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Approved by J. S.

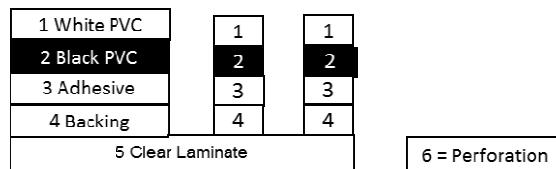
Product

IMAGIn® WindowVIEW™
WV159 50/50 Perforated one-way Visibility Film

Product Description

WV159 is an 8-mil soft white vinyl film with black reverse side and 50% perforated with a 1.5 mm hole diameter for **one-way visibility**. The product is coated on one side with a semi-permanent, clear, acrylic pressure sensitive adhesive and supplied with a 7-mil film release liner with a clear back laminate. WV159 is designed for solvent based, ink jet printing for window graphics viewed from one side and "see-through" from the other side.

Product Construction:



External Applications: Window graphics applied onto flat glass surfaces showing advertising on one side and allowing "see-through" from the other. WV159 can also be used in conjunction with opaque marking films for vehicle and public transportation advertising. Application is not guaranteed when heaters on rear windows are in operation. The use of rear wipers is also not recommended. To make full use of the advertising, it is recommended the inside lighting of the vehicle to be dimmer than the lighting on the outside of the vehicle, especially at night. WV159 can also be used to reduce heat and glare from the sun inside vehicles and glass buildings.

Internal Applications: Because of its one-way visibility, WV159 can be used for surveillance purposes in shops, department store, stock rooms, etc., etc.

Warning: Application of vinyl film that renders emergency exit windows inoperative is prohibited under National Traffic and Motor Vehicle Safety Act of 1966 (recodified at Title 49 U.S.C.)

The application of vinyl film over the emergency exit window seals will not permit the emergency exits to function as intended. This creates a safety hazard. In order to permit the exits to function, it is necessary to trim properly around the emergency exit seals. Often, the window seals do not coincide with the window frame edge.

If a manufacturer, distributor, dealer or motor vehicle repair business renders an item of safety equipment inoperative, they are subject to civil penalties outlined in 49 U.S.C. § 30165 (a penalty of not more than \$5,000 for each violation, maximum penalty under this subsection for a related series of violations is \$15,000,000).

Physical Properties

Property	Typical Values	Test Method
Peel Adhesion, lb./in. (N/25mm) 180° on Glass	0.23 - 1.1 (1 - 5)	FTM - 1
Quick Tack, lb./in² (N/25mm) Glass	0.6 - 1.7 (2.5 - 7.5)	FTM - 9
Dimensional Stability, % 48 hours @ 158°F	max 0.2	FTM - 14 10" x 10" Sample Bonded to aluminum
Temperature Range Minimum Application: End Use:	50°F (+10°C) 0°F to 140°F (-15°C to 60°C)	

- *Values given are typical for unprocessed product and are not for use as specifications. Processing may change the values.*

Durability

The outdoor durability of the unprinted film is 3 years. However, actual durability of the printed graphic is dependent on the inks and overlaminates used. Some adverse reactions may occur when applying WV159 to certain substrates such as acrylic glass, polycarbonate, polystyrene, plasticized PVC and certain paints. These reactions have a negative effect on the adhesive performance.

Glass Breakage

MACtac accepts no liability for glass breakage due to temperature differences across the glass which can be caused by sunlight on dark areas of the graphic. Size, thickness, quality of cut, edge treatment, tinting and frame design all effect temperature stress.

Shelf Life

1 year from D.O.M. when stored at 60/77°F (15/25°C) and 50% relative humidity in the original package.

Approved Print Materials

Screen Printing:	HP Indigo
UV Cured	<input type="checkbox"/>
Solvent	<input type="checkbox"/>
Digital: UV Inkjet	Off-set
Eco-solvent	<input type="checkbox"/>
True solvent	<input checked="" type="checkbox"/>
Latex	<input type="checkbox"/>
	Off-set UV
	<input type="checkbox"/>
	Thermal Transfer
	<input type="checkbox"/>
	Flexographic *
	<input type="checkbox"/>
	Laser
	<input type="checkbox"/>
	Jetron
	<input type="checkbox"/>

To achieve the best possible print quality, please make sure that the correct ICC profiles or printer settings are used. Profiles can be obtained from our Distributors or can be downloaded from www.mactac.com. Printer and heater settings and ICC profiles can also be downloaded from some O.E.M. or software manufacturer's websites.

The ICC profiles are provided solely as a customer resource. Print environments, the individual nature of printing systems, inks and software can significantly affect output. It is the customer's responsibility to determine the suitability of any profile for use in their specific print environment.

Limitations

- 1) The user is responsible for determining the product's suitability, including adhesion and if needed, removal characteristics when used in applications other than listed specifically in this Performance Guide.
- 2) If there are any questions about applications, please contact your Mactac sales representative to discuss your requirements for recommendations.
- 3) If this is a printed Performance Guide it is an uncontrolled document. Please check the Mactac website for the latest, most up-to-date version

Recommendations

Always test your combination of products, print media, inks and laminating films prior to commercial use.

- a) **Printing Conditions:** Print in conditioned pressroom at $\pm 73^{\circ}\text{F}$ (23°C) and 50% RH. The maximum allowable ink saturation is 270%.
- b) **Drying Requirements:** Solvent, Eco-solvent and Mild-solvent inkjet prints require 24 - 48 hr. drying time - open to the air. Inks do not dry when printed media is rolled up. The prints must be dry prior to lamination.
- c) **Laminating Conditions:** If the printed graphic is likely to be exposed to corrosive liquids, smoke, fumes, highly polluted areas or there is a likelihood of scratching, it is highly recommended to laminate only with optically clear Permacolor LF3640 (RAYZor).
- d) **Transportation Conditions:** To allow for easy transportation, IMAGIn JT5000 series can be rolled up, with the image out, with a minimum diameter of 6 inches (15cm). When the image is not protected by an overlaminant, make sure the print is completely dry and protected in a plastic bag. During transportation or storage, avoid exposing them to extreme temperature and humidity changes.
- e) **Application:** The "dry" method is recommended. The "wet" application method is not recommended due to the fact the moisture will become trapped between the perforations and overlaminant, therefore affecting the "see-through" visibility.
- f) **Trimming and Finishing Windows:** Window trimming needs special care depending on the type of window you are marking:
 - a) Contact with Rubber Window Seals will cause the adhesive to fail. Therefore, graphics need to be trimmed off the rubber seals by 1/8 inch minimum.
 - b) Windows with beveled edges need to have the graphic trimmed away from the edge at a 45° angle to eliminate a hard edge that is easily peeled back.

IMPORTANT NOTICE: The information given and the recommendations made herein are based on our research and are believed to be accurate, but no guarantee of their accuracy or completeness is made. In every case, user shall determine before using any product in full scale production, or in any way, whether such product is suitable for user's intended use for their particular purpose under their own operating conditions. User assumes all risk and liability whatsoever in connection with their use of any product. The products discussed herein are sold without any warranty as to merchantability or fitness for a particular purpose, or any other warranty, express or implied. No representative of ours has any authority to waive or change the foregoing provisions, and no statement or recommendation not contained herein shall have any force of effect unless in an agreement signed by the officers of seller and manufacturer. Nothing contained herein shall be construed to imply the nonexistence of any relevant patents or to constitute a permission, inducement or recommendation to practice any invention covered by any patent without authority from the owner of the patent. The following is made in lieu of all warranties, express or implied: Seller's and manufacturer's only obligation shall be to replace or credit such quantity of the product proved to be defective at its discretion.

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