



# HPS (High Performance Square) Nonwoven Geotextiles



**1. DESCRIPTION** Thick needlepunched nonwoven geotextiles manufactured from 100% virgin polypropylene high tenacity fibres containing 1% active carbon black.

**2. APPLICATIONS** Typical applications for GEOfabrics' HPS Geotextiles include, but are not limited to:

- Membrane protection in landfill cells and cover systems
- Soil filtration and separation beneath rock armour in coastal defence
- Soil filtration within landfill cells
- Heavy duty soil filters in civil applications

**3. FEATURES**

- Optimised for maximum strength and performance – not mass
- Available in wide widths to allow for minimal construction costs – up to 6m
- Manufactured from a unique blend of high tenacity fibres providing class leading durability
- 100% virgin polypropylene fibres for guaranteed durability
- Carbon black for UV stability

Test	Unit	MEAN VALUES																			
		HPS2.5	HPS3	HPS3.3	HPS4	HPS5	HPS6	HPS7	HPS8	HPS9	HPS11	HPS12	HPS14	HPS17	HPS19	HPS22	HPS25	HPS30	HPS35	HPS40	
<b>4. MECHANICAL PROPERTIES</b>																					
Static puncture (CBR)	EN ISO 12236	kN	2.5	3	3.3	4	5	6	7	8	9	11	12	14	17	19	22	25	30	35	40
Push through displacement		mm	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65
Tensile strength (MD/CMD)	EN ISO 10319	kN/m	15	20	22	25	30	35	40	45	50	60	65	75	90	100	115	130	160	180	210
Tensile elongation (MD/CMD)		%	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80
Cone drop	EN ISO 13433	mm	10	6	13	5	5	4	3	2	2	1	1	0	0	0	0	0	0	0	0
Protection efficiency	EN ISO 13719	kN/m <sup>2</sup>	-	-	-	-	14	20	25	30	33	39	42	48	56	60	90	100	139	175	210
<b>5. FILTER PROPERTIES</b>																					
Apparent opening size	EN ISO 12956	µm	150	130	60	100	80	80	80	70	70	<69	<69	<69	<69	<69	<69	<69	<69	<69	<69
Water permeability v <sub>H50</sub>	EN ISO 11058	l/(m <sup>2</sup> ·s)	100	85	85	75	65	55	50	45	40	35	30	30	15	10	9	8	8	5	5
Coefficient of permeability		m/s 10 <sup>-3</sup>	7.0	6.6	6.6	6.6	6.4	5.7	5.5	5.2	4.8	4.7	4.2	3.9	2.6	1.9	1.9	2.2	2.4	1.7	1.7
<b>6. PHYSICAL PROPERTIES</b>																					
Thickness @ 2kPa (nominal)	EN ISO 9863-1	mm	3.5	3.9	3.0	4.4	4.9	5.2	5.5	5.8	6.0	6.7	7.0	7.8	8.8	9.5	10.5	14.0	15.0	16.5	17.0
Carbon black content	1% Active Carbon Black																				
Standard colour	Black																				
Polymer	100% Virgin Polypropylene																				



Product Data Sheet  
 GEOfabrics HPS Group  
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7. DURABILITY	Test	
Weathering 50 MJ/m <sup>2</sup> exposure (1 month)	EN ISO 12224	>90% Retained Strength
Microbiological resistance	EN ISO 12225	No Loss in Strength
Resistance to acids & alkalis	EN ISO 14030	No Loss in Strength
Oxidation at 112 days (100 years)	EN ISO 13438	>90% Retained Strength

Notes:

- a) Mean values indicate the arithmetic mean derived from the samples taken for any one test as defined in the standard – usually an overall mean of five samples. Mean values are subject to tolerances based on 95% confidence limits as published on the product CE declaration of performance.
- b) Nominal Value (indicates an average manufacturing norm and not a controlled performance parameter).
- c) MD: Machine Direction (longitudinal to the roll).
- d) CMD: Cross Machine Direction (across the roll).
- e) Tensile testing is performed using extensometers.

	Unit	VALUES																		
		HPS2.5	HPS3	HPS3.3	HPS4	HPS5	HPS6	HPS7	HPS8	HPS9	HPS11	HPS12	HPS14	HPS17	HPS19	HPS22	HPS25	HPS30	HPS35	HPS40
8. STANDARD DIMENSIONS																				
Roll Width	m	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5.9	5.9	5.9	5.9
Length	m	150	175	150	150	150	150	125	125	100	75	75	75	50	50	50	50	50	50	
Approximate Roll Weight	Kg	315	400	360	400	460	530	520	610	600	500	540	630	530	590	690	850	980	1120	1300

**9. NEEDLE DETECTION**

During manufacture, the geotextile passes close to three sets of magnets which remove metal particles up to 12g and >2mm. Just before the roll up, the geotextile passes through an electronic metal detection field. Audio and visual alarms indicate if metal particles are detected. Rolls are sent to stock if they pass through the field without an alarm event or, in the case of an alarm event, the operator inspects the suspect area, locates any metal particles and removes them. If unsuccessful, or if any doubt remains as to the presence of metal particles, then the roll goes to the re-inspection facility

**10. TESTING**

All materials are tested every 6000m<sup>2</sup> in an UKAS accredited ISO 17025 laboratory to all mechanical properties prior to release.

**11. STORAGE**

Geotextiles are supplied in packaging designed to protect the product from damage during handling and storage and degradation as a result of UV exposure. The product should be kept in appropriate packaging until such time that it is required for installation. The geotextile is clearly and indelibly marked with the product name along the edge of the roll at regular intervals no greater than 5m. The packaging is labelled clearly to identify the product supplied in accordance with EN ISO 10320: Geotextile and Geotextile related products – Identification on site. Use slings where provided. Product weights are given on roll tickets. Use equipment appropriate to weight and dimension. Store and handle in accordance with good occupational hygiene and safety practice.



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