

# MATERIAL PROPERTY DATA SHEET

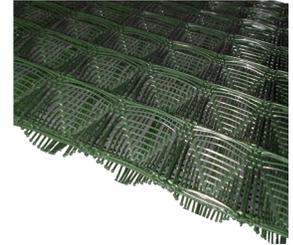


## EXCEL PP5-Xtreme™

Permanent • 3-D Woven • UV Stable •  
High Performance Turf Reinforcement Mat

### DESCRIPTION

PP5-Xtreme is a High-Performance Turf Reinforcement Mat (HP-TRM) produced by weaving 100% UV-stabilized, high denier synthetic mono-filament yarns woven into permanent, high-strength, three-dimensional structure. The optimized properties of the material provide immediate erosion control with excellent vegetation establishment and class-leading long-term turf reinforcement. Additionally, the high strength at low elongation is ideal for slope stability applications (when paired with deep-seated, high strength anchors) and is unique compared to other HPTRMs. The design life of PP5-Xtreme is rated at fifty years in typical installations, however, can vary based on conditions. PP5-Xtreme is made in the USA and monitored by quality assurance testing at a GAI-LAP accredited laboratory.



Material Content	
Woven , Single Layer	Green or Tan

Standard Roll Sizes			
Width	8 ft (2.4 m)	15 ft (4.5 m)	
Length	135 ft (40.5 m)	150 ft (45 m)	
Weight ± 10%	90 lb (42.0 kg)	113 lb (51.0 kg)	
Area	120 sy (100 m <sup>2</sup> )	250 SY (209 m <sup>2</sup> )	

Material available in custom roll sizes

Approvals & Classification	
Classification	FHWA: Type 5.C / ECTC: 5.F
TTI Approvals	N/A
NTPEP Number	ECP-2022-01-014

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Index Property	Test Method	MARV	
Thickness	ASTM D6525	0.3 in.	(7 mm)
Mass/Unit Area	ASTM D6566	9.0 oz/sy	(300 g/sm)
Tensile Strength – MD	ASTM D6818	4,000 lbs/ft	(58.4 kN/m)
Tensile Strength – TD	ASTM D6818	3,000 lbs/ft	(43.8 kN/m)
Elongation - MD	ASTM D6818	25%	
Elongation – TD	ASTM D6818	20%	
UV Stability	ASTM D4355	90% @6000 hr	
UV Stability	ASTM D7238	90% @6000 hr	
Resiliency	ASTM D6524	75%	
Light Penetration	ASTM D6567	30%	
Biomass Improvement	ASTM D7322	325%	
Specific Gravity	ASTM D792	57.4 lb/ft <sup>3</sup>	(0.92 g/cm <sup>3</sup> )
Porosity	ECTC	95%	
Carbon Footprint	GHG*	1.6 kg CO <sub>2</sub> e/m <sup>2</sup>	

Design Parameters		
Property	Unvegetated	Vegetated <sup>3</sup>
RUSLE C Factor <sup>2</sup>	N/A	N/A
Slope Maximum Gradient <sup>1</sup>	0.5H:1V	0.5H:1V
Permissible Shear Stress <sup>2</sup>	2.3 psf	17.0 psf (815 Pa)
Permissible Velocity <sup>2</sup>	8.0 fps	25.0 fps (7.6 m/s)
$\tau_{veg} / \tau_{TRM}$ (HEC-15)	N/A	0.26

Manning's n Roughness (HEC-15)		
$\tau_{lower}$	$\tau_{mid}$	$\tau_{upper}$
0.027	0.027	0.025

<sup>1</sup> Maximum Gradient a recommendation for typical installations.

<sup>2</sup> Hydraulic thresholds compliant with ASTM D6459/D6460 but generalized for typical applications.

<sup>3</sup> Vegetated values dependent on established stand of vegetation

\*WRI/WBCSD Greenhouse Gas Protocol: Product Life Cycle Accounting and Reporting Standard, 2013.