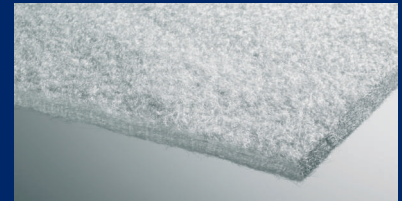


## P - Protection Geotextiles

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



TenCate Polyfelt P

### P- geotextiles maintain the permanent sealing function of synthetic geomembranes

P- geotextiles prevent direct contact of the geomembrane with sharp-edged stones. Thanks to a combination of product thickness and stiffness, pressure and friction stresses which can damage geomembranes are significantly reduced.

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.

### P- geotextiles have a drainage function

The high in plane flow of P throughout the thickness of the material allows water and gas to drain. Decades of experience in tunnel construction with this material has shown that P replaces the need for drainage material around the tunnel lining.



### P- geotextiles are robust and long-lasting

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.

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 P- geotextiles are quickly available. Standard grades can be delivered promptly. For technical questions an experienced team of experts is at your service.

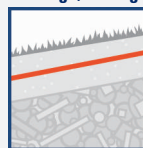


### The advantages at a glance:

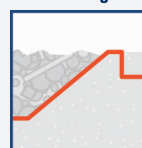
- High protection efficiency
- Excellent chemical and biological resistance
- High tensile strength at low elongation
- Good in-plane water and gas permeability

### Applications

Landfill surface drainage/sealing



Landfill base sealing



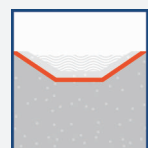
Cut-and-cover tunnels



NATM tunnels



Canals & reservoirs



## P - Protection Geotextiles - Technical Data

Properties <small>[Standard]</small>	Unit	P 50	P 60	P 70	P 80	P 100	P 120
Raw material / Type of fibre	-	100% polypropylene, UV stabilized, continuous filaments					
Strip tensile strength <small>[EN ISO 10319]</small>	MD / CD	34 / 34	40 / 40	43 / 43	46 / 46	55 / 55	75 / 75
Elongation at max. load <small>[EN ISO 10319]</small>	MD / CD	85 / 70	95 / 78	90 / 73	95 / 80	105 / 100	105 / 100
Strength at 10% strain <small>[EN ISO 10319]</small> weakest direction	kN/m	7.5	9.0	10.0	11.0	14.0	14.5
CBR puncture resistance <small>[EN ISO 12236]</small>	kN	5.7	6.8	7.5	8.5	9.6	11
Cone drop resistance (hole diameter) <small>[EN ISO 13433]</small>	mm	9	7.5	7	6	6	3
Protection efficiency <small>[EN 13719 - Deformation at 300 kPa]</small>	%	0.80	0.70	0.60	0.55	0.45	0.30
Opening size <small>[EN ISO 12956]</small>	µm	80	80	80	75	75	70
Permeability vertical <small>[EN ISO 11058] Δh = 50mm</small>	l/m <sup>2</sup> s (mm/s)	45	10	30	10	10	10
Water flow rate in the plane <small>[EN ISO 12958]</small>	20 kPa	5.5	7.1	9.0	11.0	11.5	11.5
	100 kPa	1.6	2.3	3.1	4.1	4.5	4.5
Weathering resistance <small>[EN 12224]</small> Residual strength	%	> 90					
Chemical resistance <small>[EN 14030, Method A]</small> Residual strength	%	> 80					
Microbiological resistance <small>[EN 12225]</small> Residual strength	%	> 93					
Thickness <small>[EN ISO 9863-1]</small>	2 kPa / 20 kPa	4.2 / 3.3	4.5 / 3.7	5.7 / 4.4	6.0 / 5.0	7.2 / 6.0	8.3 / 7.0
Mass per unit area <small>[EN ISO 9864]</small>	g/m <sup>2</sup>	500	600	700	800	1000	1200
<b>Forms of Supply</b>							
Width	m	6.0	6.0	6.0	6.0	5.4	5.2
Length	m	80	65	55	50	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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