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Approved by J. S.

Product: PERMACOLOR® PermaGard® SAG 53
Anti-Graffiti and Window Protection Film

PERMACOLOR

The **PERMACOLOR** system is a series of pressure sensitive products for mounting and overlaminating in the graphic imaging industries. Pressure sensitive **PERMACOLOR** provides fast, efficient processing through cold roll lamination techniques without the need for heat, drying or messy coating operations.

Product Description

The **PermaGard SAG Series of Superior Anti-Graffiti and window protection films** are a family of pressure sensitive adhesive coated, **optically** clear, overlaminating films that are available in 'good, better, best' quality options.

SAG 53 ('better' option) is a 2.0 mil hard coated, *scratch resistant* high gloss and ultra-clear, durable polyester face with excellent graffiti, UV and abrasion resistance. It has an optically clear, acrylic, pressure sensitive adhesive protected by a 78# smooth white kraft release liner. It's best used as a laminating film.

SAG 53 can be laminated to photographic prints, transparencies, latex, solvent-, eco-solvent, water-based and UV inkjet prints, and UV screen printed images to impart superior protection for your graphics from graffiti, abrasion, UV light degradation, dirt, moisture and many other potentially damaging effects in both indoor and outdoor environments. **SAG 53** can also be used in private or public transport vehicles and areas (trains, subways, tramways, buses...) that require graffiti and window protection.

SAG 53 also increases the **impact resistance** of windows. (*Note: For safety reasons (emergency exits), it is important to keep some windows unprotected*). **SAG 53** can be wet applied directly to windows and mirrors or first **laminated** to a pressure sensitive print media and then applied onto flat surfaces.

SAG 53 has **very good solvent resistance**, so if tagged, the graffiti can be easily cleaned off using most commercially available graffiti removing cleaners without damaging the graphic.

NOT RECOMMENDED FOR: Application on riveted, embossed or curved surfaces. The edges of the product could be affected in the case of frequent contact with solvents. Mactac recommends edges sealing if this is a concern.

Physical Properties

Property	Typical Values	Test Method
Thickness, inches (µm) Film plus adhesive	0.003 (77)	ASTM D2103 (ISO 536)

Peel Adhesion lb./in. (N/25mm) Stainless Steel - 20 min - 24 hr.	3.6 (16) 4.5 (20)	PSTC – 101 (FTM-1)
Quick Tack, lb./in² (N/25mm) Stainless Steel	2.5 (11)	FTM 9 (Mactac CTM-25)
Dimensional Stability, (%) MD CD	< 0.2 < 0.2	FTM 14 (Mactac CTM-2) (Method D) 48 hours @ 158°F (70°C) Bonded to aluminum
Shear, Hours to fail Stainless Steel – 2.2 lbs. @ 72°F (22°C)	150	PSTC - 7
Temperature Range Application: End Use:	50° to 104°F (10° to 40°C) -40° to 194°F (-40° to 90°C)	
Adhesive pH	Neutral	TAPPI-529
Face Tensile Strength (K/psi) Elongation @ Break (%)	28 160	ASTM D-882A

Durability

The durability of the film is up to 2 years outdoors and 5 years indoor. While all PERMACOLOR overlaminating films have UV resistance built in to help extend the life of your image, the durability of the image is mainly dependent upon the quality of the inks (see technical data sheets given by the ink manufacturers) and pressure sensitive media being used.

Shelf Life

Two years when stored at 75°F (24°C) and 50% relative humidity or less. Note: Mactac recommends that rolls be stored on end or suspended from the core.

Chemical Resistance

Resistant to non-abrasive soaps, denatured alcohol, water, detergents and most diluted acids and alkalis. It is not affected by short term contact with most of aliphatic and aromatic hydrocarbons, ketones, esters, chlorinated hydrocarbons and alcohol

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.



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Recommendations

- Where exposure to moisture, chemicals, solvents or high pressure wash is anticipated, Mactac recommends sealing the edges with varnish, silicone or other sealant to prevent penetration by these liquids.
- The addition of heat while simultaneous mounting with Thermal Overlaminates may result in curl or have other detrimental effects on the finished product.
- Whenever possible, always test first to ensure end-use capability.

PROCESSING:

LAMINATION:

- Mactac recommends laminating SAG 53 to your printed graphics with a professional laminator. Overlaminates should not be applied onto dusty or dirty prints.
- Mactac's pressure sensitive mounting films are intended for "Cold Roll Lamination" (40°F - 104°F).

APPLICATION:

- Wet application method is recommended when used as a window protection film. We recommend using professional window application squeegees for a perfect application. Ref: TA2111 for proper installation instructions!

MAINTENANCE & CLEANING:

- SAG films can be easily cleaned off using most commercially available window cleaners or and graffiti removing cleaners without damaging the graphic.
 - *Values given are typical and are not necessarily for use in specification.*



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