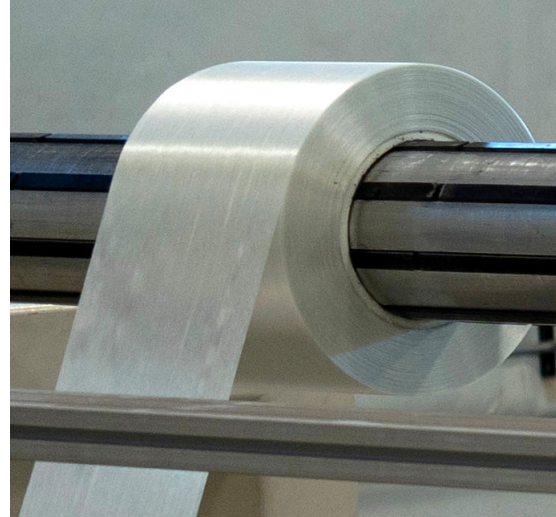




» APPLICATION OVERVIEW

Polystrand™ Continuous Fiber Reinforced Thermoplastic Tape for Composite Pipes in Oil and Gas Applications

Polystrand™ Continuous Glass Fiber Reinforced Polyethylene Tape delivers a strong, durable, and lightweight solution for pipe wrap in oil and gas applications. Designed for material compatibility with High Density Polyethylene (HDPE), this advanced composite tape provides added reinforcement to meet burst strength requirements, making it an excellent choice for demanding environments such as offshore and deep-water locations.

KEY BENEFITS

- **High Strength-to-Weight Ratio:** the fiber-reinforced polymer (FRP) composite structure offers exceptional strength while remaining lightweight, enabling easier handling and installation.
- **Corrosion Resistance & Durability:** the composite materials resist corrosion and environmental damage, extending the service life of pipes and reducing maintenance requirements.
- **Material Compatibility:** specifically engineered for use with HDPE, the tape can provide seamless integration and reliable performance.

- **Customizable Solutions:** tape thickness can be tailored to meet specific processing and performance needs, including burst strength and pressure requirements.
- **Supply Chain Reliability:** fast delivery and quality control in North America can provide dependable supply and project continuity.
- **Spoolable:** the flexible, reinforced plastic enables spoolable pipe, simplifying transport and installation while reducing overall system weight.

High-strength unidirectional fibers and engineered thermoplastic resins are combined to create Polystrand continuous fiber reinforced thermoplastic composites (CFRTP), available in rolls of unidirectional tape, X-Ply™ and other multi-ply laminates.

TYPICAL PROPERTIES – UNIDIRECTIONAL FIBERGLASS REINFORCED THERMOPLASTIC TAPE

Resin	Fiber Content	Areal Weight			Nominal Thickness ¹		Flexural Modulus ASTM D790		Flexural Strength ASTM D790		Tensile Modulus ASTM D3039		Tensile Strength ASTM D3039		Force/Width	
		lb/ft²	oz/ yd²	gsm	in	mm	ksi	GPa	ksi	MPa	ksi	GPa	ksi	MPa	lb/in	N/ mm
PE	62	0.094	13.5	459	0.013	0.33	4100	28.1	54.7	377	3700	25.5	99	682	1310	229
	62	0.143	20.6	698	0.020	0.51	3041	20.9	31.7	219	3790	26.1	93	646	1900	332
	65	0.10	13.9	474	0.012	0.30	4000	27.6	55	379	4720	32.5	126	869	1435	251
	70	0.88	12.7	430	0.011	0.38	4500	31	52	359	4700	32	129	890	1360	238

¹ Nominal thicknesses indicated are baseline values that may vary depending on material processing and other variables. Contact Avient with your specific requirements.

TAPE LINE CAPABILITIES

Tape Width	Resin Capabilities	Fiber Inputs	Max Tape Roll Weight	Max Roll Length
25 in +/- 0.3 in 630 mm +/- 5 mm 50 in +/- 1/8 in 1270 mm +/- 3 mm Slit capabilities with a min of 2 in (50.8 mm)	PP, PE, aPET	E-Glass	Up to 1,800 lbs (816 kg)	Up to 12,000 ft (3658 m)

SLITTING CAPABILITIES

Material	Min Finished Slit Width	Max Finished Slit Width
Unidirectional	2 in (50.8 mm)	50 in (1270 mm)
Laminates	2 in (50.8 mm)	120 in (3048 mm)

Customization	Range	Value (What changing this increases/decreases)	Impact (How it affects manufacturing or performance)
Fiber Loading	50–70% by weight	- Increasing fiber loading increases mechanical performance (stiffness, strength) - Decreasing fiber loading increases resin content and bondability	- Higher fiber loading reduces resin content - Lower fiber loading improves wet-out
Tape Thickness	0.009 in to 0.025 in (0.23 mm to 0.64 mm)	- Increasing thickness reduces number of winding passes/stations required - Decreasing thickness improves formability and consolidation	- Thicker tape decreases process time (fewer layers) - Thinner tape increases formability around tight radii
Areal Weight	0.08 lb/ft ² to 0.18 lb/ft ² (0.39 kg/m ² to 0.88 kg/m ²)	- Increasing areal weight increases fiber loading and part stiffness - Decreasing areal weight improves drape and process flexibility	- Higher areal weight increases overall part rigidity but requires more consolidation - Lower areal weight improves resin distribution and formability
Color	Natural & Black	Adding color improves processing visibility	Minor decreases in mechanical performance

TEST CAPABILITIES

Test	Standard	Description
Tensile	ASTM 3039	Measures in-plane tensile strength, tensile modulus, and strain response by pulling a composite coupon in tension until failure.
Short Beam Shear	ASTM 2344	Evaluates short-beam strength/interlaminar shear performance using a three-point bend setup to understand laminate bonding and resin-dominated failure behavior.
Flexure	ASTM D790	Measures flexural strength and flexural modulus by loading a supported specimen in bending to determine stiffness and resistance to deformation.
Tensile Fatigue	ASTM 3039	Assesses durability under repeated tensile loading by cycling the specimen below ultimate strength and tracking damage growth or failure life.
Creep	ASTM D7337	Measures long-term deformation or time-to-failure under sustained tensile load to estimate creep resistance and long-term load capability.

OUTER LAYER
HDPE

REINFORCEMENT LAYER
CFRTP

INNER LINER
HDPE

Avient CFRTP materials can be customized, and value engineered to meet specific requirements and properties, contact Avient for more information and material offerings.

1.844.4AVIENT
www.avient.com



Copyright © 2026, Avient Corporation. Avient makes no representations, guarantees, or warranties of any kind with respect to the information contained in this document about its accuracy, suitability for particular applications, or the results obtained or obtainable using the information. Some of the information arises from laboratory work with small-scale equipment which may not provide a reliable indication of performance or properties obtained or obtainable on larger-scale equipment. Values reported as “typical” or stated without a range do not state minimum or maximum properties; consult your sales representative for property ranges and min/max specifications. Processing conditions can cause material properties to shift from the values stated in the information. Avient makes no warranties or guarantees respecting suitability of either Avient’s products or the information for your process or end-use application. You have the responsibility to conduct full-scale end-product performance testing to determine suitability in your application, and you assume all risk and liability arising from your use of the information and/or use or handling of any product. AVIENT MAKES NO WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, either with respect to the information or products reflected by the information. This literature shall NOT operate as permission, recommendation, or inducement to practice any patented invention without permission of the patent owner.