

Avery Dennison® WC-4100 Series

Retroreflective Cone Collar Sheeting

ISSUED: March 2019

Overview

Avery Dennison® WC-4100 Series Cone Collar sheeting, is a high-quality, durable, elastomeric microprismatic retroreflective sheeting designed for traffic cones. Microprismatic construction provides a high level of retroreflectivity and durability for demanding traffic control conditions.

- Meets ASTM D4956 Type IV Sheeting Specifications
- 3-years vertical exposure design life
- Excellent color fastness and retroreflective stability
- Uniform daytime and nighttime visual appearance
- Omnidirectionality provides consistent performance when mounted in different orientations

Product Availability

Product Code	Color
WC-4100	White
WC-4113	FL Yellow-Green

Performance

WC-4100 Series Cone Collar sheeting will meet Retroreflectivity, Daytime and Nighttime color specifications in accordance with ASTM D4956 Type IV.

Table 1. Coefficient of Retroreflection (R_A)*

Observation Angle	Entrance Angle	White	Fluorescent Yellow-Green
0.2°	-4	360	290
0.2°	30	170	135
0.5°	-4	150	120
0.5°	30	72	55

*Minimum Coefficient of Retroreflection (R_A) $\text{cd}/\text{fc}/\text{ft}^2$ ($\text{cd}\cdot\text{lx}^{-1}\cdot\text{m}^{-2}$)



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Table 2. Color (Daytime)

Color	Chromaticity Coordinates								Luminance Factor (Y%)	
	1		2		3		4		Min.	Max.
	x	y	x	y	x	y	x	y		
White	0.303	0.300	0.368	0.366	0.340	0.393	0.274	0.329	27	
Fl Yellow-Green	0.387	0.610	0.369	0.546	0.428	0.496	0.460	0.540	60	-

Table 3. Color (Nighttime)

Color	Chromaticity Coordinates							
	1		2		3		4	
	x	y	x	y	x	y	x	y
White	0.475	0.452	0.360	0.415	0.392	0.370	0.515	0.409
Fl Yellow-Green	0.480	0.520	0.473	0.490	0.523	0.440	0.550	0.449

Attributes

Property	Value
Shelf-life	1 year from date of purchase when stored at the following conditions; 65°–75°F (18°–24°C) 50% ± 5% R.H.
Typical film Caliper	28 – 30 mils (711– 762 µm)
Min. Application Temperature	65° F (18° C)
Service Temperature	-10°F to +150°F (-23°C to + 65°C)
Screen Printing	Long term durability of screen printing in combination with WC-4100 is warranted when used with approved inks and overlays.

Converting & Handling Information

Screen printing is the recommended method for adding messaging if needed. Printing of WC-4100 Series sheeting shall be with approved inks, Nazdar UVTS and Coates Z-PVC.

Please refer to Instructional Bulletins which detail proper handling, storage, and converting of Avery Dennison retroreflective films, overlays, inks, and application tapes. Instructional Bulletins may be found in the Customer Tools section of our website by clicking [here](#). We encourage you to check periodically for updates.



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Definitions

Durability

“Durability” means that the Product in a finished graphic, panel or sign situated outdoors, subject to the limitations herein and Avery Dennison Product Data Sheets and Instructional Bulletins, and applied to recommended surfaces, will not deteriorate excessively such that the finished sign, panel or graphic is ineffective for its identification when viewed under normal conditions from the intended viewing distance.

Outdoor Durability

“Outdoor durability” is based on normal middle European and central North American outdoor exposure conditions and application to recommended surfaces. Actual performance life will depend on a variety of factors, including but not limited to substrate preparation, exposure conditions and maintenance of the Product and finished graphic, panel or sign. In case the finished graphics, panel or sign is in areas of high temperatures or humidity, in industrially polluted areas or other areas with air laden particulate matter, and/or in high altitudes, Outdoor Durability may be reduced. Please see your local Avery Dennison representative for changes to warranties based on such localized conditions.

Vertical Exposure

“Vertical exposure” means that the face of the finished graphic is $\pm 10^\circ$ from vertical.

Non-vertical Exposure

“Non-vertical exposure” means that the face of the finished graphic is greater than 10° from vertical and greater than 5° from horizontal. Retroreflective films are not warranted for this exposure.

Flat Surfaces

“Flat surfaces” means a two dimensional flat surface without protruding objects.

Weathering Effects

Some degradation of Product performance over time is considered normal wear. Slight color fading, chalking, edge lifting, or slight reduction in gloss or reflectivity due to normal wear exposure and other natural weathering, environmental or other conditions or damage caused by tornadoes, hurricanes, wind, excessive ice buildup or extraordinary frozen particulate conditions, large hailstones or other acts of God, do not constitute a breach of warranty or give rise to any liability by Avery Dennison.

Printing, Curing, and Ink Defects

Ink contaminations, failures or other defects, or other failures due to improper printing conditions or settings including, but not limited to, unsuitable color calibration, incorrect ICC color profile or incompatible printing, do not constitute a breach of warranty. Product failure caused by ink over-saturation, excessive or under curing, failure of ink to render desired colors on Product, or other treatment or processing errors are not warranted.

Warranty Information

Avery Dennison WC-4100 Series roll-up retroreflective sheeting (“Product(s)”) are warranted to be free from defects in material and workmanship for one (1) year from date of purchase (or the period stated on the specific product information literature in effect at time of delivery, if longer). It is expressly agreed and understood that Avery Dennison's sole obligation and Purchaser's exclusive remedy under this warranty, under any other warranty, express or implied, or otherwise, shall be limited to repair or replacement of defective Product without charge at Avery Dennison's plant or at the location of Product (at Avery Dennison's election), or in the event replacement or repairs is not commercially practical, to Avery Dennison's issuing Purchaser a credit reasonable in light of the defect in the Product.

Conditions



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This warranty shall be effective only if all of the following conditions are met:

Fabrication and/or installation must occur within one (1) year from the date of purchase.

The failure must have resulted solely from a manufacturing defect or deterioration of the Product due to natural causes under the Performance Warranty. Without limiting the generality of the foregoing, there is no warranty for the failure of the sheeting due to improper sign fabrication, storage, handling, installation, maintenance, failure of the sign substrate, vandalism or mischief. Slight color fading, cracking, chalking, edge lifting, or slight reduction in gloss or reflectivity will not materially detract from appearance and does not constitute a breach of warranty.

Avery Dennison has published instructional bulletins pertaining to the storage, handling, and cleaning of Product, approved substrates, and application procedures (collectively, the "Procedures"). The Product must have been processed and applied to blank, clean material in accordance with the Procedures, as such may be amended from time to time. Avery Dennison reserves the right to reject any warranty claim where the fabricator or installer cannot satisfactorily prove or demonstrate that the Avery Dennison procedures were utilized. The date of installation, warranty registration, and claim procedures established by Avery Dennison must be followed, and failure to follow such procedures shall void this warranty. Replacement Product carries only the unexpired warranty portion of the Product it replaces. The Product must be properly stored and applied within the shelf-life as stated in the applicable Avery Dennison Product Data Sheet including adhesive and other material product data sheets.

Additional Limitations

Unintended Use

This warranty only applies to Product that is used by professional converters and installers for the defined end uses and in the combinations described in the applicable Avery Dennison Product Data Sheets and Instructional Bulletins. For any other use, the user is responsible for determining the suitability of the Product, and for any and all risk or liability associated with that use or application, and the user agrees to indemnify, defend and hold harmless Avery Dennison for any claims, losses, damages, judgments, expenses and/or expenses, including attorneys fees, resulting from such use or application. This warranty is expressly conditioned on the Product being processed by professional converters or installers in accordance with the Avery Dennison recommended written processing instructions, and being applied to properly prepared surfaces and cleaned and maintained in accordance with recommended Avery Dennison procedures. It is the converters, installers or other users responsibility to perform incoming raw material quality inspections, to assure proper surface preparation and that approved application procedures are followed, to retain converted samples, and to immediately cease using and notify Avery Dennison and/or its authorized agent or distributor of any Product, Materials and/or finished Product discovered to be (or reasonably capable of being discovered to be) defective.

Misuse and Force Majeure

Avery Dennison has no obligations or liability under this warranty with respect to Product that has been altered, modified, damaged, misused, abused, subject to accident, neglected or otherwise mishandled or improperly processed or installed. Product is not warranted against premature failure caused by chemical, environmental or mechanical means such as, but not limited to, vandalism, cleaning solutions, paints, solvents, moisture, temperature, mechanical washing equipment, engine fuel spills, engine exhaust, steam, organic solvents or other spilled chemicals pollutants, including industrial and volcanic ash. Damage from fire, structural failure, lightning, accidents, and other force majeure events are not covered by this warranty.

Third Party Product

Avery Dennison assumes no responsibility for any injury, loss or damage arising out of the use of a product that is not of our manufacture. Where installer or converter uses or reference is made to a commercially available product, made by another manufacturer, it shall be the responsibility of the user, installer or converter to ascertain the precautionary measures for its use outlined by the manufacturer.

The remedies provided under this warranty are exclusive. In no event shall Avery Dennison be responsible for any direct, indirect, incidental or consequential damages or specific relief whether foreseeable or not, caused by defects in such Product, whether such damage occurs or is discovered before or after replacement or credit, and whether or not such damage is caused by Avery Dennison's negligence. In no event shall Avery Dennison's liability hereunder exceed the remedies specifically set forth in this warranty. Avery Dennison's liability shall be limited, at Avery Dennison's option, to the purchase price, replacement of the defective Product and in some cases when authorized by Avery Dennison the repair and replacement of the defective Product.



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THIS WARRANTY IS GIVEN IN LIEU OF ALL OTHERS. ANY AND ALL OTHER WARRANTIES, WHETHER EXPRESS OR IMPLIED, INCLUDING IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ARE HEREBY DISCLAIMED. NO WAIVER, ALTERATION, ADDITION OR MODIFICATION OF THE FOREGOING CONDITIONS SHALL BE VALID UNLESS MADE IN WRITING AND MANUALLY SIGNED BY AN OFFICER OF AVERY DENNISON.

Disclaimer

Independent Testing Required

All statements, technical information and recommendations about Avery Dennison products are based upon tests and information believed to be reliable but do not constitute a guarantee or warranty of any kind. All Avery Dennison products are sold with the understanding that Purchaser has independently determined the suitability of such products for its intended and other purposes.

If any court of competent jurisdiction or relevant government agency holds any provision of this warranty and limitation of liability to be illegal, void, invalid or unenforceable, whether in terms of any competition, legislation or otherwise, such provision shall be deleted and severable from this warranty and limitation of liability but deletion shall not affect the validity or enforceability of any other provisions hereof.

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