



## INFORMATION TECHNICAL CARD

GBR-P Geosynthetic Polymeric Barrier

### Geomembrane LLDPE smooth

Dated: 21.08.2014

	Use	Harmonized technical specification
<b>Fluid and/or gas barrier</b> (gases: concerns standards: EN 13492:2013+, EN 13493:2013)	in the construction of tunnels and associated underground structures	EN 13491:2013
	in the construction of liquid waste disposal sites, transfer stations or secondary containment	EN 13492:2013
	in the construction of solid waste storage and disposal sites	EN 13493:2013
	in the construction of reservoirs and dams	EN 13361:2013
	in the construction of canals	EN 13362:2013
	in transportation infrastructure	EN 15382:2013

Normative part						
Properties		Testing method	Value			
			GEOMEMBRANE LLDPE 0,75 G	GEOMEMBRANE LLDPE 1,00 G	GEOMEMBRANE LLDPE 1,50 G	GEOMEMBRANE LLDPE 2,00 G
1.	Thickness [mm]	PN-EN 1849-2	0,75 ±10%	1,00±10%	1,50±10%	2,00±10%
2.	Water permeability, [m <sup>3</sup> /m <sup>2</sup> /day]	PN-EN 14150	≤10 <sup>-6</sup>			
3.	Gas permeability, [cm <sup>2</sup> /sec*atm]	ASTM D 1434 (Procedure V)	≤ 2,9 x 10 <sup>-8</sup>			
4..	Tensile strength [N/mm <sup>2</sup> ] along and across	PN-EN ISO 527-1 PN-EN ISO 527-3	28 (-3)			
5.	Elongation at break [%] along and across	PN-EN ISO 527-1 PN-EN ISO 527-3	≥ 800			
6.	Static puncture resistance, [kN]	PN-EN ISO 12236	1,8 (-0,18)	2,5 (-0,25)	3,2 (-0,32)	5,0 (-0,5)
7.	Durability and resistance for - oxidation - weathering conditions resistance - environmental stress crack resistance	PN-EN 14575 PN-EN 12224 ASTM D 5397 (App.)	Fulfils the requirements			
8.	Hazardous substances	-	No hazardous substances			

#### REACH INFORMATION

This product is an article as defined in article 3 of regulation (EC) No 1907/2006 (REACH). It contains no substances which are intended to be released from the article under normal or reasonably foreseeable conditions of use. A safety data sheet following article 31 of the same regulation is not needed to bring the product to the market, to transport or to use it.

In accordance with our knowledge and assurance of our suppliers, polymers and all additives used for production of article do not contain substances (SVHC) from the candidate list.

This document was published for the information purposes. Information provided here is based on our knowledge and experience. It isn't a guarantee of properties of a product, quality specification and can't be used as the basis for the claim. The guaranteed values of the corresponding technical parameters will be approved with each client. The product should be transported, stored and used according to existing regulating and Health and Safety Protocols.

**Geomembrane LLDPE smooth**

Dated: 21.08.2014

Version: I



Properties		Testing method	Value			
			GEOMEMBRANE LLDPE 0,75 G	GEOMEMBRANE LLDPE 1,00 G	GEOMEMBRANE LLDPE 1,50 G	GEOMEMBRANE LLDPE 2,00 G
Information part						
1.	Width, [m]	PN-EN 1848-2	5,0 – 5,5 (± 0,2)			
2.	Tear resistance, [kN/m] along and across	PN-ISO 34-1	107	107	107	107
3.	Stress at yield, [MPa]	PN-EN ISO 527-1 PN-EN ISO 527-3	12			
4.	Yield strength, [kN/m] min.	ASTM D 6693 Type IV	7	11	17	24
5.	Break strength, [kN/m] min.		20	27	40	54
6.	Yield elongation, [%] min.		12			
7.	Break elongation, [%] min.		800			
8.	Thickness, [mm] The lowest individual reading	ASTM D 5199	0,75 -10%	1,00 -10%	1,50 -10%	2,00 -10%
9.	Density, [g/cm <sup>3</sup> ]	ASTM D 1505	≤0,939			
10.	Tear resistance, [N] min.	ASTM D 1004	80	107	160	214
11.	Puncture resistance, [N] min.	ASTM D 4833	265	310	465	620
12.	Environmental stress crack resistance, min.	ASTM D 5397 (App.)	336 hr			
13.	Carbon Black Content, [%]	ASTM D 1603	2,0-3,0			
14.	Carbon Black Dispersion	ASTM D 5596	9 in Categories 1 or 2			
15.	Oxidative Induction Time (OIT), [min] min.	ASTM D 3895	≥100			

*The results of the same characteristics determined by different standards may effect in different values. These differences result from other conditions of the test.*