1488-CPR-0139/Z

INFORMATION TECHNICAL CARD

GBR-P Geosynthetic Polymeric Barrier

Geomembrane GEOCHRON HDPE smooth

Dated: 22.09.2020
Version: VI
This data sheet replaces all earlier versions.

Use		Harmonized technical specification
Fluid and/or gas barrier (gases: concerns standards: EN 13492:2004 EN 13492:2004/A1:2006 EN 13493:2005)	in the construction of tunnels and underground structures	EN 13491:2004 EN 13491:2004/A1:2006
	in the construction of liquid waste disposal sites, transfer stations and secondary containment	EN 13492:2004 EN 13492:2004/A1:2006
	in the construction of solid waste storage and disposal sites	EN 13493:2005
	in the construction of reservoirs and dams	EN 13361:2004 EN 13361:2004/A1:2006
	in the construction of canals	EN 13362:2005
	in transportation infrastructure	EN 15382:2013

Normative part								
Properties		Testing method	Value					
			GEOCHRON 0,75 G	GEOCHRON 1,00 G	GEOCHRON 1,20 G	GEOCHRON 1,50 G	GEOCHRON 2,00 G	GEOCHRON 2,50 G
1.	Water permeability, [$m^3 \times m^{-2} \times d^{-1}$]	PN-EN 14150	≤ 10^{-6}					
2.	Gas permeability	ASTM D 1434 (Procedure V)	≤ 2,6 x 10^{-3} [$m^3 \times m^{-2} \times d^{-1}$] ≤ 1,5 x 10^{-1} [$mol \times m^{-2} \times d^{-1}$]					
3.	Tensile strength, [N/mm^2] along and across	PN-EN ISO 527-1 PN-EN ISO 527-3	30 (-4)					
4.	Static puncture resistance (CBR), [kN]	PN-EN ISO 12236	1,8 (-0,20)	3,0 (-0,40)	3,3 (-0,40)	4,3 (-0,60)	5,5 (-0,60)	6,5 (-0,65)
5.	Durability and resistance for - oxidation - weathering conditions resistance - environmental stress crack resistance	PN-EN 14575 PN-EN 12224 PN-EN 14576/ ASTM D 5397 (app.)	Fulfills the requirements					
6.	Hazardous substances	-	NPD					

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 and comply with Annex XVII REACH.

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Dated: 22.09.2020

Version: VI

Geomembrane GEOCHRON HDPE contains 97-98 % Polyethylene

Information part								
Properties		Testing method	Value					
			GEOCHRON 0,75 G	GEOCHRON 1,00 G	GEOCHRON 1,20 G	GEOCHRON 1,50 G	GEOCHRON 2,00 G	GEOCHRON 2,50 G
1.	Thickness, [mm]	PN-EN 1849-2	0,75 ±10%	1,00 ±10%	1,20 ±10%	1,50 ±10%	2,00 ±10%	2,50 ±10%
2.	Mass per unit area, (average) [g/m^2]	PN-EN 1849-2	705 (±10%)	940 (±10%)	1128 (±10%)	1410 (±10%)	1880 (±10%)	2350 (±10%)
3.	Width, [m]	PN-EN 1848-2	5,0 – 5,5 (± 0,2)					
4.	Tear resistance, [kN/m] along and across	PN-ISO 34-1	100 (-10%)	130 (-10%)	130 (-10%)	130 (-10%)	130 (-10%)	130 (-10%)
5.	Reaction to fire	PN-EN ISO 11925-2	Class E					
6.	Environmental Declaration Type II	PN-EN ISO 14021:2016-06	HDPE GEOCHRON geomembrane is made of primary materials (no regranulates) and does not contain plasticizers					
7.	Resistance to roots	prCEN/TS 14416	Pass					
8.	Stress at yield, [MPa]	PN-EN ISO 527-1	16					
9.	Elongation at break, [%] along and across	PN-EN ISO 527-3	≥ 800					
10.	Tensile strength, [kN/m] min.	PN-EN ISO 10319	7	15		23	30	
11.	Resistance to impact, [mm] min.	DIN 16726, PN-EN 12691 met. A	-	500		800	1200	1600
12.	Dynamic perforation test (cone drop test), hole diameter	PN-EN ISO 13433	≤19mm					
13.	Resistance to static load, [kg]	PN-EN 12730 met. B	-	≤20				
14.	Dimensional stability (1h, 100°C), [%]	PN-EN 1107-2	≤0,5					
15.	Resistance to leaching: met. A (leaching by hot water), met. B (leaching by aqueous alkaline liquids), met. C (leaching by oragnic alcohols)	PN-EN 14415	Fulfills the requirements					
16.	Resistance to chemicals for landfill applications: met. A (hydrolysis under acid conditions), met. B (hydrolysis under basic conditions), met. C (solvation and swelling), met. D (synthetic leachate)	PN-EN 14414						
17.	Microbiological resistance	PN-EN 12225						
18.	Cold folding resistance (-40°C)	PN-EN 495-5						
Requirements of GRI GM 13								
19.	Thickness, [mm] Lowest individual of 10 values	ASTM D 5199	0,75 (-10%)	1,0 (-10%)	1,2 (-10%)	1,5 (-10%)	2,0 (-10%)	2,5 (-10%)
20.	Density, [g/cm^3]	ASTM D 1505	≥0,940					
21.	Yield strength, [kN/m] min.	ASTM D 6693 Typ IV	11	15	19	22	29	37
22.	Break strength, [kN/m] min.		20	27	35	40	53	67
23.	Yield elongation, [%] min.		12					
24.	Break elongation, [%] min.		700					
25.	Multi-Axial, [%]	ASTM D 5617	-				23	-
26.	Tear resistance, [N] min.	ASTM D 1004	93	125	150	187	249	311
27.	Puncture resistance, [N] min.	ASTM D 4833	240	320	380	480	640	800
28.	Environmental stress crack resistance, min.	PN-EN 14576/ ASTM D 5397 (app.)	500					
29.	Carbon Black Content, [%]	ASTM D 1603	2,0-3,0					
30.	Carbon Black Dispersion	ASTM D 5596	Categories 1 or 2					
31.	Oxidative Induction Time (OIT), [min] min.	ASTM D 3895	≥100					
32.	UV resistance (1) HPOIT- % retained after 1600 hrs	ASTM D 5885	50%					
33.	Coefficient of Linear Thermal Expansion, [1/K]	ASTM D 696	1,56 x 10^{-4}					
34.	Low temperature brittleness (-100°C)	ASTM D 746	Pass					
(1)The condition of the test should be 20 hr. UV cycle at 75°C followed by 4 hr. condensation at 60°C								

Based on the test bath and physicochemical and mechanical properties, confirmed that the geomembrane GEOCHRON (≥ 1.0mm) is resistant to chemicals such as **gasoline, diesel, 70% sulfuric acid, nitric acid 65%, acetic acid 10%, hydrochloric acid 35-38% and other.** The tests were performed in accordance to standards EN ISO 175 and ISO 1817 (short-term and basic test). After exposure to chemical agents were determined changes: the weight, appearance and strength properties.

source: Test Report No. 90-17-0002 issued by the Technicky a Skusobny Ustav Stavebny, n.o. Test Laboratory, Studena 3, 821 04 Bratislava, Slovak Republic and OBR JSC R & D report - "Chemical Resistance of geomembrane GEOCHRON and other products produced from PE-HD".

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