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Version #1 (1113)  
Approved by J. S.

**Product**

Tuning Film Velvet (TFV) Vehicle Wrapping Film

**Product Description**

This is a MACTac family of flocked pressure sensitive cast vinyl films designed for vehicle wrapping and interior decoration on flat surfaces. The face is a 6.7 mil high quality cast cadmium free vinyl coated with 28 mils of textile fibers (flock). These films are supplied with a high performance, repositionable, clear acrylic adhesive for easy application. The adhesive is protected by an 80# polycoated release liner for added stability and layflat. They are currently available in ultra-black, sport red and Bordeaux (maroon).

These films are outstanding choices for adding a unique and astonishing effect to a number of different surfaces such as vehicle interiors and exteriors, external parts of electronic equipment like cell phones, computer covers, etc. and especially useful in interior design on flat surfaces.

**Physical Properties**

Property	Typical Values	Test Method
<b>Thickness, inches (µm)</b> Face plus adhesive	±0.036 (± 925)	ASTM D-645 (ISO 543)
<b>Face Material Data, 68°F (20°C)</b> Tensile strength lb./in. (N/15mm) Elongation % at break	> 10.5 (35) > 100%	DIN 53455-5
<b>Peel Adhesion lb./in. (N/25 mm)</b> 180° on Stainless Steel -20 min. - 24 hr. - 1 week	2.5 (11) 3.5 (15) 3.8 (17)	ASTM D-903 (FTM-1)
<b>Dimensional Stability, %</b> 48 hours @ 158°F (70°C)	< 0.5	FTM- 14 10" x10" Sample Bonded to aluminum
<b>Temperature Range</b> Application: End Use:	60° to 104°F (15° to 40°C) -40° to 194°F (-40° to 90°C)	
<b>Flammability</b>	Self-extinguishing	ISO 3795

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

## Durability

Up to 5 years in interior applications, see below of external applications:

	Vertical application (years)			Horizontal application (years)		
	Zone 1	Zone 2	Zone 3	Zone 1	Zone 2	Zone 3
Ultra-Black	4 years	3 years	2 years	2.5 years	2 years	0 years
All other colors	2.5 years	1.5 years	1 year	1.5 years	1 year	0 years

**Zone 1: North, West, Central & Eastern Europe, North America** (excluding USA desert regions which are in zone 3).

**Zone 2: South Europe, Central & South America, Asia Pacific, Australia** coastal regions (Perth to Brisbane) and **New Zealand**.

**Zone 3: Greater Middle East , Africa, Australian** desert regions and north of Perth-Brisbane coastal areas, **USA** desert and sub-tropical regions (Arizona, California, Florida, Nevada, New Mexico, Texas, Utah), and **Mexico**.

## Shelf Life

Tuning Films have a two year shelf life when stored between at 60- 80°F (15 - 25°C) and 50% relative humidity or less.

## Removability

Tuning Films removes almost cleanly with a small amount of **heat**. Any residual adhesive can be removed with alcohol. Removability is warranted only on O.E.M. paint.

## Chemical Resistance

This product is resistant to most oils and grease, fuels, aliphatic solvents, weak acids, salts and Alkalis.

## 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

All surfaces must be thoroughly cleaned from dust, dirt, grease and any other contaminate. Clean with soapy water first followed by a good cleaning with Isopropyl alcohol to remove any greasy or soap residue.

- 1) **On flat or slightly curved surfaces:** Apply directly on the substrate only using the dry application method.

- 2) **On convex areas:** Heat the film with a heat gun before stretching it over the convex area. Do not over heat or over stretch the films, because the structured appearance could be damaged.
- 3) **On corrugated or concave areas:** If the film is stretched into a corrugation it may pop-out after a few weeks. We, recommend you cut the film and to apply it in the corrugation without tension.
- 4) **Over rivets:** If you apply these films over rivets the circumference of the rivet must be relief cut or tenting will occur.
- 5) **Compatibility of Paints and Lacquers:** This should always be tested first by the end user, prior to use.
- 6) **Vehicle maintenance:** TFV can be cleaned using traditional hand washes or running through a car wash. *Do not attempt to wax TFV!*

**CALL 1-800-321-8834 for additional product information**

**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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