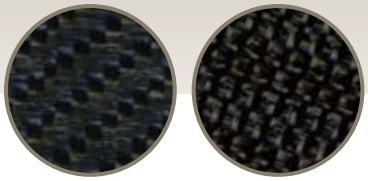
GEOTEX® SOIL REINFORCEMENT GEOTEXTILES



Geotex® soil reinforcement geotextiles are specially designed for structural reinforcement in civil and environmental applications. They are woven with high-tenacity polyester and/or polypropylene yarns, and they possess superior hydraulic and strength characteristics. These properties make Geotex geotextiles ideal for reinforcing embankments over soft soils, steepened slopes, retaining walls, lagoon closures and landfill lining systems.

FEATURES & BENEFITS

- Superior chemical resistance in even the most aggressive environmental applications
- Yarns are woven together to form a strong fabric possessing superior hydraulic and strength characteristics
- Reinforcement geotextiles made from high-tenacity polyester and/or polypropylene yarns provide the maximum performance at minimal cost
- Contains additives for maximum ultraviolet (UV) resistance

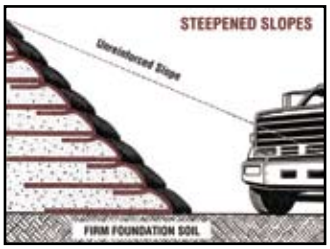
Outperforms and is more cost-effective than conventional soil reinforcement systems, including:

- **Geogrids or steel strips**
- **Flatter slopes**
- **Concrete cantilever walls**

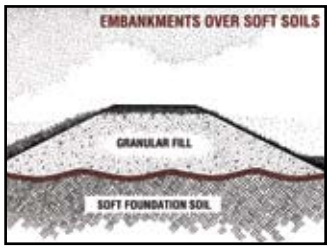
GEOTEX® SOIL REINFORCEMENT GEOTEXTILES PRODUCT FAMILY TABLE

BIAXIAL	UNIAXIAL
GEOTEX® 2 x 2 HF*	GEOTEX® 4 x 1
GEOTEX 3 x 3 HF*	GEOTEX 6 x 1
GEOTEX 4 x 4	GEOTEX 9 x 1
GEOTEX 4 x 4 HF*	GEOTEX 12 x 1
GEOTEX 4 x 6	

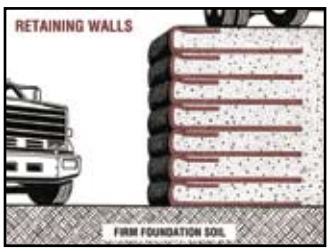
*HF: Indicates high water flow capabilities



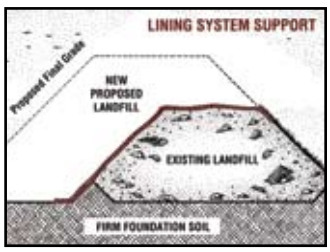
Slopes reinforced with Geotex® geotextiles maximize land use in transportation and site development projects.



The unique weave of Geotex® woven geotextiles forms a robust fabric with high tensile strengths and superior hydraulic characteristics.



Sudden changes in elevation may require wrapped-face or modular block walls.



Geotex® soil reinforcement geotextiles help protect new landfill lining systems in "piggyback" construction techniques.

PROPEX® GEOSYNTHETICS | THE ADVANTAGE CREATORS.™

GEOTEX® SOIL REINFORCEMENT GEOTEXTILES

APPLICATION RECOMMENDATIONS FOR GEOTEX® SOIL REINFORCEMENT GEOTEXTILES

	APPLICATION	ORGANIZATION/ REFERENCE #	CATEGORY	GEOTEX® STYLE
SOIL REINFORCEMENT	STEEPENED SLOPES	FHWA/SA-93-025	–	GEOTEX® 4x1, 6x1, 9x1, 12x1
	RETAINING WALLS	NCMA/TR127A	–	GEOTEX 4x1, 6x1, 9x1, 12x1
	EMBANKMENTS OVER SOFT SOIL	US ARMY CORPS/GL-89-30	–	GEOTEX 2 x 2 HF, 3x3 HF, 4x4, 4x4 HF, 4x6
	LAGOON CLOSURES	–	–	GEOTEX 2x2 HF, 3x3 HF, 4x4, 4x4 HF

NOTES: · FHWA: Federal Highway Administration · NCMA: National Concrete Masonry Association

GEOTEX® SOIL REINFORCEMENT BIAXIAL GEOTEXTILES PROPERTY TABLE[1] ENGLISH & METRIC UNITS

	PROPERTY	TEST METHOD	VALUE[3]	UNIT	2x2 HF[4]	3x3 HF[4]	4x4	4x4 HF[4]	4x6
MECHANICAL	WIDE WIDTH TENSILE STRENGTH (MD/XD)[2]	ASTM D-4595	MARV	lb/ft kN/m	2400 x 2400 35 x 35	3600 x 3600 52 x 52	4800 x 4800 70 x 70	4800 x 4800 70 x 70	4800 x 7200 70 x 105
	WIDE WIDTH TENSILE STRENGTH AT 5% STRAIN	ASTM D-4595	MARV	lb/ft kN/m	744 x 1404 10.8 x 20.5	1392 x 1740 20.3 x 25.4	1452 x 2604 21.2 x 38.0	1929 x 2508 28.2 x 36.6	1200 X 2640 17.5 X 38.5
	WIDE WIDTH ELONGATION	ASTM D-4595	MARV	%	12 x 8	15 x 10	10 x 8	9 x 9	14 x 9
	GRAB TENSILE STRENGTH (MD/XD)[2]	ASTM D-4632	MARV	lb N	315 x 315 1400 x 1400	450 x 350 2000 x 1550	600 x 500 2670 x 2220	450 x 410 2000 x 1820	600 x 640 2670 x 2848
	GRAB ELONGATION (MD/XD)[2]	ASTM D-4632	MARV	%	15 x 15	15 x 6	15 x 15	15 x 15	15 x 15
	PUNCTURE STRENGTH	ASTM D-4833	MARV	lb N	140 622	180 800	180 800	200 890	260 1155
	MULLEN BURST	ASTM D-3786	MARV	psi kPa	800 5510	1000 6890	1350 9300	1200 8270	> 1200[(5)] > 8270[(5)]
	TRAPEZOIDAL TEAR (MD/XD)[2]	ASTM D-4533	MARV	lb N	125 x 125 556 x 556	180 x 120 800 x 534	250 x 250 1110 x 1110	225 x 225 1000 x 1000	250 x 300 1110 x 1335
HYDRAULIC	APPARENT OPENING SIZE (AOS)	ASTM D-4751	MaxARV	US Sieve mm	40 0.425	30 0.600	30 0.600	30 0.600	40 0.425
	PERMITTIVITY	ASTM D-4491	MARV	sec^{-1}	0.70	0.52	0.15	0.60	0.30
	WATER FLOW RATE	ASTM D-4491	MARV	gpm/ft^2 $l/min/m^2$	50 2035	40 1630	10 405	45 1830	20 810
ENDURANCE	UV RESISTANCE	ASTM D-4355	MARV	% Retained @ 500 hours	80	80	80	80	80

	PROPERTY	TEST METHOD	VALUE[3]	UNIT	2x2 HF[4]	3x3 HF[4]		4x4			4x4 HF[4]	4x6
PACKAGING	ROLL WIDTH	MEASURED	TYPICAL	ft m	15 4.57	12.5 3.81	15 4.57	12.5 3.81	15 4.57	18 5.48	15 4.57	15 4.57
	ROLL LENGTH[6]	MEASURED	TYPICAL	ft m	300 91.5	360 109.8	300 91.5	216 65.8	180 54.9	150 45.7	300 91.5	MR
	ROLL WEIGHT	CALCULATED	TYPICAL	lb kg	260 118	338 153	342 155	276 125	280 127	284 129	455 206	283-1320 128-599
	ROLL AREA	MEASURED	TYPICAL	yd^2 m^2	500 418	500 418	500 418	300 251	300 251	300 251	500 418	222-1250 187-1045

NOTES: 1. The property values listed are effective 05/2008 and are subject to change without notice. 2. Values reported in machine direction and cross direction, respectively. MD indicates Machine Direction and XD indicates Cross Direction. 3. All values listed are Minimum Average Roll Values (MARV) unless otherwise noted, calculated as the typical minus two standard deviations. Statistically, it yields a 97.7% degree of confidence that any sample taken during quality assurance testing will exceed the value reported. Maximum Average Roll Values (MaxARV) is calculated as typical plus two standard deviations. 4. HF: Indicates high water flow capabilities 5. Mullen Burst values are greater than testing equipment capacity. 6. MR: Indicates Master Roll

GEOTEX® SOIL REINFORCEMENT UNIAXIAL GEOTEXTILES PROPERTY TABLE[1]

ENGLISH & METRIC UNITS

	PROPERTY	TEST METHOD	VALUE[3]	UNIT	4 x 1	6 x 1	9 x 1	12 x 1
MECHANICAL	WIDE WIDTH TENSILE STRENGTH	ASTM D-4595	MARV	lb/ft kN/m	4800 70	7200 105.1	10800 152.7	14400 210.2
	WIDE WIDTH TENSILE STRENGTH AT 5% STRAIN	ASTM D-4595	MARV	lb/ft kN/m	1800 26.2	3000 43.7	4500 65.7	6000 87.6
	WIDE WIDTH ELONGATION	ASTM D-4595	MARV	%	8	9	9	11
	LONG-TERM DESIGN STRENGTH (LTDS)[4]	GRI-GT7	MARV	lb/ft kN/m	2272 33.1	3499 51.0	5764 84.4	7685 112.2
POLYMERIC	CARBOXYL END GROUP (CEG)	GRI-GC7	MAXIMUM	mmol/kg	30	30	30	30
	POLYMER TYPE	–	–	–	PET/PP	PET/PP	PET/PP	PET/PP
	MOLECULAR WEIGHT	GRI-GC8	MINIMUM	–	25000	25000	25000	25000
HYDRAULIC	APPARENT OPENING SIZE (AOS)	ASTM D-4751	MaxARV	US Sieve mm	30 0.600	30 0.600	30 0.600	30 0.600
	PERMITTIVITY	ASTM D-4491	MARV	sec^{-1}	0.03	0.03	0.03	0.03
	WATER FLOW RATE	ASTM D-4491	MARV	gpm/ft^2 $l/min/m^2$	2 80	2 80	2 80	2 80
PACKAGING	ROLL WIDTH	MEASURED	TYPICAL	ft m	7.5 2.29	7.5 2.29	7.5 2.29	15 4.57
	ROLL LENGTH	MEASURED	TYPICAL	ft m	300 91.5	300 91.5	300 91.5	300 91.5
	ROLL WEIGHT	CALCULATED	TYPICAL	lb kg	100 45	135 61	185 84	471 214
	ROLL AREA	MEASURED	TYPICAL	yd^2 m^2	250 209	250 209	250 209	500 418

NOTES: 1. The property values listed are effective 05/2008 and are subject to change without notice. 2. Values reported in machine direction. 3. All values listed are Minimum Average Roll Values (MARV) unless otherwise noted, calculated as the typical minus two standard deviations. Statistically, it yields a 97.7% degree of confidence that any sample taken during quality assurance testing will exceed the value reported. Maximum Average Roll Values (MaxARV) is calculated as typical plus two standard deviations.

4. Long Term Design Strength (LTDS) = $$\frac{T_{ult}}{RF_{cr} \cdot RF_{id} \cdot RF_{d} \cdot RF_{jnt}}$$

- RF_{cf} = Reduction factor for creep resistance
- RF_{id} = Reduction factor for installation damage
- RF_{d} = Reduction factor for biological and chemical durability
- RF_{jnt} = Reduction factor for joints or seams
- T_{ult} = Ultimate wide width tensile strength (based on ASTM D-4595)

KEY PROPERTIES OF GEOTEX® SOIL REINFORCEMENT GEOTEXTILES

- Tensile Strength: Ability to resist stresses in the plane of the fabric.
- High Modulus: Provides high strength at low elongations.

For downloadable documents like construction specifications, installation guidelines, case studies and other technical information, please visit our web site at **geotextile.com**. These documents are available in easy-to-use Microsoft® Word format.

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