

## Mirafi® TM13C and TM14S High Performance Turf Reinforcement Mat (HPTRM)

### OUR COMPANY

TenCate develops and produces materials that function to increase performance, reduce costs and deliver measurable results by working with our customers to provide advanced solutions.

### OUR PRODUCT

Mirafi® TM13C and TM14S High Performance Turf Reinforcement Mat (HPTRM) are 3 dimensional, lofty synthetic erosion control mats that provide bare soil retention, vegetation nurturing and high performance turf reinforcement. The flexible mats are designed for steep slopes where high performance (soft armor) erosion control is required.

Mirafi® TM13C and TM14S are woven from polypropylene yarns with a patented technology that creates a random 3 dimensional pattern. The industry exclusive design produces "inner pockets," which entrap and entangle the grass root system.

Unlike typical HPTRM systems in the marketplace that exhibit a uniform pyramidal shaped pattern, the unique design of Mirafi® TM13C and TM14S

allows for a lighter weight geosynthetic, which lowers the overall carbon footprint by reducing the volume of raw material required as well as decreasing material handling effort in the field.

With a lighter weight and more open design, Mirafi® TM13C and TM14S are able to accomplish comparable or superior performance results to that of typical pyramidal shaped HPTRM systems. The random pattern (vs a symmetrical pattern) assists with the dissipation of flowing water, and the increased roughness coefficient, combined with greater light penetration, creates a nurturing environment in which the grass root system is allowed to grow.

Mirafi® TM13C is suitable for both channel lining and slope/overtopping applications. Mirafi® TM14S has been developed exclusively as slope/overtopping protection with superior performance and efficiency. Mirafi® TM13C and TM14S are suitable for slopes up to 45 degrees (1:1) and are intended as a countermeasure for surface erosion control.

Mirafi® TM13C and TM14S are inert to biological degradation and resist naturally encountere-

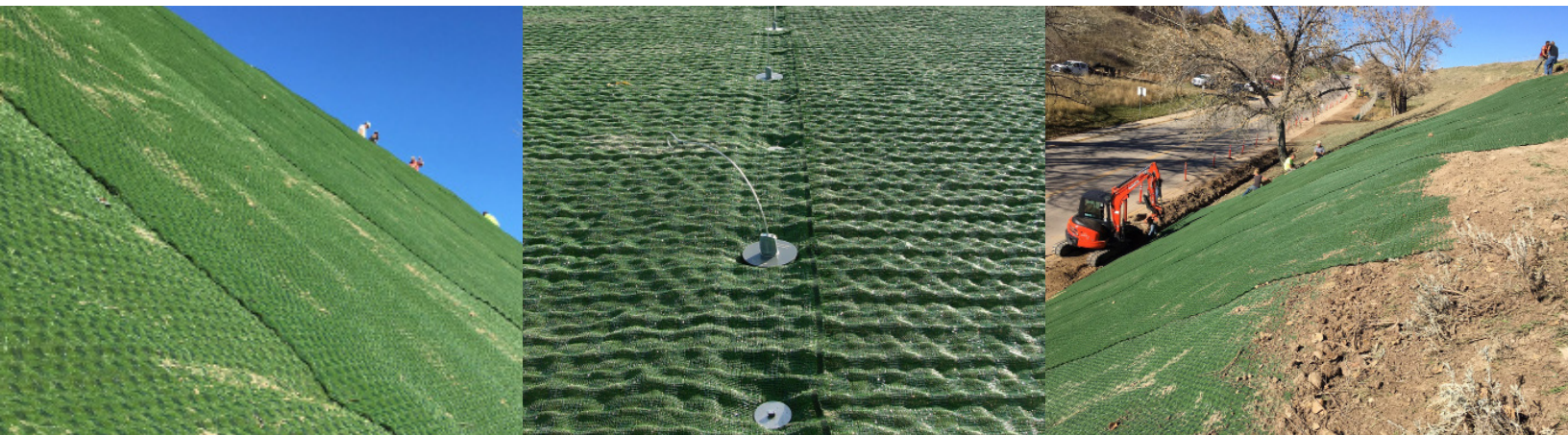


Mirafi® TM13C

chemicals, alkalis and acids. These products will have a life-span of 50-75 years when handled and installed properly in an appropriately designed project.

### OUR COMPANY

TenCate offers comprehensive service that includes assistance during design and specification. With extensive knowledge and great customer service, TenCate makes the difference.



# Mirafi® TM13C and TM14S

## High Performance Turf Reinforcement Mat (HPTRM)

MECHANICAL PROPERTIES	TEST METHOD		UNIT	TM13C	TM14S
Tensile Strength @ Ultimate (MD/CD)	ASTM D6818	MARV	lbs/ft	3096/3096	3000/2400
UV Resistance (at 3000 hours)	ASTM D4355	Minimum Test Value	% strength retained	95	95 <sup>1</sup>
UV Resistance (at 6000 hours)	ASTM D4355	Minimum Test Value	% strength retained	90	90 <sup>1</sup>
UV Resistance (at 10000 hours)	ASTM D4355	Minimum Test Value	% strength retained	83	83 <sup>1</sup>
Thickness	ASTM D6525	Typical Roll Value	mils	475	475
Resiliency	ASTM D6524	Typical Roll Value	%	70ResIR	
Resiliency	ASTM D6524	Typical Roll Value	mils	330	330
Tensile Elongation	ASTM D6818	Maximum Roll Value	%	50	50
Light Penetration	ASTM D6567	Maximum Roll Value	%	40	40

PHYSICAL PROPERTIES	TEST METHOD	UNIT	MARV	
			TM13C	TM14S
Mass Per Unit Area	ASTM D6566	oz/yd <sup>2</sup>	9.0	8.5
Color			Green or Tan	Green

PHYSICAL PROPERTIES	TEST METHOD	UNIT	VALUE	
			TM13C <sup>2</sup>	TM14S
Velocity (Fully Vegetated)	Large Scale	ft/sec	> 25	N/A
Shear Stress (Fully Vegetated)	Large Scale	lbs/ft <sup>2</sup>	16.9	N/A
Manning's Coefficient	Calculated	"n"	0.033	0.033
Overtopping Discharge	Large Scale	cfs/ft <sup>2</sup>	N/A	4.0 <sup>3</sup>

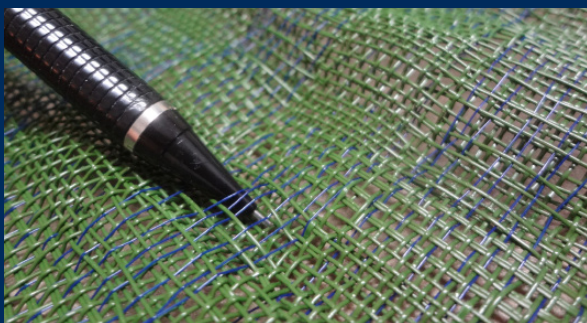
<sup>1</sup> Value based on Mirafi® TM13C test results. TM13C and TM14S utilize the identical yarn.

<sup>2</sup> Based upon full-scale independent testing performed at TRI Environmental.

<sup>3</sup> Based on 3:1 bed slope.

### PATENTS:

FGS000795; ETQR2; 8,252,705      FGS000735; ETQR5; 8,252,705



Industry exclusive Patented Technology creates random pockets within the HPTRM structure to encapsulate and entangle the grass root system.



Third party laboratory and flume testing to further validate the suitability and advantages of Mirafi® TM13C and TM14S.

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