

## ROBUST GEOTEXTILES

### Product Information Sheet

#### 1. DESCRIPTION

Nonwoven geotextile manufactured from UV stabilised, high tenacity, virgin polypropylene fibres that have been mechanically entangled to provide high strength, high extensibility, high loft and excellent abrasion characteristics.

#### 2. APPLICATION

Typical uses for Terram Robust Geotextiles include the protection of impermeable membranes in landfill basal areas, side walls and caps, tailing lagoons, reservoirs, balancing ponds, reed beds, artificial lakes to prevent soil erosion from beneath rock armour and pre-cast concrete revetments, sea shores, rivers and water channels, lakes and reservoirs.

Application areas include:

- Landfill engineering
- Coastal and Waterways
- Pipeline and utility protection

#### 3. FEATURES

Engineered to provide high strength and high elongation at break to ensure excellent resistance to damage during construction. Terram Robust geotextiles are manufactured to performance properties, not weight, sufficient fibre will be added to achieve these properties.

Engineered to provide excellent protection properties in aggressive soils and liquids.

Manufactured from high tenacity UV stabilised virgin polypropylene fibres which have been heavily drawn to ensure excellent long term durability in all soil types.

Manufactured using a randomly orientated web to provide completely isotropic properties, ensuring that high strength is not limited to a single direction. Excellent uniformity with high permeability and low pore size for soil filtration.

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			Mean Value (Applied Tolerance Value <sup>[a]</sup> )														
			RG3	RG3.3	RG4	RG5	RG6	RG7	RG8	RG9	RG11	RG14	RG19	RG22	RG25	RG30	RG40
Test Method	Unit																
<b>4. MECHANICAL PROPERTIES</b>																	
CBR Puncture Resistance	EN ISO 12236	kN	3.0 (-0.3)	3.3 (-0.33)	4.0 (-0.4)	5.0 (-0.5)	6.0 (-0.6)	7.0 (-0.7)	8.0 (-0.8)	9.0 (-0.9)	11.0 (-1.1)	14.0 (-1.4)	19.0 (-1.9)	22.0 (-2.2)	25.0 (-2.5)	30.0 (-3.0)	40.0 (-4.0)
Tensile Strength	EN ISO 10319	kN/m	20 (-2.0)	22 (-2.2)	25 (-2.5)	30 (-3.0)	35 (-3.5)	40 (-4.0)	45 (-4.5)	50 (-5.0)	60 (-6.0)	75.0 (-7.5)	100.0 (-10.0)	115.0 (-10.0)	130.0 (-10.0)	160.0 (-10.0)	210.0 (-10.0)
Tensile Elongation		%	80 (±20)	80 (±20)	80 (±20)	80 (±20)	80 (±20)	80 (±20)	80 (±20)	80 (±20)	80 (±20)	80 (±20)	80 (±20)	80 (±20)	80 (±20)	80 (±20)	80 (±20)
Cone Drop	EN ISO 13433	mm	6 (+2)	5 (+2)	5 (+2)	5 (+2)	4 (+2)	3 (+2)	2 (+1)	2 (+1)	1 (+1)	1 (+1)	0 (+1)	0 (+0)	0 (+0)	0 (+0)	0 (+0)
<b>5. HYDRAULIC PROPERTIES</b>																	
Pore Size - Mean AOS	EN ISO 12956	µm	80 (±20)	80 (±20)	80 (±20)	75 (±20)	70 (±20)	70 (±20)	70 (±20)	60 (±20)	60 (±20)	60 (±20)	60 (±20)	60 (±20)	60 (±20)	60 (±20)	60 (±20)
Permeability—(H <sub>50</sub> )	EN ISO 11058	l/m <sup>2</sup> s	60 (-15)	60 (-15)	50 (-15)	40 (-12)	30 (-9)	30 (-9)	30 (-9)	25 (-7.5)	15 (-4.5)	15 (-4.5)	10 (-3)	10 (-3)	8 (-3)	5 (-2.5)	5 (-2.5)

			Retained Strength <sup>[b]</sup>														
			All Grades														
Test Method	Unit		RG3	RG3.3	RG4	RG5	RG6	RG7	RG8	RG9	RG11	RG14	RG19	RG22	RG25	RG30	RG40
<b>6. PROPERTIES RELATING TO DURABILITY</b>																	
Weathering 50MJ/m <sup>2</sup> exposure (1 month EU)	EN 12224	%	>90														
Microbiological resistance	EN 12225	%	No loss														
Resistance to acids & alkalis	EN 14030	%	No loss														
Oxidation at 85 days (100 years)	EN 12226	%	>90														
<b>7. PHYSICAL PROPERTIES (nominal)</b>																	
Thickness @ 2kPa	EN ISO 9863-1	mm	2.6	2.8	2.9	3.5	4.0	5.0	5.5	6.0	7.5	8.5	10.5	12.0	16.0	19.0	19.2
<b>8. MATERIAL DIMENSIONS</b>																	
Standard Roll Length		m	175	175	150	150	150	125	125	100	75	75	50	50	50	50	50
Standard Roll Width		m	5.85	5.85	5.85	5.85	5.85	5.85	5.85	5.85	5.85	4.5	4.5	4.5	4.5	4.5	4.5
Maximum Roll Width		m	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	4.5	4.5	4.5	4.5	4.5	4.5
Gross Roll Weight (nominal) <sup>[c]</sup>		kg	360	380	420	520	620	550	620	570	520	520	460	525	600	710	930

**9. PACKAGING & IDENTIFICATION** Terram Robust Geotextiles are supplied on cardboard cores and wrapped in Polyethylene sheeting with identification labels in accordance with ISO 10320. Single lift slings can be supplied upon request.

**10. STORAGE** The rolls of geotextile shall be stored on stable/ level ground and stacked not more than five rolls high and no other materials shall be stacked on top. The rolls can be stored outdoors when packaged, but should be protected from exposure to UV. All materials should be stored in accordance with good health and safety practice and in accordance with local laws. For additional information please refer to Terram Geotextiles MSDS.

**11. NOTES:**

- Reported values are arithmetic mean values unless otherwise stated, A set of test results shall be those results derived from specimens cut from one sample and taken across the full width of the roll. For sampling, EN ISO 9862 should be applied, i.e. samples should be taken not less than 5m from the end of the roll in machine direction and over the whole width in the cross machine direction. The location of the sample should be described exactly. Applied tolerances are based on 95% Confidence limits, this is the value below which not more than 5% of the test results may be expected to fall. This represents the value at 1.645 standard deviations below the mean value. For evaluation of conformance, statistical procedure should be used in line with section 5.2 of CEN/TR 15019: 2004. The tolerance value provided for tensile elongation is based on an absolute value; e.g. 60% ±20% = 40%-80%.
- Reported values are based on durability testing on the lowest grade product within a family, no loss indicates that there is no notable effect due to exposure, laboratory sample variation may identify a small change in properties.
- A Nominal value indicates that the value is not part of the performance specification and is provided for guidance only.
- Gross roll weight is based on 5.9m rolls at standard length, information provided is for lifting guidance only and does not for part of quality control.

**12. ADDITIONAL INFORMATION** Refer to the Terram Jointing Methods (downloadable from [www.terram.com](http://www.terram.com)) for when simple overlaps are required for subsequent and adjacent roll lengths. However, pegging, sewing, stapling or gluing can also be used depending upon the application, the sub-grade conditions, the loading, the convenience and the cost. These figures relate to standard product weights and roll sizes. Other weights, sizes and colours may be available on request. For further information please contact Fiberweb Geosynthetics' Technical Support. As part of its continual improvement process Fiberweb Geosynthetics Ltd reserve the right to change the properties listed on this data sheet without prior notice.

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