

## P – Protection Geotextiles

TenCate Polyfelt® P geotextiles are mechanically bonded (needle punched) continuous filament nonwovens from 100% UV stabilized polypropylene. They have been developed for optimum protection efficiency for geomembranes.

### TenCate Polyfelt® P geotextiles maintain the permanent sealing function of synthetic geomembranes

TenCate Polyfelt® P geotextiles prevent direct puncturing of the geomembrane by the sharp edges of the stone fill. Thanks to a combination of product thickness and stiffness, pressure and friction stresses which can damage geomembranes are significantly reduced.

TenCate Polyfelt® P geotextiles offer a high tensile strength at low strain. This supports the protection function as the thickness is maintained even when the geotextile experiences high tensile forces. In addition this takes stress loads from the geomembrane and reduces the danger of sliding especially on slopes.

### TenCate Polyfelt® P geotextiles have a drainage function

The high in-plane-flow of TenCate Polyfelt® P throughout the thickness of the material allows

water and gas to drain. Decades of experience in tunnel construction with this material have shown that TenCate Polyfelt® P replaces the need for drainage material around the tunnel lining.

### TenCate Polyfelt® P geotextiles are robust and long-lasting

TenCate Polyfelt® P is resistant to all chemical and biological media usually occurring in soils and construction materials. It cannot be dissolved by water and therefore is harmless to ground water.

TenCate Polyfelt® P geotextiles are equipped with a UV-stabilizer, providing extended resistance to direct sunlight.

### Service is a part of quality

Thanks to a worldwide network of subsidiaries and trading partners TenCate Polyfelt® P geotextiles are quickly available. Standard grades can be delivered promptly. For technical questions an experienced team of experts is at your service.



TenCate Polyfelt® P



### The advantages at a glance:

- High protection efficiency
- Excellent chemical and biological resistance
- High tensile strength at low elongation
- Good in-plane water and gas permeability



## Applications

Landfill surface drainage/sealing



Landfill base sealing



Cut-and-cover tunnels



NATM tunnels



Canals & reservoirs



## P – Protection Geotextiles – Technical Data

Properties [Standard]	Unit	P30	P40	P50	P60	P70	P80	P100	P100 S	P120	
Raw material / Type of fibre		100 % polypropylene, UV stabilized, continuous filaments									
Strip tensile strength [EN ISO 10319]	MD/CD kN/m	20/20	27/27	34/34	43/43	43/43	55/55	68/68	68/68	75/75	
Elongation at max. load [EN ISO 10319]	MD/CD %	80/70	85/75	85/70	91/72	90/73	95/75	98/96	100/95	105/100	
Elongation at 10% [EN ISO 10319]	kN/m	5.0	7.0	8.0	9.0	10.0	11.0	14.0	14.0	14.5	
CBR puncture resistance [EN ISO 12236]	kN	3.5	4.5	5.7	7	7.5	9	11	11	11	
CBR displacement [EN ISO 12236]	mm	60	60	60	60	60	60	62	62	63	
Cone drop resistance (hole diameter) [EN ISO 13433]	mm	15	11	9	7.5	7	5.5	3.9	3.9	3	
Protection efficiency [EN 13719 – Deformation at 300 kPa]	%	2	1.8	1.6	1.3	1.1	0.9	0.7	0.7	0.6	
Pyramidal puncture resistance [EN 14574]	kN	0.30	0.45	0.55	0.70	0.85	1	1.40	1.40	1.90	
Opening size [EN ISO 12956]	µm	85	85	80	85	80	80	70	75	65	
Permeability vertical [EN ISO 11058] Δh = 50 mm	l/m <sup>2</sup> s (mm/s)	75	55	45	35	30	20	15	15	10	
Water flow rate in the plane [EN ISO 12958]	20 kPa 10 <sup>-6</sup> m <sup>2</sup> /s	2.6	3.9	5.5	7.1	9.0	11.0	11.0	11.0	11.0	
	100 kPa 10 <sup>-6</sup> m <sup>2</sup> /s	0.66	1.1	1.6	2.3	3.1	4.1	4.1	4.1	4.1	
Weathering resistance [EN 12224] Residual strength	%	> 90	> 90	> 90	> 90	> 90	> 90	> 90	> 90	> 90	
Exposure time [acc. EN 13249 ff]	days	30	30	30	30	30	30	30	30	30	
Chemical resistance [EN 14030, Method A] Residual strength	%	100	100	100	100	100	100	100	100	100	
Microbiological resistance [EN 12225] Residual strength	%	100	100	100	100	100	100	100	100	100	
Thickness [EN ISO 9863-1]	2 kPa mm	2.8	3.4	4.2	4.8	5.7	6.3	7.2	7.5	8.3	
Mass per unit area [EN ISO 9864]	g/m <sup>2</sup>	300	400	500	600	700	800	1000	1000	1200	
<b>Forms of Supply</b>											
Width	m	6.0	6.0	6.0	6.0	6.0	6.0	5.4	5.4	5.2	
Length	m	120	100	80	65	55	50	40	40	35	

The values given are average values obtained in our laboratories and in testing institutes. The right is reserved to make changes without notice at any time.

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TenCate Geosynthetics Austria Gesm.b.H, TenCate Geosynthetics France S.A.S and TenCate Geosynthetics Netherlands b.v. are certified for the design, manufacturing and sales of geotextile and geotextile related products.

502 051 | 02/2019 | EN | PS-ASO