Avery Dennison® V-4000 Premium Reflective
Permanent StaFlat™

Features

- Glass bead retro reflective film provides excellent night time visibility
- High gloss for superior appearance
- Available in six colours White, Black, Yellow, Blue, Red and Orange
- Excellent conformability to moderate 3D shapes and rivets for fleet applications
- Long term durability and outdoor performance
- Excellent dimensional stability during use
- Good UV, temperature, humidity and salt-spray resistance
- Meets ASTM D4956-13 Standard Specification for Retro reflective Sheeting for Traffic Control

Description

Film: 143 micron high gloss retro reflective cast vinyl

Adhesive: Permanent clear acrylic

Liner: Two side PE coated StaFlat™ paper, 145g/m2

Outdoor life: Up to 7 years (Vertical exposure only)

Conversion

- ☐ Flat bed cutters
- ☑ Friction fed cutters
- ☑ **Die cutting**
- ☑ **Thermal transfer**
- ☑ **Screen printing***
- ☐ Cold overlaminating
- ☑ **Latex inkjet^**
- ☑ **Eco Solvent Inkjet^**
- ☑ **Solvent inkjet^**
- ☑ **UV Cured inkjet^**

Common Applications

- Emergency vehicle safety markings
- High visibility fleet branding
- Mining and industrial safety signage
- General safety signage
- Architectural and way finding

* For flat surfaces only, except for qualified flexible inks
^White film only for digital printing

Application

- Flat, simple and moderate compound curves and 3D shapes
- Avery Dennison recommends a maximum total ink limit of 270% to ensure optimal performance
- Dry application only. Do not use water and detergent or a commercial application fluid to position the graphic
- Refer to Instructional Bulletins 1.14, 1.15, 1.16, 1.17, 4.14 and 5.04 for further instructions

Uses

Avery Dennison V-4000 Premium Reflective Permanent StaFlat™ is ideal for a wide range of fleet, emergency service vehicles and general signage applications where engineer grade reflectivity, long term durability and good conformability with a high gloss finish are required.

Physical characteristics

General

Calliper, face film	ISO 534	143 micron
Calliper, face film & adhesive	ISO 534	179 micron
Dimensional stability		0.4 mm max
Tensile strength	DIN 53455	1.25-1.6kg/cm
Elongation	DIN 53455	70% min
Gloss	Hunter Gloss @ 60°	90%
Reflectivity	Meets ASTM D4956-13 Specification for Retro reflective Sheeting for Traffic Control Class 3 (70 cpl minimum reflectivity for white)	
Typical Coefficient of Retro-Reflectivity	White	100
	Yellow	75
	Orange	25
	Black	16
	Red	15
	Blue	6
Adhesion, 15 mins	FINAT FTM-1, Stainless steel	604 N/m
Adhesion, 24 hr	FINAT FTM-1, Stainless steel	665 N/m
Adhesion, 1 week	FINAT FTM-1, Stainless steel	802 N/m
Flammability		Self extinguishing
Shelf life	Stored at 22° C/50-55 % RH	2 years
Expected Durability **	Vertical exposure only	Up to 7 years (unprinted)

Thermal

Application temperature	Minimum: + 10°C
Chemical resistance	Resistant to most mild acids, alkalis, and salt solutions
Temperature range	- 40°C to + 80°C

Important

Information on physical 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 any material for their specific use.

All technical data is subject to change without prior notice.

Warranty

Avery Dennison® 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 guarantee, warranty, or make any representation contrary to the foregoing.

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

****Expected Durability**
The expected durability of Avery Dennison films are defined as the expected performance life of the Avery Dennison graphic film(s) within Zone 1 of the Avery Dennison zone system, in outdoor vertical exposure conditions.
The actual performance life will depend on a variety of factors, including selection and preparation of substrate, angle and direction of exposure, application methods, environmental conditions and cleaning/maintenance of the films. In case of films used in areas of high temperatures or humidity, high altitudes and industrially polluted areas the performance will be further reduced.

Expected Durability and Warranted Period Definitions
Expected durability is the expected period of time defined in the product data sheet, the product should, but is not warranted to, perform satisfactorily when applied in vertical exposure conditions as defined in Instructional Bulletin 1.30. The warranted period as defined in the appropriate ICS Performance Guarantee Bulletin, is the maximum period of time Avery Dennison will warrant the finished products performance in accordance with ICS Performance Guarantee Terms and Conditions 1.0, provided that the film is properly stored, converted and installed in accordance with Avery Dennison guidelines.

⁺Compatible with most printer and ink combinations. Test prior to use.

Test Methods

Dimensional stability:
Is measured on a 150 x 150 mm aluminium panel to which a specimen has been applied; 72 hours after application the panel is exposed for 48 hours to + 70°C, after which the shrinkage is measured.

Adhesion:
(FTM-1, FINAT) is measured by peeling a specimen at a 180° angle from a stainless steel or float glass panel, 24 hours after the specimen has been applied under standardised conditions. Initial adhesion is measured 20 minutes after application of the specimen.

Flammability:
A specimen applied to aluminium is subjected to the flame of a gas burner for 15 seconds. The film should stop burning within 15 seconds after removal from the flame.

Temperature range:
A specimen applied to stainless steel is exposed at high and low temperatures and brought back to room temperature. 1 hour after exposure the specimen is examined for any deterioration. Note: Prolonged exposure to high and low temperatures in the presence of chemicals such as solvents, acids, dyes, etc. may eventually cause deterioration.

Chemical Resistance:
All chemical tests are conducted with test panels to which a specimen has been applied. 72 hours after application the panels are immersed in the test fluid for the given test period. 1 hour after removing the panel from the fluid, the specimen is examined for any deterioration.

Corrosion Resistance:
A specimen applied to aluminium is exposed to saline mist (5% salt) at 35°C. After exposure, the film is removed and the panel is examined for traces of corrosion.