



Tape Solutions for Composite Molding



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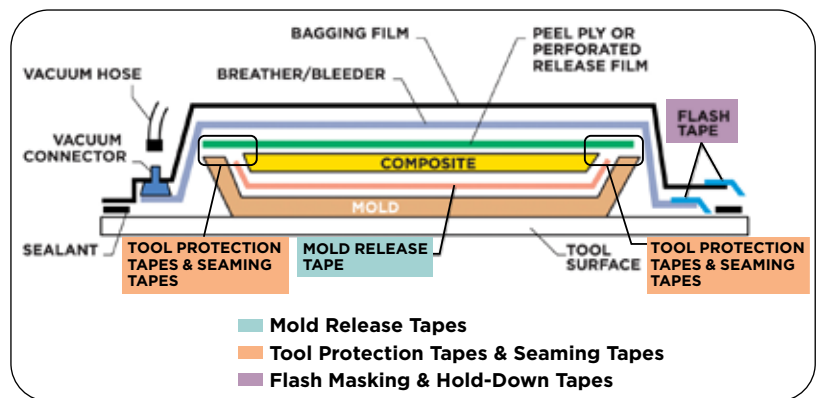
Saint-Gobain CHR® Tapes are available for a wide range of demanding accessory applications, such as masking for stripping and painting, lining and seaming of miscellaneous cargo and bulkhead compartments, and general purpose sliding applications in cargo pits. In addition, manufacturing of structural components and engine repair in aircraft/aerospace requires a variety of tapes to protect and mask valuable and indispensable on-board systems.

Mold Release Tapes

Products: PTFE Glass Laminate Tape, PTFE Glass Cloth Tape and PTFE Film Tape

Function: Release surface for composite materials, tool protection

Features: Smooth non-stick surface, conformable, PTFE Glass Cloth for strength, temperature resistant & clean release with no residue. Tapes with a surface texture can be used to make a textured surface finish on the composite part.



PTFE Glass Cloth Laminate Tape: CHR SGB6 & SGC6 PTFE Glass Laminate tapes are proprietary products that, due to the unique manufacturing process, are free of cracks and pinholes in the surface. The lack of surface flaws and a higher PTFE thickness above the fiberglass layer gives the fabric longer life and fewer defects imprinted onto composite parts. In some applications, the tape can last 20 times as long as the lower grade options. Two examples of longer life successes are 1) SGB6-4 is used to make large wind blades improve efficiency by 10 times, and 2) SGB6-4 is used to make medical components for MRIs with fewer surface defects and a uniform, matte surface finish.

PTFE Glass Cloth Tape: PTFE with glass fabric reinforcement provides dimensional stability, high tensile strength, edge tear resistance and better abrasion resistance than PTFE film tapes. The PTFE surface offers quick release and chemical resistance characteristics. Non-silicone versions are available. CHR 8015 tapes are available 48 inches (1219 mm) wide which can help to minimize the number of seams in a mold for large parts. CHR SG16-05 is very smooth to give a smooth surface finish on composite parts. CHR SG25 series primary glass fabrics are the most common grade used because they have the best balance of performance and cost.

PTFE Film Tape: CHR 2045-5 is available 48 inches (1219 mm) wide, which helps to minimize the number of seams in a mold for large parts.

Tool Protection Tapes & Seaming Tapes

Products: Extruded, High Modulus, and Skived PTFE Tapes and FEP Tapes

Function: Release surface for composite materials, tool protection

Features: Smooth non-stick surface, conformable, PTFE Glass Cloth for strength, temperature resistant and clean release with no residue.

Extruded PTFE Tape: CHR 2275-2, 2285-2 & 2296-2 are manufactured from extruded, oriented, high modulus PTFE film coated with high-temperature pressure sensitive adhesive. The bright color makes the tape easy to find on composite parts and tooling, especially with large parts like airplane wings and wind turbine blades. In high temperature curing applications, 2275 (dark orange), 2285 (bright orange) and 2296 (bright yellow) have been used for flash masking.

High Modulus PTFE Tape: CHR 2255-2 is the most common product used in composite molding (CHR 2250-2 is the non-silicone version). 2255 and 2250 are used at the edges of molds and also to cover seams between release layers to give the Mold Release Tape longer life. PTFE Film tapes such as 2045-3 offer a smoother surface and a thicker PTFE layer which can give longer life compared with PTFE glass cloth tapes.

FEP & ETFE Tape: CHR 2355 & CHR 2455 are conformable, stretchy tapes that are used with 2255-2 for masking the corners of the tool. CHR 2455 has a matte surface finish while CHR 2355 is smooth.

Flash Masking & Hold-Down Tapes

Products: Polyimide Tapes CHR K201 & K202 (Commonly referred to as “Flash Tape”, “Flashing Masking Tape,” or “Flash Breaker Tape”) and Polyester (PET) Tapes CHR M824, M832, M887, M895, M851, M783, M852 & M855

Function: Mask bond lines and remove flash

Features: Temperature resistant and no residue with non-silicone options

Polyester Tapes: Silicone is undesirable in wet composite molding processes and contamination can lead to part failure, difficulties in painting & other downstream processes. Rubber adhesives are a more appropriate choice as they work up to temperatures at or around 400°F (200°C). During the composite molding process, flash tape is applied to the outside of the composite build-up on the mold, also referred to as a “tool.” Tools are extremely expensive and made from specialty metals such as invar. The tapes protect the tool from the resin and are typically 1 or 2 inches wide. If resin leaks out during the process, remove the tape and it removes the overage (also called “flash”).

Composite Molding Tapes

| Substrate | Adhesive | Tape Backing Thickness | | | | | | Short Term Temp. Rating (1-5 hours) °F (°C) | Product Features |
|---------------------------|----------|------------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---|---|
| | | Product Code | | | | | | | |
| Backing Material | | 0.001 in (0.025 mm) | 0.002 in (0.050 mm) | 0.003 in (0.075 mm) | 0.005 in (0.127 mm) | 0.006 in (0.152 mm) | 0.010 in (0.250 mm) | | |
| PTFE Glass Cloth Laminate | Silicone | | | | SGB6-4 | SGC6-6 | SGB6-10 | 600°F (310°C) | Premium Non-Stick Properties, Long Life and Uniform Textured Surface Finish |
| PTFE Glass Cloth | Silicone | | | | SG16-05 | | | 600°F (310°C) | High Performance Grade with Smooth Surface Finish |
| PTFE Glass Cloth | Silicone | | | 8015-3 | 8015-5 | | 8015-10 | 600°F (310°C) | Widest available product in the market at 48 inch (1219 mm) width |
| PTFE Glass Cloth | Silicone | | | SG25-3 | SG25-5 | | SG25-10 | 600°F (310°C) | Primary Mold Release Tapes |
| PTFE Glass Cloth | Silicone | | | | | SG35-6 | | 600°F (310°C) | Textured Surface Finish |
| Extruded PTFE | Silicone | | 2285, 2296, 2275 | | | | | 600°F (310°C) | Bright Colors: 2285-2 Orange, 2296-2 Yellow, 2275-2 Dark Orange |
| High Modulus | Rubber | | 2250-2 | | | | | 400°F (200°C) | Non-Silicone, Clean Removal |
| High Modulus | Silicone | | 2255-2 | | | | | 600°F (310°C) | Dimensionally Stable, Low Twisting and Curling |
| Skived PTFE | Silicone | | | 2045-3 | 2045-5 | | | 600°F (310°C) | Widest available product in the market at 48 inch (1219 mm) width |
| FEP & ETFE | Silicone | | 2355, 2455 | | | | | 400°F (200°C) | High Conformability |
| Polyimide | Silicone | K201 | K202 | | | | | 600°F (310°C) | High Temperature Flash and Hold Down Tape |
| Polyester (PET) | Rubber | M851 Green | M852 Green | | M855 Green | | | 400°F (200°C) | Non-Silicone Flash and Hold Down Tape |
| Polyester (PET) | Rubber | | M783 Pink | | | | | 400°F (200°C) | High Adhesion, Non-Silicone Flash and Hold Down Tape |
| Polyester (PET) | Silicone | M824 Blue | M832 Blue | | M895 Blue | | | 400°F (200°C) | Economy Flash Tape and Hold Down Tape |
| Polyester (PET) | Silicone | | M887 Emerald | | | | | 400°F (200°C) | Economy Flash Tape & Hold Down Tape – Alternative Color |

■ Mold Release Tape
 ■ Tool Protection & Seaming Tape
 ■ Flash Masking & Hold-Down Tape

Your Partner in Custom Tape Solutions

A custom tape solution can pay for itself many times over thanks to the process and product improvements it can provide. Tape development engineers will work with partners to design an economical but highly effective tape product.

Even with endless permutations of industrial tapes available there is only one company that can deliver a custom-made tape with optimal adhesive, the perfect backing materials, seamless process integration and superb performance.

To learn more about how **Saint-Gobain** can help solve tape and materials engineering challenges, call us or visit us online.

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