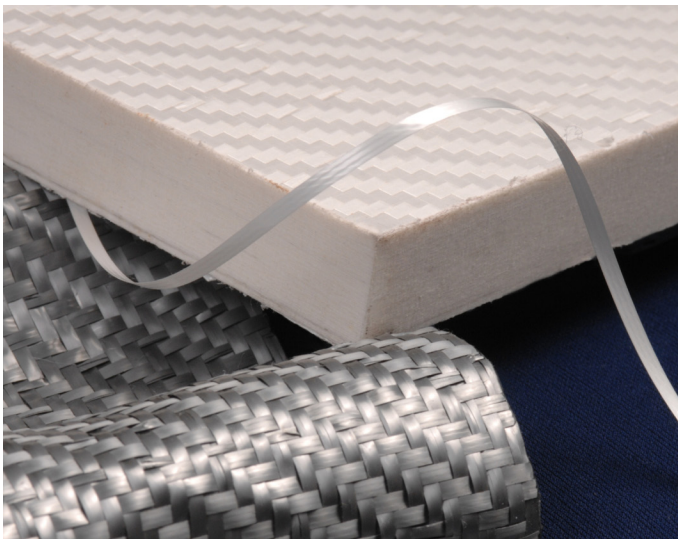


Milliken® Tegris®

Thermoplastic Composites

Tegris® thermoplastic composites provide impact resistance and stiffness at a lighter weight than traditional thermoplastics and composites.

Tegris fabrics are woven from specially engineered tape yarns, which are manufactured with three polymer layers in an ABA construction. The outer, or 'A' layers melt at a lower temperature than the core 'B' layer. To consolidate, multiple layers of fabric are stacked together and heat and pressure is applied to form a rigid, impact resistant part.



Performance Characteristics

Impact Resistance - Tegris composites offer superior impact resistance over typical thermoplastic composites, maintaining this performance advantage even at -40°C.

Stiffness - Tegris composites are suitable for applications that need high stiffness.

Weight Reduction - The consolidated construction based on low density thermoplastics allows for significant weight reduction compared to higher-density, glass-filled composites.

Recyclable - The 100% PP composition is fully recyclable with polypropylene recycle streams.

General Product Information

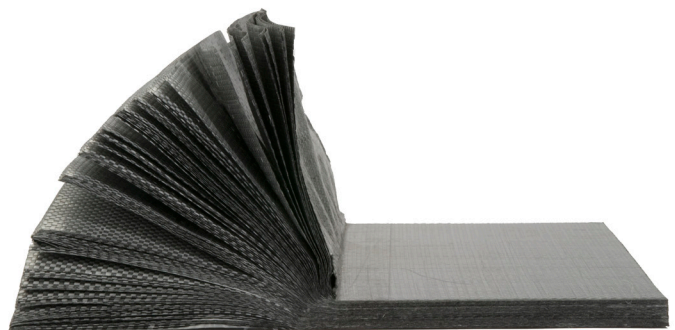
Available in silver, white, or black/graphite

Plain, twill, or herringbone weaves, with custom options available

Standard sheet sizes 48" (122 cm) wide by up to 120" long (305cm)

Additional Benefits:

- Easy to machine and handle; won't irritate the skin
- Minimal tool or machine wear
- Processes at relatively low temperatures and pressures
- Bonds easily to other materials using Milliken's bond layer
- Paint by treating the surface with commercially available primers



Milliken™

Typical Tegriss[®] Material Properties

Tape

TEST	AVERAGE	ASTM METHOD
Tensile Modulus	14.0 GPa	ISO 527
Shrinkage (130°C)	< 5.5 %	D4974
Sealing Temperature	120°C	Milliken Method
Denier	1020	D1577

Fabric

TEST	WARP	FILL	ASTM METHOD
Tensile			D5035, 1" Strip
Peak Load, N	720	660	
Peak Load, lbf	160	150	
Elongation at Break (%)	7.8	7.1	
Yarns/inch	11	11	D3775
Thickness, mm	0.40		D1777
Areal Density, gsm	98		D3776
Areal Density, osy	3.0		
Standard Roll Width, cm	127		
Standard Roll Width, inches	50		

Consolidated Sheet

Properties vary with pressing conditions

TEST	AVERAGE	ASTM METHOD
Bulk Density, g/cm ³	0.78	D792
Thickness, mm/layer	0.125	
inch/layer	0.005	
Tensile		D638
Strength, MPa	200	
kpsi	30	
Modulus, GPa	5-6	
kpsi	720-870	
Elongation at Break, %	6	
Flexural Modulus, GPa	5-6	D790
kpsi	720-870	
Heat Deflection Temp, °C, 1820 kPa	95	D648
455 kPa	130	
CTE (-60 to +40°C), 10 ⁶ /°C	6	D696
10 ⁶ /°F	3	
Gardner Dart Impact, -40°C, J	24.7	D5420
ft-lb	33.6	
Gardner Dart Impact, 20°C, J	24.5	D5420
ft-lb	33.3	
Notched Izod Impact, kJ/m	4.8	
ft-lbf/i	90	

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