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 Version #4 (0217)
 Approved by J. S.

Product

 IMAGIn® B-free® GRUV™ Vehicle Wrap Film
 GVC929BFD

Product Description

GVC929BFD is a 2.0 mil **gloss** white, soft cast PVC film designed for ink jet printing. The product is coated on one side with a **repositionable** yet quick building, **permanent**, opaque, acrylic pressure sensitive adhesive with air egress technology and supplied with a 98# polycoated liner.

GVC929BFD is designed for use by **experienced** applicators for long-term outdoor, vehicle markings on flat, curved, complex and riveted surfaces. Including: vehicle wraps, fleet wraps and bus wraps. Use of the correct overlaminates, RAYZor LF3648G gloss, or LF3638 matte will extend the life of the graphic. This product is NOT intended for small cut lettering applications and small intricate or narrow graphic decals, interior drywall murals, or wet application installation methods.

Physical Properties

Property	Typical Values	Test Method
Peel Adhesion, lb. /in. (N/25mm) 180° on Stainless Steel - 15 min. - 24 hr.	1.8 (7.8) 2.3 (10.1)	PSTC - 1
Quick Tack, lb. /in² (N/25mm) Stainless Steel	2.0 (8.75)	FTM - 9
Dimensional Stability in Percent 48 hours @ 158°F	max 0.1	FTM - 14 10" x 10" Sample Bonded to aluminum
Temperature Ranges Minimum Application: End Use:	55°F (+12°C) -50° to 225°F (-46° to 107°C)	
Flammability	TBD	
Water Immersion 100 hours immersed @ RT	no change	

Removability

GVC929BFD, when laminated, is cleanly removable for up to five years after application with high heat and/or chemicals. "Clean Removability" means that when removing the decal, the pressure sensitive film will leave less than 20% of the adhesive on the substrate.

Some substrates are affected by the application of the GVC929BFD, such as acrylic glass, polycarbonate, polystyrene, nitro-cellulose paints and plasticized PVC's. Besides damaging the substrate, subsequent removal could be difficult.

Approved Print Materials

Screen Printing:		HP Indigo	
UV Cured	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Solvent	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Digital: UV Inkjet	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Eco-solvent	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
True solvent	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Latex	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<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/graphics. Printer and heater settings and ICC profiles can also be downloaded from some O.E.M. or software manufacturer's websites.

Durability

The outdoor durability of the unprinted film is 9 years.

	Vertical application (years)			Horizontal application (years)		
	Zone 1	Zone 2	Zone 3	Zone 1	Zone 2	Zone 3
GVC929 with RAYZor®	7	5	3	4.8	3.6	2
GVC929 with HORIZon™	8	6	4	6	4	3
GVC929 with Nazdar 3529 UV	6	3	2	3	1	1
GVC929 with Nazdar 3539 UV	8	6	4	4	2	1

Zone 1: North America, North, West, Central & Eastern Europe

(excluding desert areas of the USA which are in zone 3)

Zone 2: Central & South America, South Europe, Asia Pacific

(excluding Australia & New Zealand)

Zone 3: Greater Middle East (e.g. Egypt, Israel, Iran, [Morocco](#), [Western Sahara](#), [Algeria](#), [Tunisia](#), [Libya](#), and [Mauritania](#)), Africa, Australia, New Zealand, USA (Arizona, S. California, S. Florida, Nevada, New Mexico, Texas, S. Utah), and Mexico.

Marine Graphics

Marine applications have different requirements and therefore different expectations. Graphics manufactured using Mactac's B-Free vinyl products are warranted to maintain acceptable appearance for one year from date of application. Marine graphics applied under the water line and are not edge sealed, are not warranted.

Mactac requires the registration of a completed and signed Inspection Report for each vehicle wrap in the unlikely event of a future claim. This report identifies any potential problem areas and clearly defines the obligations between the applicator and the vehicle owner. A completed copy of the inspection report and

the appropriate vehicle template must be on file at Mactac prior to application. The inspection report is attached at the end of the Application Guide TA2501 and the B-Free Vehicle Warranty MAC2588 which are available on the Mactac website at www.mactac.com/graphics. Registration acknowledges that your company has received the Application Guide and a copy of this warranty and agrees to all the requirements and limitations outlined in these documents.

Shelf Life

2 years from Date of Manufacture when stored at 60/77°F (15/25°C) and 50% relative humidity in the original package.

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.

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.

Recommendations

Always test your combination of GVC929BFD products, inks and laminating films prior to commercial use.

1. **Printing Conditions:** Print in conditioned pressroom at $\pm 73^{\circ}\text{F}$ (23°C) and 50% RH. The maximum allowable ink saturation is 270%.
2. ***Printing with UV ink, both inkjet and Screen, will significantly reduce the stretch ability of this film and may result in cracking or lifting out of the deeper wall recesses and is not a warranty failure.***
3. **Drying Step:** It is **critical** the GVC929BFD print is properly dried prior to laminating or application. While this is important in all solvent inkjet prints including with GVC929BFD. We strongly recommend leaving the print *open to the air* (not rolled up in a tube) for a minimum of 24 hours prior to lamination or application. Residual solvents in the vinyl and adhesive will negatively affect the bubble free properties of the adhesive and can result in a significant build or loss in adhesion resulting in potential substrate or graphic failure and/or more residual adhesive being left behind upon removal. Additional hot air drying or IR drying will speed up the drying process and shorten the overall drying time.
4. **Laminating Conditions:** If the printed graphic is likely to be exposed to corrosive liquids, smoke, fumes, and highly polluted areas or there is a likelihood of scratching, it is highly recommended to laminate with **Permacolor® RAYZor™ or HORIZon™** series **conformable** overlaminating films.

5. **Clear Coat Options:** Nazdar 3529 clear coat is the only clear coat approved as an alternate to PERMACOLOR for long term image protection.
6. **Not recommended surfaces include, but not limited to:** rubber and plastic, aged paint (chalking) and metals (corrosion or oxidation), improperly cured paint, surfaces with poor paint-to-surface adhesion, over existing graphics that must remain upon removal, oily surfaces, unpainted wood, etc.
7. **Transportation Conditions:** To allow for easy transportation, B-free GRUV 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.

- *Values given are typical and are not necessarily for use in specification.*

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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