

Product Guidance

AVS 8000 EXTRA is Super Fine Grade Prismatic Reflective Sheeting Series is a non-metalized microprismatic reflective sheeting designed for production of reflective durable traffic control sign, work zone devices and delineators that are exposed vertically in service. Applied to properly prepared sign substrates, AVS 8000 EXTRA Super Fine Grade Prismatic Reflective Sheeting provides long-term reflectivity and durability. AVS 8000 EXTRA Series meets the all of the requirements of ASTM D 4956:2013 Type VIII.

1. Color

AVS 8000 EXTRA Series is available in the following colors.

Color	Item code
White	AVS EXTRA 8001
Yellow	AVS EXTRA-8003
Red	AVS EXTRA 8007
Blue	AVS EXTRA 8011
F.Yellow Green	AVS EXTRA 8002

2. Photometrics

Daytime Color(x,y,Y)

AVS 8000 EXTRA Series meets the applicable daytime color requirements for ASTM D4956:2013(Table A).

The four pairs of chromaticity coordinates determine the acceptable color in terms of the CIE 1931 Standard Colorimetric System measured with CIE Standard illuminant D65.

3. Retroreflective Performance

The coefficients of retroreflection(R_A) shall be determined in accordance with ASTM E810, and per ASTM E810 the values of 0° and 90° rotation are averaged to determine the R_A .

The values in Table B are minimum coefficients of retroreflection expressed in candelas per lux per squaremeter ($cd/lux/m^2$).

4. Size and Packing

Roll Size : 122cmX50yd

SQ.M per Roll : 55.7 m^2

Roll Size : 0.92cmX50yd

SQ.M per Roll : 42.044 m^2

Roll Size : 0.76cmX50yd

SQ.M per Roll : 34.732 m^2

Packing : One roll per one carton box

TABLE A. Color Specification Limits (Daytime)

COLOR	1		2		3		4		Daytime Luminance Limit(Y)	
	x	y	x	y	x	y	x	y	Min	Max
White	0.303	0.300	0.368	0.366	0.340	0.393	0.274	0.329	27	-
Yellow	0.498	0.412	0.557	0.442	0.479	0.520	0.438	0.472	15	45
Red	0.648	0.351	0.735	0.265	0.629	0.281	0.565	0.346	2.5	15
Blue	0.140	0.035	0.244	0.210	0.190	0.255	0.065	0.216	1	10
F.Yellow Green	0.387	0.610	0.369	0.546	0.428	0.496	0.460	0.540	60	-

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TABLE B.

 The minimum Coefficient of Retroreflection R_A .

Item	Observation Angles	Entrance Angles	R_A
AVS EXTRA 8001 white	0.2°	-4°	700
		30°	325
	0.5°	-4°	250
		30°	115
AVS EXTRA 8003 yellow	0.2°	-4°	525
		30°	245
	0.5°	-4°	190
		30°	86
AVS EXTRA 8007 red	0.2°	-4°	105
		30°	49
	0.5°	-4°	38
		30°	17
AVS EXTRA 8007 blue	0.2°	-4°	32
		30°	15
	0.5°	-4°	11
		30°	5
AVS EXTRA 8002 F. yellow- green	0.2°	-4°	560
		30°	260
	0.5°	-4°	200
		30°	92

aluminum plate(A5052). Bond 100mm of a 25mm by 250mm specimen to a test panel. Then place exposure at a temperature $23 \pm 2^\circ\text{C}$ and $50 \pm 5\%$ relative humidity for 24 hour prior to testing. Measure 180 degree adhesion peel test using a UTM(Universal testing machine). Test Result – Typical Adhesion Strength is 2.5kg*f.

7. Storage

Store in a cool dry area, preferably at $18^\circ\text{C} \sim 25^\circ\text{C}$ and 30%~50% relative humidity and use within 1 year after date of receipt. Store rolls in their original shipping cartons. Partially used rolls should be returned to their shipping carton. Avoid banding, crating, or stacking signs. Package for shipment in accordance with commercially accepted standards to prevent movement and chafing. Store sign packages indoors on edges. Panels or finished signs must remain dry during shipment and storage. If packaged signs become wet, unpack immediately and allow signs to dry.

8. General Performance Considerations

The performance of AVS 8000 EXTRA Series will depend on a variety of factors, including substrate selection and preparation, compliance with recommended application procedures, geographic area, exposure conditions, and maintenance. Maximum durability of AVS 8000 EXTRA Series can be expected in applications subject to vertical exposure on stationary objects when processed and applied to properly prepared aluminum. The user must determine the suitability of any non-metallic sign backing for its intended use. Sign failures caused by the substrate or improper surface preparation are not the responsibility of REFLOMAX.

- Loss of adhesion due to incompatible or improperly prepared substrate
- Exposure to chemicals, abrasion and other mechanical damage.
- Collisions, vandalism or malicious mischief.

5. Adhesive

AVS 8000 EXTRA Series has a pressure-sensitive adhesive that is recommended for application a temperatures of 18°C or higher..

6. Physical Properties

(Test Method – ASTM D 4956:2013)

The following properties shall conform to the requirements in ASTM D4956.

- 1) Adhesion
- 2) Outdoor weathering
 - Colorfastness
 - Coefficient of retroreflection after exposure
- 3) Shrinkage
- 4) Flexibility
- 5) Liner removal
- 6) Impact resistance
- 7) Nighttime color

In addition, adhesion test data is as follows,

1)

Adhesion 180 degree peel test

Test Method – Apply the sheeting to a test panel, 1.0mm minimum thickness, prepared

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- 1) Technical data can be changed with product improvement. The above data are the average of test results at the normal test condition.
- 2) While the use of reflective material does greatly enhance visibility, no reflective material can assure absolute visibility, particularly in adverse weather conditions.
- 3) AVS 8000 EXTRA is suitable to be attached onto aluminum. Stainless steel is not recommended as a signing substrate.
- 4) Plastics substrates, such as polyolefins, fiberglass, recycled plastic sheets, transparent acrylic / polycarbonate panels, etc., may vary by composition and manufacturing process. Their use as a signing substrate requires cautious consideration. Many plastics may outgas or contain substances that may migrate to the surface of the substrate and effect adhesion.
- 5) A Sign's failure to meet the REFLOMAX Warranty must be solely the result of the Product, manufacturing defects.
REFLOMAX has no obligation under the warranty if a sign failure is caused by the following.
 - Improper fabrication, handling, maintenance or installation.
 - Non-vertical applications where the sign face is more than $\pm 10\%$ from vertical.
 - Failure of sign substrate.