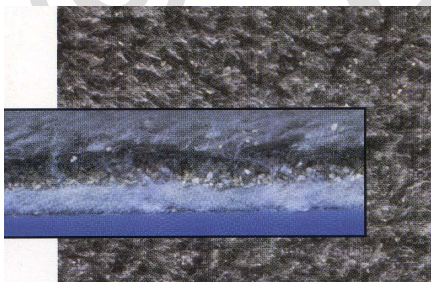


**MACLINE® GCL W 10**  
**GEOCLAYLINERS**

MACLINE® GCL type W consists of a layer of bentonite encapsulated between two geotextiles (one nonwoven and one woven polypropylene geotextile), needle punched together for maximum performance under a wide variety of field conditions. This integrated matrix of bentonite and needle punched fibres provides high shear strength and allows MACLINE® GCL to maintain low permeability even in adverse installation conditions. MACLINE® GCL has high internal shear strength characteristics for steep slope applications.

MACLINE® GCL			W 10	Notes
<b>Geotextiles Characteristics</b>				
Basal layer			Nonwoven geotextile	
Upper layer			Woven geotextile	
Polymer			Polypropylene	
Mass per unit	EN ISO 9864	g/m <sup>2</sup>	Basal layer 200 - Upper layer 100	1
<b>Bentonite Characteristics</b>				
Type			Sodium bentonite	
Specific weight		g/cm <sup>3</sup>	2.60	
Melting point		°C	1340	
Montmorillonite content		%	90 (-10)	2, 5
Water absorption	ASTM E946	%	> 650	
Free swelling capacity	ASTM D5890	ml/2g	≥ 24	
Bentonite fluid loss	ASTM D5891	ml	≤ 18	
Bentonite mass @12% moisture content	EN 14196	g/m <sup>2</sup>	4000	3
<b>Composite (GBR-C) Characteristics</b>				
Mass per unit	EN 14196	g/m <sup>2</sup>	4300	1, 3
Thickness	EN ISO 9863-1	mm	6.0	1
Peel strength	ASTM D6496	N/10 cm	65	1, 5, 6
Permeability	EN 16416 ASTM D5887	m/s	1.8x10 <sup>-11</sup> (+1.0x10 <sup>-11</sup> )	2, 5
Index flux	EN 16416 ASTM D5887	m <sup>3</sup> /m <sup>2</sup> s	≤ 7.0x10 <sup>-9</sup>	
Tensile strength (longitudinal)	EN ISO 10319	kN/m	12.0 (-2.5)	4
Elongation (longitudinal)	EN ISO 10319	%	20 (-5; +10)	2
Static puncture resistance - CBR	EN ISO 12236	kN	2.2 (-0.4)	4
Roll width		m	5.0 or 5.1	7



- 1) Nominal value; a standard 10% tolerance is admitted
- 2) Typical value
- 3) Nominal value dependent on the moisture content at 12%; the minimum content of bentonite at 0% moisture is 3200 g/m<sup>2</sup>
- 4) MARV value at 95% confidence limit corresponds to average minus the tolerance
- 5) Informative value
- 6) The reported value is related to peak resistance value; the average peeling resistance is equal to 400 N/m with a 10% admitted tolerance
- 7) Nominal value; a standard 1% tolerance is admitted. The roll width can be 5.00m or 5.10m according to the production need and stocks availability. Please check with the logistic department.

Protective packaging should not be removed until MACLINE® GCL is ready to be installed; MACLINE® GCL has to be covered within one day after the installation (EN 12224 - durability).

For the optimisation and improvement process of the technical characteristics of the products, the producer reserves the right to modify standard and characteristics at the product without any warning. The information contained herein is to the best of our knowledge accurate, but since the circumstances and conditions in which it may be used are beyond our control, we do not accept any liability for any loss or damage, however arising, which results directly or indirectly from the use of such information nor do we offer any warranty or immunity against patent infringement.