopted.

From the Specifications Office: No changes made.
