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GENERAL FORMULATIONS

TECHNICAL DATA SHEET

GF 226HTR WALLMARK™

6.0 MIL MATTE WHITE VINYL
CLEAR HIGH-TACK REMOVABLE ADHESIVE

GF 226HTR is a 6.0 mil matte white semi-rigid vinyl. GF 226HTR has a unique and innovative pressure sensitive adhesive that is specially formulated to be both high-tack and removable (HTR). The combination of vinyl and adhesive is designed to stick aggressively to most surfaces, but is specially formulated to remove cleanly for up to a year. It's also forgiving in the event you touch the adhesive to itself—it will separate cleanly and the adhesive stays anchored to the vinyl. The 90# tight release liner provides excellent stability for processing using solvent, latex and UV curable digital inks. common to wide format digital printing.

PRODUCT NAME	226HTR
FILM	
Film Type	White Polymeric Vinyl
Film Thickness (mils/µm)	6.0 / 152 (+/- 10%)
Film Weight (gsm)	218
Gloss (60°)	≤20
Opacity (%)	98
Tensile Strength (lbs/in²)	MD ≥ 3000 / CD ≥ 3500
Elongation (%)	MD ≥ 130 / CD ≥ 200
Dimensional Stability (FTM 14)	MD ≤ 0.50 mm / CD ≤ 0.20 mm
ADHESIVE	
Adhesive Type	Solvent Acrylic
Adhesive Thickness (mils/µm)	0.7-1.0 / 18-25
Adhesive Color	Clear
Peel Strength on Stainless Steel (lbs/in) / (N/25mm) 15 min	1.0 / 4.4
Peel Strength on Stainless Steel (lbs/in) / (N/25mm) 24 hrs	1.4 / 6.1
LINER	
Liner Weight (#/gsm)	90 / 145
Liner Type	White 2-Sided PE-Coated Kraft
Liner Thickness (mils/µm)	6.7 / 170
Release Force @ 300" / min (g/2")	300-450
PERFORMANCE GUIDANCE	
Application Temperature	≥ +40 °F / ≥ +10 °F ❄ (cold weather tested for glass applications only)
Service Temperature	-40 °F to 180 °F
Shelf Life	up to 1 year
Storage Temp / Rel. Humidity	70 °F / 50%
Outdoor Durability	up to 5 years
Removability	up to 6 months
CERTIFICATIONS & RATINGS	
Flammability	ASTM E84 Class 1 or A (Rating Standard Test Method for Surface Burning haracteristics of Building Materials)

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PRODUCT SNAPSHOT

APPLICATION

- ❍ WET APPLY
- ● DRY APPLY
- ❍ LAMINATING
- ❍ MOUNTING
- ● DIE CUTTABLE
- ❍ HOT STAMP
- ❍ THERMAL DIE
- ● FLATBED CUTTABLE

SUBSTRATES/SURFACES

- ● SMOOTH PAINTED DRYWALL
- ● GLASS

APPLICATIONS

- ● POP/RETAIL
- ● WALL
- ❍ WRAP
- ● WINDOW
- ❍ FLOOR
- ❍ TRANSLUCENT
- ❍ FLEET
- ● GENERAL SIGNAGE
- ● INDOOR
- ● OUTDOOR (SHORT TERM)
- ❄ OUTDOOR (COLD TEMPS)

  This has been tested for glass applications only at these low temps. Recommended laminating any films less than 6mil thick for ease of application. For best results apply film dry in these low temperatures.

INK TYPE

- ● SOLVENT
- ● ECO-SOLVENT
- ● LATEX
- ● UV CURABLE
- ● SCREEN
- ● OFFSET (UV CURABLE)
- ❍ OFFSET (CONVENTIONAL)

FAQS

Can I use GF 226HTR on other surfaces?	GF 226HTR is ideal for wall murals, decals and graphics on most types of smooth painted interior walls, including most flat, semigloss and gloss paint finishes. The adhesive is also suitable for glass, tile, OEM painted metal, and sealed concrete, and most low surface energy surfaces. Due to the variability of substrates and finishes, it is recommended to test for adhesive compatibility prior to installation.
Can I print edge-to-edge with 226HTR?	Yes! A great improvement with this product over the traditional GF 226 WallMark™ is that the adhesive will hold with minimal shrinkage for full bleed graphics without the need for an unprinted border.
When paneling larger jobs, do I use overlaps or butt-seams with this product?	Installation methods vary by both installer and project, but we consider either method to be acceptable, and the thickness and rigidity of GF 226 WallMark® HTR makes it easy to align panels. Butt seams are preferred, and you can expect minimal shrink with interior applications. As a benefit of the HTR product, the adhesive allows for minimal overlap as the High Tack adhesive bonds aggressively to the textured face of the vinyl. If overlapping, we recommend at least ½" to 1" for overlapping panels.

GENERAL FORMULATIONS

INTERIOR WALL APPLICATION

WALL GRAPHICS

Temporary and permanent application of graphics to interior wall surfaces is a growing market for pressure sensitive films. Be it for individual team logos or entire wall murals, custom wallcoverings or temporary signage, wall-based graphic applications are increasing in both commercial and residential markets. General Formulations (GF) Digital Print Media is ideally suited to meet specific wall graphic needs with a variety of products.

GENERAL FORMULATIONS DIGITAL WALL PRODUCTS

At General Formulations, our "WallMark® series encompasses a line of flexible vinyl-based products designed for interior wall graphic applications. GF 226 WallMark® is a 6.0 mil matte white vinyl film with either a microsphere removable (GF 226) or High-Tack Removable (GF 226HTR) adhesive system. GF 227 is our WallMark® Lite, a 3.4 mil matte white version of the classic 226 product with microsphere beaded adhesive*. GF 229 WallMark® Canvas has a matte embossed surface that simulates a canvas fabric texture and appearance. GF 229 is available in both the standard microsphere removable adhesive and GF 229HTR High-Tack Removable (HTR) option. Also available with the HTR adhesive system is GF 262HTR WallMark® Sand. This family of 6.0 mil matte white vinyl wall films are designed for ease of application and removability.

General Formulations also offers fabric based wall graphic media, GF 234 GraphiTex™. This material is great for applications where a textile is required or desired, whether for performance, presentation, or application. GF 234 GraphiTex™ is a 7.0 mil matte white woven polyester with a noticeable fabric texture and a repositionable, removable wall adhesive that provides excellent performance on smooth wall surfaces. GF 234 GraphiTex™ is well-suited for applications where ease of handling is important. Please note that fabric finish and color can vary slightly from lot to lot and it is recommened that you not mix multiple lots on a single wall installation.

In addition to the indoor wall graphics solutions, GF offers a line of RoughMark™ vinyl products for adhering to those hard-to-stick-to surfaces like brick and block walls, stucco and wood, and works both indoors and outdoors. This range includes GF 285 RoughMark™ and GF 287 RoughMark™ Clear conformable calendered vinyl, and the new GF 885AE RoughMark™ Cast for extra conformability and durability.

GF 290 ChalkMark™ is also great for walls where a black chalkboard surface can be used in conjunction with Liquid Chalk Markers.

**Both 226 and 227 are also available in our Narrow Format Digital (NFD) line which utilizies a special topcoating for use with HP Indigo and Toner based Production Digital Print Devices. Similar products are also available for screen or offset printing processes.*

SURFACE REQUIREMENTS

General Formulations' interior wall graphic media requires a smooth painted surface for best performance. Clean, painted drywall offers the best application surface. The addition of texture or raised/decorative swirls will reduce surface contact lessening the bond of the wall graphic. Wood or wood panels, while appearing smooth still have texture induced by the wood grain that could affect wall graphic adhesion and cause premature failure. Stucco, heavy textures, plaster, rough finished concrete or similar types of surfaces must be thoroughly tested before application of an interior wall graphic.

SURFACE PREPARATION

For optimization of the surface and to best ensure clean graphic removal, a commercial primer should be used before painting to seal the wall. This is a separate step from the paint, even if the paint claims to include a primer ingredient. For the paint layer, a typical surface finish would be eggshell, semi-gloss, flat, or gloss wall paint. Semi-gloss and satin paint finishes are preferred for wall graphic applications. Flat paint finishes traditionally are applied to living rooms and bedrooms. Flat paints typically have coarse pigments that impart a rough micro finish to the paint. This roughness can reduce adhesive bond and potentially induce premature wall graphic failure. Flat finish paints are also more prone to buildup of adhesive residue and/or paint failure upon removal. We recommend customers test each wall graphic adhesive to determine how well it bonds to flat paints.

Interior walls should be clean and free of loose dirt, debris, grease or other contamination. It is recommended that the wall be cleaned with isopropyl alcohol, (IPA)/water mixture (at minimum 50% IPA/50% water, up to 70/30) using a lint-free microfiber cloth.

For exterior wall applications, thorough cleaning of the surface is essential. This could include pressure washing to remove loose dirt or debris, or chemical cleaning to eliminate grease or other contamination. A preferred wall cleaner is trisodium phosphate (TSP). This is a common cleaning agent recommended before repainting and available at most home centers and paint retailers. Clean your surface thoroughly paying special attention to the areas around the ceiling and adjacent walls. These areas are prime for the accumulation of dirt and grime over time and will reduce wall graphic adhesion if not cleaned properly. Rinse all TSP residue and allow it to dry completely before wall graphic application, minimum 24 hours; 48 hours in humid ambient conditions. A final wipe down of the wall surface with isopropyl alcohol (IPA)/water mixture (at minimum 50% IPA/50% water, up to 70/30) using a lint-free microfiber cloth is also effective at removing any residue from the cleaning phase, or any contaminates that might prevent proper adhesion. The IPA/water mix should be applied to the cloth and never sprayed directly onto the wall surface. Allow to dry one hour before graphic application. The wall temperature should not be less than +40° degrees Fahrenheit. Please note, TSP and/or IPA/water mixture may cause pigment from the painted surface to be removed, especially with darker colors.

PRINTING

General Formulations' wall graphic media is certified for use with solvent, eco-solvent, UV curable and latex digital printers. General Formulations has profiles for select printers when printing GF 226 and 226HTR, 227, 229 and 229HTR, 234, 262HTR, 285, and 287. If your printer is not on the profile listing, contact General Formulations Technical Service department at

(800) 253-3664 for assistance. It is critical that the ink be cured properly before installation. Uncured ink can induce premature edge lift and delamination of the wall graphic. Issues can and will occur if the wrong profile is used and/or if too much ink is laid down.

Screen and offset printing inks, especially UV curable, must be correctly cured for optimal wall graphic performance. It is important to know the ink manufacturers cure recommendations and test your process to make sure your inks are fully dry before application or installation. If using conventional offset inks, the wall graphics media most likely will have to be top coated to provide complete ink drying/curing. Always test ink compatibility with the specific wall graphic media before production.

PAINT APPLICATION AND CURE

With new drywall, a coat of a bonding/hiding/sealing primer followed by two coats of a semi-gloss or satin finish paint is recommended as the ideal base for removable wall graphics. Failure to prime the surface before painting may result in paint failure when graphics are repositioned or removed. The type of paint roller cover used will create texture on the wall that could limit adhesive contact or lead to inadequate paint bond if the texture is too deep. GF recommends use of a 3/8" – 1/2" nap roller for smooth drywall surfaces. Brick and block surfaces may require a thicker nap roller depending on the contours and cavities needed to be filled.

When the wall surface is a new construction or a fresh repaint, curing (outgassing) of the paint is critical for a successful wall graphic application. Follow the paint manufacturer's recommendation on minimum recoat and cure time of the paint (a good guideline is to check how long until the painted surface can be washed). If no recommendation is given, a minimum of two weeks cure is recommended before wall graphic application. If you painted with a dark color using a medium or deep tint base, these colors contain a high number of latent surfactants that can slow paint cure, especially in humid ambient conditions. Please reference the directions on the product container for cleaning the surface. If there are not specific instructions to this affect, we recommend allowing a minimum of four weeks cure before wall graphic application. This same procedure should be followed when a fresh repaint is encountered.

TECHNICAL INFORMATION ON PAINT

Low or Zero VOC paints can prove sometimes to inhibit wall graphic adhesion. General Formulations' Product Development Laboratory has tested several Zero/Low VOC paints and the results were successful. Our testing strictly followed the manufacturer's paint cure recommendations, and most colors tested were light to medium in color depth.

General Formulations tests a variety of different paints, but it is an application specialist's duty to test for their specific paint choice. Some brands may work better than others, but all of them will have a surface-active ingredient that does not allow dirt and debris to bond to the paint. These additives will adversely affect wall graphic media adhesive bond and must be tested thoroughly before application of a wall graphic. If the type of paint is unknown or condition of the wall is suspect because of roughness, test the bond of the wall graphic media in an inconspicuous place. The bond will be satisfactory if after 72 hours there is no edge lift or delamination.

Testing has been conducted on the following paint types in a controlled lab setting:

MANUFACTURER	NAME	FINISH	VOC DESCRIPTION	VOC LEVEL	ADDITIONAL
Gildden	High Endurance	Flat	No VOC	0 g/L	Paint + Primer
Gildden	High Endurance	Semi-Gloss	No VOC	0 g/L	Paint + Primer
Valspar	Signature	Flat	n/a	<50 g/L	High Hiding Paint + Primer, "Scuff Shield"
Valspar	Signature	Semi-Gloss	n/a	<50 g/L	High Hiding Paint + Primer, "Scuff Shield"
Behr	Premium Plus	Flat	Zero VOC	<50 g/L	Paint + Primer, Anti-Microbial
Behr	Premium Plus	Semi-Gloss	Zero VOC	<5 g/L	Paint + Primer, Anti-Microbial
Gildden	High Endurance	Flat	No VOC	0 g/L	Paint + Primer
Glidden	High Endurance	Semi-Gloss	No VOC	0 g/L	Paint + Primer
Valspar	Signature	Flat	n/a	<50 g/L	High Hiding Paint + Primer, "Scuff Shield"
Valspar	Signature	Semi-Gloss	n/a	<50 g/L	High Hiding Paint + Primer, "Scuff Shield"
Behr	Premium Plus	Flat	Zero VOC	<50 g/L	Paint + Primer, Anti-Microbial
Behr	Premium Plus	Semi-Gloss	Zero VOC	<5 g/L	Paint + Primer, Anti-Microbial
Benjamin Moore	Regal Select	Flat	Zero VOC	0 g/L	Paint + Primer
Benjamin Moore	Regal Select	Semi-Gloss	Zero VOC	0 g/L	Paint + Primer
Sherwin Williams	ProMar 200	Flat	Zero VOC	<50 g/L	Anti-Microbial
Sherwin Williams	ProMar 200	Semi-Gloss	Zero VOC	<50 g/L	Anti-Microbial
Pittsburgh	Grand Distinction	Flat	Low VOC	0 g/L	Paint + Primer, Anti-Microbial
Pittsburgh	Grand Distinction	Eggshell	Low VOC	0 g/L	Paint + Primer, Anti-Microbial
Pittsburgh	Grand Distinction	Satin	Low VOC	0 g/L	Paint + Primer, Anti-Microbial
Pittsburgh	Grand Distinction	Semi-Gloss	Low VOC	0 g/L	Paint + Primer, Anti-Microbial

GRAPHIC APPLICATION

Application of the wall graphic to a clean, dry wall requires smooth consistent pressure so as not to stretch the graphic. Depending on size, you can start in the middle with small decals and uniformly work the air between the graphic and wall surface to the edge. If the decal is large, level the top edge and remove the top six inches of liner. Squeegee the top strip to the wall smoothly. Pull down about 6 to12 inches of liner and squeegee from the top strip down to the

liner across the width of the decal moving the air to the edges. Keep working in sections of 6 to 12 inches until the total graphic is applied to the wall. If you see air bubbles in the application, use the squeegee to move it to the nearest edge.

For those jobs, it is recommended to either butt panels together or to lightly clean the overlap area with isopropyl and water prior to overlap installation to remove any contamination and improve the surface energy of the contact area. Many factors including installation, wall and environmental conditions contribute to vinyl shrinkage, so GF cannot guarantee that butt seam panels will stay perfectly aligned over time. WallMark® HTR (smooth and textured) panels installed using a butt seam or double-cut seam application method should expect minimal shrink, but an overlapping approach will always be the best way to ensure there are no gaps between panels.

CLEANING & MAINTENANCE

General Formulations wall graphic media is designed with long-term installations in mind, and the films and fabrics have excellent durability in their unprinted form. Once printed, different ink types will have varying degrees of washability, but whether printed with latex, solvent or UV inks, cleaning can be done using a damp microfiber cloth, paper towel, or non-abrasive sponge with water. Do not soak, scrub, or use abrasives or harsh cleaners as they may cause the inks to fade or the graphic to fail. It is also recommended to test your cleaning solution and cloth combination in an inconspicuous area to confirm there is no negative impact on your installed graphic.

REMOVAL

When removing GF WallMark® films and fabrics, start at the top and pull down slowly at a 180° degree angle (against itself). This is the best way to break the bond the adhesive has with the paint. Pulling at multiple angles and directions may cause loose paint to come off with the graphic. Preparation at the beginning of the installation can ensure optimal results once the product is removed. GF WallMark® films and fabrics should leave little or no adhesive residue on a sound, cleaned and cured surface.

SUMMARY

Successful application of wall graphics is dependent on a variety of the factors mentioned above. General Formulations wall graphic media is formulated for optimal printing and the adhesives are formulated for optimal bonding to a wide variety of wall substrates. Proper wall preparation is needed to ensure successful application. Correct ink drying or curing with an approved profile is critical to the long-term useful life of a wall graphic. Finally, application of the decal requires all the air to be removed between the graphic and wall without stretching the graphic. Following these preparation and application steps will result in a successful wall graphic application. If there are any question concerning your specific wall graphic application, General Formulations' Technical Service Department can assist you.