

PRODUCT DATA SHEET

Avery Dennison® V 8000 Reflective Films

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Introduction

Avery Dennison® V-8000 Series High Visibility Reflective Film is engineered to improve the day and night-time visibility of emergency response, utility, and construction fleets. V-8000 Series offers durable, vibrant daytime colors. At night, its bold, high-quality microprismatic retroreflective elements efficiently return light at a wide range of angles. The single solid metallic layer construction simplifies application, and eliminates the requirement for edge sealing.

Description

Facefilm: Vinyl Retroreflective Film with Microprisms
Adhesive: Permanent, pressure sensitive, clear acrylic
Backing paper: 90# imprinted StaFlat

Features

- Single solid metallic layer construction: resists dirt and water penetration, dents and reflectivity loss
- Omnidirectional prisms (unique for Avery Dennison): performs well on simple vehicle curves, facing any direction, creating high uniform brightness at night
- Easy to handle and apply, conforms to simple curves
- Withstands normal vehicle maintenance
- Digitally Printable (V-8000 White only)

Retroreflectivity:

Typical minimum values for the coefficients of retroreflection (R_A)¹ for V-8000 are shown in Table A. The values are shown at 0° orientation².

Table A

Observation Angle	0.2°			0.33°			0.5°			1.0°		
	5°	30°	45°	5°	30°	45°	5°	30°	45°	5°	30°	45°
White	400	200	80	275	175	75	125	100	50	55	35	10
Blue	30	15	5	18	10	5	12	8	4	7	3	2
Green	120	70	40	75	45	30	40	25	15	18	10	4
Red	80	35	10	55	25	8	25	18	8	10	4	2
FL Yellow-Green	425	175	75	250	150	65	115	90	45	50	25	10
FL Orange	175	80	25	100	65	20	50	30	15	20	10	3

¹ R_A = candelas per lux per square meter (cd/lx/m²)

² As a datum for laboratory measurements 0° is identified in the crossweb direction.

Recommendations for use

Medium to long term fleet marking. Application on metal and painted metal as well as on flat, simple curves. This does not include rivets.

Colors

Avery Dennison® V 8000 Reflective Films are available in white, blue, green, red, fluorescent yellow-green and fluorescent orange as standard colors. V-8000 meets the color and minimum luminance requirements for ASTM D4965, HOSDB, RA2 and TSPESC Class B².

Colors and Specification Limits

Avery Dennison V-8000 typical retroreflectivity performance is comparable to the following specifications:

ASTM Type IV	Global
Class 3, RA2	Europe

²Base White and Fluorescent Yellow-Green sheeting only

Conversion

Avery Dennison® V8000 Reflective films can be converted using a wide variety of conversion techniques including steel rule die-cutting, thermal die-cutting, flatbed Sign-cut or Drum Roller sign-cut. It can be Screen and inkjet printed (Latex, Mild/Eco solvent or UV)³. Always test suitability of V8000 prior to use. The digitally printed films are recommended to be protected using an overlamine (see Technical Bulletin 5.3). For application and care instructions, please refer to Technical Bulletin 6.9.

³V-8000 White only

Physical and Chemical Properties

Physical properties

Features	Test method ¹	Results
Caliper, laminate		533 – 660 µm
Dimensional stability	ASTM D4956	0.8 mm. max
Shelf life	Stored at 23°C/50% RH	1 year from the date of purchase
Outdoor Durability ² , unprinted white, blue, green, red	Vertical exposure only	up to 7 years
Fl. Yellow-green, Fl. Orange	Vertical exposure only	up to 5 years

Temperature range

Features	Results
Application temperature	Minimum: +16°C
Service temperature	-23° to +65° C

Solvent resistance

When properly processed and applied the film is resistant to most common solvents. When tested according LS-300C, Section 3.6.2, after immersion in the following solvents for the specified length of time, the film shows no deterioration.

Kerosene and Turpentine: 10 minutes, Toluene, Xylene and Methyl alcohol: 1 minute.

NOTE: Materials have to be properly dried before further processing, for example laminating, varnishing or application. The residual solvents could change the products' specific features. For good print and converting result we recommend to let the rolls acclimatize in the print/lamination room at least 24h before printing or converting. Too much temperature or humidity deviation between material and room climate can cause layflatness and/or printability issues. Generally, constant material storage conditions of ideally 20°C (+/-2°C) /50% RH (+/- 5%), without too big climate deviations, will support a more robust and stable printing/converting process.

Important

Information on physical and chemical characteristics is based upon tests we believe to be reliable. The values listed herein are typical values and are not for use in specifications. They are intended only as a source of information and are given without guarantee and do not constitute a warranty. Purchasers should independently determine, prior to use, the suitability of this material to their specific use.

All technical data are subject to change. In case of any ambiguities or differences between the English and foreign versions of these Conditions, the English version shall be controlling.

Warranty

Avery Dennison® branded materials are manufactured under careful quality control and are warranted to be free from defect in material and workmanship. Any material shown to our satisfaction to be defective at the time of sale will be replaced without charge. Our aggregate liability to the purchaser shall in no circumstances exceed the cost of the defective materials supplied. No salesman, representative or agent is authorised to give any guarantee, warranty, or make any representation contrary to the foregoing.

All Avery Dennison® branded materials are sold subject to the above conditions, being part of our standard conditions of sale, a copy of which is available on request.

1) Test methods

More information about our test methods can be found on our website.

2)Durability

The durability is based on middle European exposure conditions. The durability of fluorescent yellow-green and fluorescent orange is based on northern Europe performance. Actual performance life will depend on substrate preparation, exposure conditions and maintenance of the marking. For instance, in the case of signs facing south; in areas of long high temperature exposure such as southern European countries; in industrially polluted areas or high altitudes, exterior performance will be decreased