

# Avery Dennison® OmniCube™ T-11500 Prismatic Reflective Film

Issued: 05/01/2010

Updated: 05/03/2010

## Uses:

Avery Dennison® OmniCube™ takes full-cube reflective sheeting to a new level. OmniCube full-cube prisms are nearly 100% efficient – returning approximately 60% of the available light back to the driver compared to only about 40% with other prismatic reflective sheetings.

OmniCube's Intelligent Cube Technology incorporates the needs of all vehicle types; trucks, SUVs, automobiles, and motorcycles into one reflective sheeting.

OmniCube is the only Omni Directional full-cube sheeting, that incorporates multiple tiles of prisms arranged to provide uniform reflectivity at any sign face orientation. This feature – “Smart at Every Angle” benefits agencies by providing confidence that all

signs will perform within uniform specified performance. Plotter-cut sign legend can also be efficiently nested, lowering sign fabrication costs by maximizing material yields, and increasing productivity.



**Face:** High Gloss Acrylic Reflective Film



**Adhesive:** Permanent Acrylic based polymer



**Liner:** Polypropylene Film



**Durability:** Up to 12 years Vertical exposure only

**Application Surfaces:**

Aluminum Flat surfaces only<sup>1</sup>

## Features:

- Designed for most drivers of trucks, SUVs, automobiles, and motorcycles
- Omni Directional – substantially no restrictions on reflective performance in almost any orientation on the sign face
- Meets or exceeds ASTM D4956-09 for Sheeting Type XI, Class 1 Backing
- Proven long term Avery Dennison prismatic product durability
- Screen printable

## Conversion:

- |  |   |  |
|--|---|--|
| <input type="checkbox"/> Thermal Die-Cutting               | <input checked="" type="checkbox"/> Screen Printing                   | <input checked="" type="checkbox"/> UV inkjet <sup>2</sup> |
| <input checked="" type="checkbox"/> Flat Bed Sign-Cut      | <input type="checkbox"/> Cold Overlaminating                          |  |
| <input checked="" type="checkbox"/> Drum Roller Sign-Cut   | <input type="checkbox"/> Water based inkjet                           |  |
| <input checked="" type="checkbox"/> Steel Rule Die-Cutting | <input checked="" type="checkbox"/> Solvent based inkjet <sup>2</sup> |  |
| <input checked="" type="checkbox"/> Thermal Transfer       | <input type="checkbox"/> Mild/Eco Solvent inkjet                      |  |

## Common Applications :( vertical only)

- |  |  |
|--|--|
| <input checked="" type="checkbox"/> Indoor Signage | <input checked="" type="checkbox"/> Outdoor Regulatory Signage |
|--|--|

## Product Data Sheet

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# Avery Dennison<sup>®</sup> OmniCube<sup>™</sup> T-11500 Prismatic Reflective Film

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## Product Data Sheet

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Graphics & Reflective Products Division  
250 Chester Street  
Painesville, OH 44077



[www.reflectives.averydennison.com](http://www.reflectives.averydennison.com)



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## Photometric Performance:

OmniCube exceeds all requirements as defined in ASTM D4956 -09 for Type XI sheeting.

Minimum Coefficient of Retroreflection ( $R_A$ ) (cd / lx / m<sup>2</sup>)

Observation Angle	Entrance Angle	White	Yellow	Blue	Green	Red	Fluorescent Yellow	Fluorescent Yellow-Green
0.2	-4	580	435	26	58	87	350	460
0.2	30	220	165	10	22	33	130	180
0.5	-4	420	315	19	42	63	250	340
0.5	30	150	110	7.0	15	23	90	120
1.0	-4	120	90	5.0	12	18	72	96
1.0	30	45	34	2.0	5.0	7.0	27	36

*Note:* 0.1° Observation angle is a "Supplemental Requirement" in ASTM D-4956. It represents long highway viewing distances of about 275 Meters (900 ft.) and greater.

Colors & Specification Limits (Daytime)<sup>A</sup>:

Color	1		2		3		4		Luminance (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
Blue <sup>B</sup>	0.140	0.035	0.244	0.210	0.190	0.255	0.065	0.216	1.0	10
Green <sup>B</sup>	0.026	0.399	0.166	0.364	0.286	0.446	0.207	0.771	3.0	12
Red	0.648	0.351	0.735	0.265	0.629	0.281	0.565	0.346	2.5	15
Fluorescent Yellow	0.479	0.520	0.446	0.483	0.512	0.421	0.557	0.442	40	--
Fluorescent Yellow-Green	0.387	0.610	0.369	0.546	0.428	0.496	0.460	0.540	60	--

<sup>A</sup>The four pairs of chromaticity coordinates determine the acceptable color in terms of the CIE 1931 Standard Colorimetric System measured with Standard Illuminant D65.

<sup>B</sup>The saturation limit of green and blue may extend to the border of the CIE chromaticity locus for spectral colors

## Other Specifications:

OmniCube Series sheetings meets and exceeds the requirements of ASTM D 4956 for several sheeting types. Consult your Avery Dennison Representative for information concerning additional world-wide specifications.

## Application & Converting Information:

OmniCube is available in 50 yard rolls of 12, 24, 30, 36, and 48 inch widths.

The following Avery Dennison literature will provide complete information to the user for proper application, storage, and other requirements and is available from your Avery Dennison representative, from the Avery Dennison website, [www.reflectives.averydennison.com](http://www.reflectives.averydennison.com), or on request.

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## Approved screen printing inks and overlays:

Supplier	Series	System	Instructional Bulletins
Avery Dennison	4930 Inks	1 Part Solvent	#8.40
Avery Dennison	UVTS Nazdar	UV	#8.33
Avery Dennison	OL-2000	Acrylic Overlay	

## Sign Mounting /Orientation:

OmniCube is Omni-Directional. It does not require a special orientation for mounting, and therefore, does not require an orientation arrow datum mark.

Instructional Bulletins:	
Sheeting Care & Handling	#8.00
Substrate Requirements	#8.01
Application Techniques for PS Sheeting	#8.10
Steel Rule Die-Cutting	#8.20
Thermal Die Cutting	#8.20
Sign Cutting	#8.25
Screen Preparation	#8.30
Troubleshooting Printing & Processing	#8.34
Proper Sign Storage Booklet	#8.50

Color Availability:	
T-11500	White
T-11501	Yellow
T-11505	Blue
T-11507	Green
T-11508	Red
T-11511	Fluorescent Yellow
T-11513	Fluorescent Yellow-Green

## Defects Coverage:

- Manufacturing & Workmanship Defects.** A failure of the Product to materially conform to the written specifications for the Product as described in the applicable Avery Dennison Product Data Sheet.
- Printing and Ink Defects.** Artifacts or misprints that occur when printing on specified Avery Dennison Product due solely to a defect in the Product in manufacturing or workmanship.
- Cutting Defects.** A failure of clean cutting and weeding characteristics when cut as recommended in the applicable Avery Dennison Product Data Sheet and Instructional Bulletins, due solely to a defect in the Product in manufacturing or workmanship.
- Finished Graphic Appearance Defects.** Defects, not including those attributed to the ink, such as excessive fading, discoloration, cracking, crazing, blistering, gloss changes, excessive dimensional change or loss of adhesion or reflectivity that makes the graphic visually unsuitable for its intended purpose when viewed with the intended lighting, angle and distance for such a graphic, as determined by customary industry standards.

## Warranty Limitations:

The Product must be properly stored and applied within the shelf-life as stated in the applicable Avery Dennison Product Data Sheet.

- Unintended Use.** This warranty only applies to Product that is used by professional converters 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 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 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 graphic discovered to be (or reasonably capable of being discovered to be) defective.

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- **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. 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. Damage from fire, structural failure, lightning, and other force majeure events are not covered by this warranty.
- **Weathering Effects.** Some degradation of materials and graphics over time is considered normal wear. Slight color fading, chalking, edge lifting, "tenting" around rivets, or slight or gradual reduction in gloss (for cast and calendered films) or reflectivity (for retro-reflective films), and other natural weathering, environmental or other conditions or damage caused by tornadoes, hurricanes, wind or other acts of God, do not constitute a breach of warranty.
- **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, or other treatment or processing errors are not warranted.
- **Adhesion to Application Surfaces.** This warranty does not cover the Product if the application surface is not properly prepared; nor does the warranty cover the Product or damage to the substrate because the layers of the substrate separate due to a lower bond between those layers than the bond between the Product and the top layer of the substrate, or surfaces which subsequently crack, peel, outgas, or become damaged beneath the Product.

## Definitions:

- **"Adhesion"** (FTM-1, FINAT) is measured by peeling a specimen at a 180° angle from a stainless steel panel, 24 hours after the specimen has been applied under standardized conditions. Initial adhesion is measured 15 minutes after application of the specimen.
- **"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.
- **"Outdoor Durability"** means that the Product in a finished graphic 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 graphic is ineffective for its advertising or identification purpose(s) when viewed under normal conditions from the intended viewing distance, due solely to a defect in the Product in manufacturing or workmanship. 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. In case of finished graphics 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 will be reduced and the warranty period will be decreased accordingly.
- **"Vertical Exposure"** means that the face of the finished graphic is  $\pm 10^\circ$  from vertical. Please consult the Avery Dennison [Instructional Bulletin #1.30](#) Durability of Avery® Graphics Films for full details.
- **"Non-Vertical Exposure"** means that the face of the finished graphic is greater than 10° from vertical and greater than 5° from horizontal. Reflective films are not warranted for this exposure.
- **"Horizontal Exposure"** means the face of the finished graphic is 85° to 90° from vertical. Reflective films are not warranted for this exposure.
- **"Flat surfaces"** means a two dimensional flat surface without protruding objects.

*Revisions are italicized*

Avery Dennison is a registered trademark of Avery Dennison Corp.

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