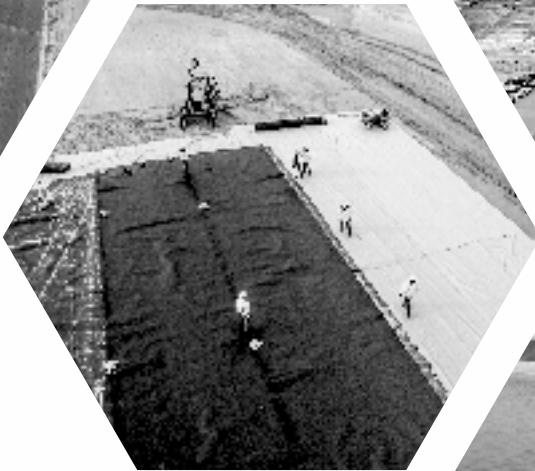


PRODUCT CATALOG

GEOMEMBRANES • CONSTRUCTION FOILS • FOILS FOR HORTICULTURE • AGRICULTURAL FOILS



Geomembrane

GEOCHRON HDPE

Geosynthetic polymer barrier – geomembrane known by the trade name GEOCHRON HDPE, is an insulating material with a very wide range of applications in road construction, railway and in municipal investments such as landfill sealings. Permanently installed in the ground, GEOCHRON HDPE geomembranes meet various functions arising from design assumptions, such as improving physico-mechanical sub construction performance, strengthening the stability of slopes, changing the values and directions of groundwater filtration, form a permanent water resistance and gas-tight aperture in the ground.

The advantages of GEOCHRON HDPE geomembrane quickly proved to be in environmental conditions and thanks to high mechanical strength, lack of microbiological degradation, water resistance, ease of installation, resistance to aging and many other features have become almost indispensable in geotechnical projects.

Many years of experience in manufacturing and selling geomembranes HDPE in conjunction with the launch of a new production line for geomembrane HDPE with its production based on proved, high-quality materials make our products meet the high demands of users. By increasing the production capacity and obtaining even higher quality for smooth and textured geomembranes, our products are able to meet the needs of even the most demanding customers.

GEOCHRON HDPE geomembranes are of 5-5.3 m width and of 0.75, 1.0, 1.2, 1.5, 2.0, 2.5, 3.0 mm thickness for smooth and of 1.0, 1.5, 2.0, 2.5 mm thickness for textured geomembranes. The choice of foil thickness for the application of sealing an object depends on its function.

GEOCHRON HDPE geomembrane meets all of the requirements of the harmonized standards: PN-EN 13491, PN-EN 13492, PN-EN 13493, PN-EN 13361, PN-EN 13362, PN-EN 15382 and most of the requirements of **GRI GM 13** towards polymeric geosynthetic barriers determined by the Geosynthetics Institute of Texas Research International Company (USA).

Waste seals

Hydraulic structure seals

Municipal and industrial landfills are investments which constitute a potential threat to the environment. The risks arise from the possibility of contamination of air, soil and ground and surface water.

The construction of a modern landfill, taking into account the maximum extent of protecting the environment, is a very difficult, responsible and demanding task that involves the best technology, engineering solutions and ideas. Proper sealing, and thereby protecting against the infiltration of leachate, is just as much of a key element of the construction of a new landfill, the expansion of next quarters, as during

rehabilitation or even closure. That is why most designers, investors and constructors decide to use **GEOCHRON HDPE** geomembrane for this purpose.

The advantages of GEOCHRON over other insulating materials involve:

- Physical properties and strength;
- Chemical resistance;
- Microbiological resistance;
- Aging resistance;
- Greater guarantee of join tightness;
- Break elongation 800% causes the insulating shutter to fulfill its task even during large building settlement.

The application of GEOCHRON foil as a barrier for preventing or restricting the flow of liquids:

- Sealing and reclamation of municipal waste landfills;
- Sealing within liquid fuel storage and distribution facilities;
- Municipal sewage treatment plants sealing (domestic and industrial wastewater) and slurry tanks;
- Construction of tunnels and underground structures;
- Construction of reservoirs and dams;
- Construction of channels.

geomembranes HDPE have been used for road construction in Western Europe for many years. Their use for this type of application was preceded by many years of observation and research of the material.

In order to protect the environment, in this case especially the groundwater, appropriate sealing of the substrate is necessary.

A particular threat to the purity of groundwater are leaking toxic fluids flowing from the road surface, dust produced during grinding tires, brakes and pavement and salt used for melting snow and ice. Contaminated water is acquired by groundwater basins or roadside ditches and thereby is creating a significant risk of groundwater contamination and the softening of grounds susceptible to moisture excess. To protect the environment, it is necessary to apply radical technical solutions: sealing through the use of impermeable materials, construction of efficient drainage and purification systems – sealed with the GEOCHRON HDPE geomembranes road ditches and evaporation reservoirs.

GEOCHRON HDPE geomembrane is used in communication engineering for:

- Forming insulating layers preventing from contaminated road runoffs;
- Strengthening the foundations of highways, airports, parking lots;
- Sealing of retention and evaporation reservoirs;
- Sealing of evaporation and drainage reservoirs;
- Sealing of road ditches;



- Insulation of water resistant building elements in contact with the ground, i.e.: retaining walls, bridge abutments, overpasses and communication tunnels, while strengthening high and steep earthen walls to prevent them from descending, etc.;
- Sealing and protecting embankments.

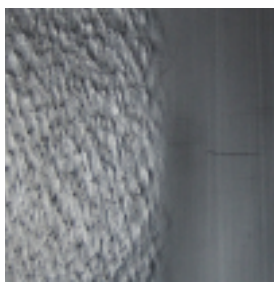
Laying and connecting

- Geomembrane should be laid on properly prepared substrate of smooth and uniformly densified surface cleaned of stones and other sharp elements which could cause damage to the material.

Conditions during the laying of geomembrane:

- Air temperature – it is recommended to perform the sealings at air temperature between +5°C and +40°C. Higher or lower temperatures have an adverse effect on transport, storage, handling, laying and connecting of particular geomembrane stripes.
- Wind – strong wind has an adverse effect on laying of particular geomembrane stripes, aligning tabs while performing the welds and on the cleanliness of the surface.
- Rain – dampness of the contact surfaces which are being connected during precipitation has a significant influence on the reduction of the quality of performed welds.

While performing the welds connecting particular geomembrane stripes it is recommended to use methods that ensure high quality of performed works. Surfaces of connected stripes should be free of contamination, dust, moisture and other foreign substances. They should also be aligned over the entire length of combined stripes with a welding hem appropriate for particular technology.



Textured geomembrane GEOCHRON HDPE has smooth stripes on both edges which enable welding and tightness testing

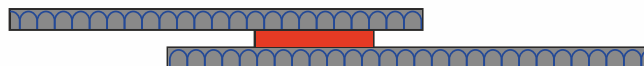
Methods recommended for connecting GEOCHRON geomembrane:

- Welding
- Soldering

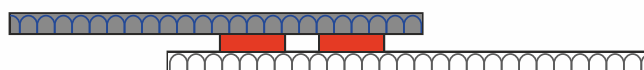
The soldering method is permitted only in places difficult to reach in which no other method can be applied as well as during the performance of all types of material repairs. For this purpose we recommend a HDPE wire 4mm in diameter. The most common and recommended method of connecting is welding, implemented as a one weld version or two welds separated by a test channel version.

The application of carefully selected and tested best quality raw materials in manufacturing GEOCHRON HDPE geomembrane ensures effective welding of the material. Whereas implementation of rigorous product testing procedures at every stage of its production in our own specialized laboratory provides the highest level of geomembranes!

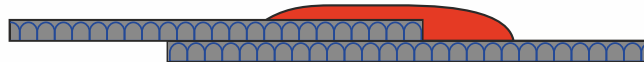
Welding with one weld



Welding with two welds



Soldering



- In every case the sealing barrier should be loaded with ground so it is not lifted by the working form underneath pressure of water or gas. The geomembrane should not be built-in directly under the surface of a roadside or an escarpment. The geomembrane should be stored and transported exclusively in pre-packaged rolls laid horizontally on an aligned surface. No loads should be laid on the rolls. The package of the rolls should not be removed until the building-in.
- During the loading, unloading and storage the rolls should be protected from mechanical or chemical damage and from the influence of high temperatures.
- The barrier should be laid so that it is aligned, without damage and foldings and so that it adheres well to the substrate. In case of application of geomembrane to perform objects located on territories of water protection and to perform tight water or effluent reservoirs, it is recommended to avoid welding connections. Tightness of such connections should be carefully checked after the completion of works. Connections of geomembrane should fulfill the requirements of PN-B-10290:1997 Standard.
- If the polymer barrier is being laid on a gravelly or stony ground or if it is being overwhelmed by such ground it should be protected by a special layer.
- To avoid barrier stripes movement e.g. by the wind, they should be temporarily loaded. The barrier is exposed to damage during building-in. Therefore, its condition should be checked in every case before covering with protective or other layers.

Normative part						
Properties	Testing method	Value				
		Geochron 1000 T	Geochron 1500 T	Geochron 2000 T	Geochron 2500 T	
1. Water permeability [m ³ x m ² x d ⁻¹]	PN-EN 14150	≤10 ⁻⁶				
2. Gas permeability	ASTM D 1434 (Procedure V)	≤ 2,6 x 10 ⁻³ [m ³ x m ² x d ⁻¹] ≤ 1,5 x 10 ⁻¹ [mol x m ² x d ⁻¹]				
3. Tensile strength [N/mm ²] along and across	PN-EN ISO 527-1 PN-EN ISO 527-3	23 (-4)				
4. Static puncture resistance (CBR), [kN]	PN-EN ISO 12236	2,0 (-0,3)	3,0 (-0,4)	5,0 (-0,6)	5,6 (-0,7)	
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				

Dated: 13.04.2022 Version: VII

Information part						
Properties	Testing method	Value				
		Geochron 1000 T	Geochron 1500 T	Geochron 2000 T	Geochron 2500 T	
1. Mass per unit area (average) [g/m ²]	PN-EN 1849-2	940 (±10%)	1410 (±10%)	1880 (±10%)	2350 (±10%)	
2. Width, [m]	PN-EN 1848-2	5,0 – 5,5 (± 0,2)				
3. Tear resistance [kN/m] along and across	PN-ISO 34-1	130 (-10%)	130 (-10%)	130 (-10%)	130 (-10%)	
4. Reaction to fire	PN-EN ISO 11925-2	Class E				
5. 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				
6. Elongation at break [%] along and across	PN-EN ISO 527-1 PN-EN ISO 527-3	≥ 600				
7. Dimensional stability (1h, 100°C), [%]	PN-EN 1107-2	≤ 0,5				
8. 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				
9. 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					
10. Microbiological resistance	PN-EN 12225					
11. Loss of tensile strength after 30 freeze-thaw cycles, [%]	GOST R 55032	≤ 10				

Requirements of GRI GM 13						
12. Thickness [mm] Lowest individual of 10 values	ASTM D 5199	1,0 (-10%)	1,5 (-10%)	2,0 (-10%)	2,5 (-10%)	
13. Density [g/cm ³]	ASTM D 1505	≥0,940				
14. Yield strength [kN/m] min.	ASTM D 6693 Typ IV	15	22	29	37	
15. Break strength [kN/m] min.		10	16	21	26	
16. Yield elongation [%] min.		12				
17. Break elongation [%] min.		100				
18. Tear resistance [N] min.	ASTM D 1004	125	187	249	311	
19. Puncture resistance [N] min.	ASTM D 4833	267	400	534	667	
20. Environmental stress crack resistance, min.	ASTM D 5397 (app.)	500				
21. Carbon Black Content [%]	ASTM D 1603	2,0-3,0				
22. Carbon Black Dispersion	ASTM D 5596	Categories 1 or 2				
23. Oxidative Induction Time (OIT), [min] min.	ASTM D 3895	≥100				
24. UV resistance ⁽¹⁾ HPOIT- % retained after 1600 hrs	ASTM D 5885	50%				
25. Low temperature brittleness (-100°C)	ASTM D 746	Pass				
26. Hydrostatic pressure resistance	ASTM D 5385	-		70,4 m No leak at a maximum head pressure 689 kPa (100 psi)		

(1) The condition of the test should be 20 hr. UV cycle at 75°C followed by 4 hr. condensation at 60°C

Geomembrane LLDPE smooth

Intended uses :

- Fluid barrier in the construction of tunnels and underground structures.
- Fluid and/or gas barrier in the construction of liquid waste disposal sites, transfer stations or secondary containment.
- Fluid and/or gas barrier in the construction of solid waste storage and disposal sites.
- Fluid barrier in the construction of reservoirs and dams.
- Fluid barrier in the construction of canals.
- Fluid barrier in transportation infrastructure

Recommended especially in case of applications where increased flexibility is needed e. g.:

- Slopes with difficult access,
- Artificial reservoirs and channels,
- For reclamation of municipal waste landfills,
- Embankments.

The Geomembrane characterizes with:

- Excellent flexibility and ease of laying,
- High static puncture resistance,
- High stress corrosion cracking resistance,
- The product does not contain neither fillers nor plasticizers which can migrate during the use (in contrast to PCV geomembranes),
- Smooth stripes make the welding of geomembrane easier and faster,
- It comes in the form of a smooth or one or both side textured sheet,
- It is neutral to the water environment – it does not contain hazardous substances.

Geomembrane LLDPE smooth

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.	Water permeability [m ³ x m ⁻² x d ⁻¹]	PN-EN 14150	≤ 7,60*10 ⁻⁶			
2.	Gas permeability	ASTM D 1434 (Procedure V)	≤ 1,27*10 ⁻³ m ³ x m ⁻² x d ⁻¹ ≤ 5,67*10 ⁻² mol x m ⁻² x d ⁻¹			
3.	Tensile strength [N/mm ²] along and across	PN-EN ISO 527-1 PN-EN ISO 527-3	28(-4)			
4.	Static puncture resistance (CBR) [kN]	PN-EN ISO 12236	1,8 (-0,18)	2,5 (-0,25)	3,2 (-0,32)	5,0 (-0,50)
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.)	Cover in one year			
			Fulfills the requirements			
6.	Hazardous substances	-	NPD			

Information 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.	Width [m]	PN-EN 1848-2	5,0 – 5,5 (± 0,2)			
2.	Thickness, [mm]	PN-EN 1849-2	0,75 ±10%	1,00 ±10%	1,50 ±10%	2,00 ±10%
3.	Tear resistance [kN/m] along and across	PN-ISO 34-1	107 (-10%)	107 (-10%)	107 (-10%)	107 (-10%)
4.	Stress at yield [MPa]	PN-EN ISO 527-1 PN-EN ISO 527-3	12			
5.	Elongation at break [%] along and across	PN-EN ISO 527-1 PN-EN ISO 527-3	≥ 800			
6.	Resistance to folding at low temperature -35°C	PN-EN 495-5	-	lack of scratches, no cracks		

Requirements of GRI GM 17						
7.	Thickness [mm] Lowest individual of 10 values	ASTM D 5199	0,75 -10%	1,00 -10%	1,50 -10%	2,00 -10%
8.	Density [g/cm ³]	ASTM D 1505	≤0,939			
9.	Break strength [kN/m] min.	ASTM D 6693	20	27	40	53
10.	Break elongation [%] min.	Typ IV	800			
11.	Tear resistance [N] min.	ASTM D 1004	70	100	150	200
12.	Puncture resistance [N] min.	ASTM D 4833	190	250	370	500
13.	Carbon Black Content [%]	ASTM D 1603	2.0-3.0			
14.	Carbon Black Dispersion	ASTM D 5596	Categories 1 - 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.

Normative part				
Properties	Testing method	Value		
		Geomembrane LLDPE 1000T	Geomembrane LLDPE 1500T	Geomembrane LLDPE 2000T
1. Water permeability [m ³ x m ⁻² x d ⁻¹]	PN-EN 14150	≤ 7,60*10 ⁻⁶		
2. Gas permeability	ASTM D 1434 (Procedure V)	≤ 1,27*10 ⁻³ m ³ x m ⁻² x d ⁻¹		
		≤ 5,67*10 ⁻² mol x m ⁻² x d ⁻¹		
3. Tensile strength [N/mm ²] along and across	PN-EN ISO 527-1 PN-EN ISO 527-3	22(-4)		
4. Static puncture resistance (CBR), [kN]	PN-EN ISO 12236	2,0 (-0,20)	3,2 (-0,32)	5,0 (-0,50)
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.)	Cover in one year		
		Fulfills the requirements		
6. Hazardous substances	-	NPD		

Information part				
Properties	Testing method	Value		
		Geomembrane LLDPE 1000T	Geomembrane LLDPE 1500T	Geomembrane LLDPE 2000T
1. Width, [m]	PN-EN 1848-2	5,0 – 5,5 (± 0,2)		
2. Mass per unit area, [g/m ²]	PN-EN 1849-2	935 ±10%	1403 ±10%	1870 ±10%
3. Tear resistance, [kN/m] along and across	PN-ISO 34-1	107	107	107
		(-10%)	(-10%)	(-10%)
4. Stress at yield, [MPa]	PN-EN ISO 527-1 PN-EN ISO 527-3	12		
5. Elongation at break, [%] along and across	PN-EN ISO 527-1 PN-EN ISO 527-3	≥ 600		

Requirements of GRI GM 17				
6. Thickness, [mm] Lowest individual of 10 values	ASTM D 5199	1,00 (-10%)	1,50 (-10%)	2,00 (-10%)
7. Density, [g/cm ³]	ASTM D 1505	≤ 0,939		
8. Break strength, [kN/m] min.	ASTM D 6693	11	16	21
9. Break elongation, [%] min.	Typ IV	250		
10. Tear resistance, [N] min.	ASTM D 1004	100	150	200
11. Puncture resistance, [N] min.	ASTM D 4833	200	300	400
12. Carbon Black Content, [%]	ASTM D 1603	2.0-3.0		
13. Carbon Black Dispersion	ASTM D 5596	Categories 1 - 2		
14. 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.

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.

Accessories

Tight system solutions in Water Engineering

HDPE wire for soldering

HDPE wire for folding is designed for performing extrusion welds in difficult to reach places and for all kinds of repairs of GEOCHRON HDPE Geomembrane. It is performed of the same kind of raw material as GEOCHRON HDPE Geomembrane which gives a guarantee of compatibility.

GeoLath

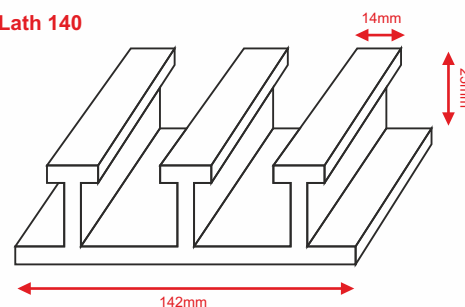
The HDPE GeoLath for concrete has perpendicular protruding profiles which perform a homogeneous element after the bonding of concrete.

Performing of the sealing:

During the performing of concrete elements which are connected with the GEOCHRON HDPE Geomembrane it is recommended to install HDPE GeoLathes. It is recommended to perform this stage at the moment of timbering of the concrete element. HDPE GeoLathes should be installed in an appropriate place according to the project. As a result of the concreting process the profile is being permanently connected with the concrete element of the construction. Afterwards the prepared profile should be folded with earlier prepared sheets of HDPE Geochron Geomembrane. The place of connection should be sealed with an extrusion weld. The adjacent sheets of GEOCHRON HDPE geomembrane and the connection places of the geomembrane and the GeoLathes should be connected by qualified specialists using special equipment.



Lath 140





CONSTRUCTION FOILS

CONSTRUCTION FOIL

IZOVIL (from LDPE)

IZOVIL is a product for damp proofing intended for applications on or under floors or ground slabs in order to protect from water not under hydrostatic pressure passing from the ground into the internal environment. It may also be applied in walls.

Rules of assembly

The installation involves laying stripes of IZOVIL with an overlap of min. 10 cm. The ground, which the foil is installed on, should be even, without sharp, protruding elements and impurities ex. small stones, which may cause film perforation or tear. The above insulation should be applied in accordance with applicable law regulations from the field of building construction including current standards and technical documentation.

Declared performance:

Harmonized technical specification													
PN-EN 13967:2012													
Use				Type of plastic									
Damp proofing in buildings– type A				LDPE									
Properties	Testing method	Unit	Value										
			IZOVIL 0,15/ ±30%	IZOVIL 0,20/ ±30%	IZOVIL 0,30/ ±30%	IZOVIL 0,40/ ±30%	IZOVIL 0,50/ ±30%	IZOVIL 0,60/ ±30%	IZOVIL 0,70/ ±30%	IZOVIL 0,80/ ±30%	IZOVIL 1,00/ ±30%	IZOVIL 1,50/ ±30%	
Normative part													
1.	Reaction to fire	PN EN ISO 11925-2	-	Class F									
2.	Watertightness (2kPa)	PN-EN 1928 met. A	-	Pass									
3.	Resistance to tearing	PN-EN 12310-1	N	≥15	≥20	≥35	≥45	≥60	≥70	≥85	≥90	≥90	≥120
4.	Joint strength	PN-EN 12317-2	N/50mm	NPD									
5.	Resistance to impact	PN-EN 12691 met. B	mm	NPD									
6.	Tensile strength	PN-EN 12311-2	N/50mm	≥22	≥30	≥45	≥60	≥75	≥80	≥95	≥100	≥100	≥125
7.	Elongation at break		%	≥100									
8.	Resistance to static loading	PN-EN 12730 met. B	kg	NPD									
9.	Durability Watertightness after artificial ageing (70°C/12 weeks) (2kPa)	PN-EN 1296 PN-EN 1931	-	Pass									
		PN-EN 1847	-										
10.	Dangerous substances	-	-	NPD									
Information part													
11.	Thickness	PN EN 1849-2	mm	0,15 (±30%)	0,20 (±30%)	0,30 (±30%)	0,40 (±30%)	0,50 (±30%)	0,60 (±30%)	0,70 (±30%)	0,80 (±30%)	1,00 (±30%)	1,50 (±30%)
12.	Mass per unit area		mm	97 (±10%)	129 (±10%)	193 (±10%)	258 (±10%)	322 (±10%)	386 (±10%)	451 (±10%)	515 (±10%)	644 (±10%)	966 (±10%)
13.	Dimensions Wound length	PN-EN 1848-2	m	(20-100) ± 5%									(20-50) ±5%
			Width	m	(5-12) ± 5%		(5-8) ± 5%		(5-6) ± 5%		(5-8) ± 5%		(5-6(7)) ± 5%
			Rectilinearity	-	Deviation from rectilinearity no more than 65mm for 10m of the product length								
14.	Visible defects	PN-EN 1850-2	-	Lack of visible defects									
15.	Watertightness after exposure to chemicals (60kPa) (95 petrol, kerosene, motor oil, gear oil)	PN-EN 1928 PN-EN 1847	-	-					Pass				
16.	Compatibility with bitumen (70°C, 28 days) watertight after exposure (60kPa, 24h)	EN 1548 PN-EN 1928	-	Pass									
17.	Density	EN ISO 1183	g/cm ³	≥0,920									
18.	Resistance to roots	prCEN/TS 14416	-	-					Pass				

Storage and transport

Rolls of the product should be stored in original wrappings in roofed spaces or in natural conditions with protection against direct influence of UV rays or precipitation. Transport with covered means of transport, protecting against mechanical damages and movement during transportation, in accordance with applicable law regulations.

CONSTRUCTION FOILS

IZOVIL MAX HDPE/ GEOPLAN M HDPE

Product for damp proofing of buildings and water insulation of underground parts – TYPE T Sheet used in wall construction or on or under floors or ground slabs to prevent liquid water not under hydrostatic pressure and under hydrostatic pressure passing from the ground into the internal environment or from one section of the structure to another.

General characteristics and level or class of declared performances:

Harmonized technical specification													
PN-EN 13967:2012													
Use				Type of plastic									
Damp proofing in buildings and basement tanking – TYP T				HDPE									
Properties	Testing method	Unit	Value										
			0,30	0,50	0,60	0,70	0,75	0,80	1,00	1,20	1,50	2,00	
Normative part													
1.	Reaction to fire	PN EN ISO 11925-2	-	Class F				Class E					
2.	Watertightness (60kPa)	PN-EN 1928 met. A	-	Pass									
3.	Resistance to tearing	PN-EN 12310-1	N	≥250	≥300	≥300	≥500	≥500	≥500	≥500	≥500		
4.				Tensile strength	PN-EN 12311-2	N/50mm	≥250	≥350	≥350	≥600	≥600	≥600	≥600
5.	Elongation at break	MD	TD				≥300	≥400	≥450	≥560	≥600	≥600	≥800
6.				Durability	PN-EN 1296 PN-EN 1931	-	Pass						
7.	Dangerous substances	-	-				NPD						
Information part													
8.	Thickness	PN EN 1849-2	mm	0,30 (±15%)	0,50 (±15%)	0,60 (±15%)	0,70 (±15%)	0,75 (±15%)	0,80 (±15%)	1,00 (±15%)	1,20 (±15%)	1,50 (±15%)	2,00 (±15%)
9.	Dimensions	Wound length	m	(25-200) ± 0,5%									
				Width	(5-5,5) ± 5%								
10.	Visible defects	PN-EN 1850-2	-		Lack of visible defects								

VAPOUR INSULATING FILM

DIFOL

DIFOL is flexible sheet of plastic whose function is to control the movement of water and/or water vapour through a wall, floor or roof.

General characteristics and level or class of declared performances:

Harmonized technical specification											
EN 13984:2013											
Use				Type of plastic							
Vapour control layer – TYPE A				LDPE							
Properties	Testing method	Unit	Value								
			DIFOL 0,15	DIFOL 0,20	DIFOL 0,30	DIFOL 0,40	DIFOL 0,50				
Normative part											
1.	Watertightness (2kPa)	PN-EN 1928 met. A	-	Pass							
2.	Resistance to impact	PN-EN 12691 met. B	mm	NPD							
3.	Durability	PN-EN 1296 PN-EN 1931	-	Pass							
				PN-EN 1847	-	Pass					
4.	Resistance to tearing	PN-EN 12310-1	N	≥ 20		≥ 30	≥ 40	≥ 50	≥ 55		
5.	Joint strength	PN-EN 12317-2	N/50mm	NPD							
6.	Water vapour resistance	PN-EN 1931	(m ² *s*Pa)/kg	2,3*10 ¹¹ ± 60%				4,0*10 ¹¹ ± 60%			
7.	Tensile strength	PN-EN 12311-2	N/50mm	≥ 20	≥ 22	≥ 30	≥ 40	≥ 45			
8.	Reaction to fire	PN EN ISO 11925-2	-	Class F							
9.	Dangerous substances	-	-	NPD							
Information part											
10.	Thickness	PN EN 1849-2	mm	0,15 (± 30%)	0,20 (± 30%)	0,30 (± 30%)	0,40 (± 30%)	0,50 (± 30%)			
11.	Mass per unit area		g/m ²	97 (± 10%)	129 (± 10%)	193 (± 10%)	258 (± 10%)	322 (± 10%)			
12.	Dimensions	PN-EN 1848-2	Wound length	m	(20-100) ± 2%						
			Width	m	(2-12) ± 5%		(4-12) ± 5%			(5-6) ± 5%	
			Rectilinearity	-	Deviation from rectilinearity no more than 75mm for 10m of the product length						
13.	Visible defects	PN-EN 1850-2	-	Lack of visible defects							

CONSTRUCTION FOIL IZO-V

IZO-V foil is flexible sheet of plastic whose functions are:

- Control the movement of water and/or water vapour through a wall, floor or roof
- Prevent water rising up a wall from the ground, water moving from one part a wall to another and to deflect water from an inner wall of a cavity construction to the exterior of the building
- Protect the inside of the building from water moving down from above in masonry chimneys and parapet walls

General characteristics and level or class of declared performances:

Harmonized technical specification							
EN 13984:2013, EN 14909:2012							
Use				Type of plastic			
Vapour control layer – TYPE A Damp poof course – TYPE A				LDPE			
Properties	Testing method	Unit	Value				
			IZO-V 0,20	IZO-V 0,30	IZO-V 0,40	IZO-V 0,50	
Normative part							
1.	Watertightness (2kPa)	PN-EN 1928 met. A	-	Pass			
2.	Resistance to impact	PN-EN 12691 met. B	mm	NPD			
3.	Durability Water vapour resistance after artificial ageing (70°C/12 weeks)	PN-EN 1296	-	Pass			
		PN-EN 1931	-				
	Chemical resistance	PN-EN 1847	-				
	Watertightness after artificial ageing (70°C/12 weeks) (2kPa)	PN-EN 1296 PN-EN 1928	-				
	Alkali resistance	PN-EN 1847, PN-EN 1928	-				
4.	Resistance to tearing	PN-EN 12310-1	N	≥ 25	≥ 35	≥ 45	≥ 50
5.	Joint strength	PN-EN 12317-2	N/50mm	NPD			
6.	Resistance to low temperature	PN-EN 495-5	-	NPD			
7.	Water vapour resistance	PN-EN 1931	(m ² *s*Pa)/kg	2,3*10 ¹¹ ± 60%		4,0*10 ¹¹ ± 60%	
8.	Tensile strength	PN-EN 12311-2	N/50mm	≥ 20	≥ 25	≥ 35	≥ 40
9.	Reaction to fire	PN EN ISO 11925-2	-	Class F			
10.	Dangerous substances	-	-	NPD			
Information part							
11.	Thickness	PN EN 1849-2	mm	0,20 (± 40%)	0,30 (± 40%)	0,40 (± 40%)	0,50 (± 40%)
12.	Mass per unit area		g/m ²	110 (± 10%)	166 (± 10%)	221 (± 10%)	276 (± 10%)
13.	Dimensions Wound length	PN-EN 1848-2	m	(20–100) ± 2%			
			Width	(2-12) ± 5%		(4-12) ± 5%	
			Rectilinearity	Deviation from rectilinearity no more than 60mm for 10m of the product length			
14.	Visible defects	PN-EN 1850-2	-	Lack of visible defects			

CONSTRUCTION FOIL IZO-FUNDAMENT

THE ADVANTAGES OF IZO-FUNDAMENT:

High resistance to:

- moisture - thanks to the foil the construction is perfectly protected against ground moisture
- decomposition process - foil is permanently resistant to decay
- influence of increased temperature
- alkaline environments - high chemical resistance

General characteristics and level or class of declared performances:

Harmonized technical specification							
EN 14909:2012							
Use				Type of plastic			
Damp poof course – TYPE A				LDPE			
Properties	Testing method	Unit	Value				
			IZO-FUNDAMENT 300	IZO-FUNDAMENT 1000			
Normative part							
1.	Watertightness (2kPa)	PN-EN 1928 met. A	-	Pass			
2.	Resistance to impact	PN-EN 12691 met. B	mm	NPD			
3.	Low temperature resistance	PN-EN 495-5	-	NPD			
4.	Durability Watertightness after artificial ageing (70°C/12 weeks) (2kPa)	PN-EN 1296	-	Pass			
		PN-EN 1928	-				
	Alkali resistance	PN-EN 1847, PN-EN 1928	-				
5.	Reaction to fire	PN EN ISO 11925-2	-	Class F			
6.	Dangerous substances	-	-	NPD			
Information part							
7.	Mass per unit area	PN EN 1849-2	g/m ²	300 (± 30%)		1000 (± 30%)	

CONSTRUCTION FOIL

IZO-FOL

IZO-FOL foil is flexible sheet of plastic whose functions are:

- Control the movement of water and/or water vapour through a wall, floor or roof
- Prevent water rising up a wall from the ground, water moving from one part a wall to another and to deflect water from an inner wall of a cavity construction to the exterior of the building
- Protect the inside of the building from water moving down from above in masonry chimneys and parapet walls

General characteristics and level or class of declared performances:

Harmonized technical specification							
EN 13984:2013, EN 14909:2012							
Use				Type of plastic			
Vapour control layer – TYPE A Damp proof course – TYPE A				LDPE			
Properties	Testing method	Unit	Value				
			IZO-FOL 0,20	IZO-FOL 0,30	IZO-FOL 0,40	IZO-FOL 0,50	
Normative part							
1.	Watertightness (2kPa)	PN-EN 1928 met. A	-	Pass			
2.	Resistance to impact	PN-EN 12691 met. B	mm	NPD			
3.	Durability	Water vapour resistance after artificial ageing (70°C/12 weeks)	PN-EN 1296 PN-EN 1931	-	Pass		
		Chemical resistance	PN-EN 1847	-			
		Watertightness after artificial ageing (70°C/12 weeks) (2kPa)	PN-EN 1296 PN-EN 1928	-			
		Alkali resistance	PN-EN 1847, PN-EN 1928	-			
4.	Resistance to tearing	PN-EN 12310-1	N	≥ 20	≥ 30	≥ 40	≥ 45
5.	Joint strength	PN-EN 12317-2	N/50mm	NPD			
6.	Resistance to low temperature	PN-EN 495-5	-	NPD			
7.	Water vapour resistance	PN-EN 1931	(m ² *s*Pa)/kg	2*10 ¹¹ ± 60%		3,5*10 ¹¹ ± 60%	
8.	Tensile strength	PN-EN 12311-2	N/50mm	≥ 20	≥ 22	≥ 30	≥ 35
9.	Reaction to fire	PN EN ISO 11925-2	-	Class F			
10.	Dangerous substances	-	-	NPD			
Information part							
11.	Thickness	PN EN 1849-2	mm	0,20 (± 50%)	0,30 (± 50%)	0,40 (± 50%)	0,50 (± 50%)
12.	Mass per unit area		g/m ²	92 (± 10%)	138 (± 10%)	184 (± 10%)	230 (± 10%)
13.	Dimensions	PN-EN 1848-2	Wound length	(20-100) ± 2%			
			Width	(2-12) ± 5% *			(4-12) ± 5% *
			Rectilinearity	Deviation from rectilinearity no more than 75mm for 10m of the product length			
14.	Visible defects	PN-EN 1850-2	-	Lack of visible defects			

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.

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.



Polyethylene POOLFILM

One or two colors (blue–green) polyethylene pool covers allows the application of seals in small bodies of water (swimming pools, garden ponds, pools, ponds, etc.)

The foil is strong and resistant to penetration by roots from aquatic plants and mechanical damage. Flexibility, durability, ease of stacking and hermeticity-these advantages are emphasized by clients who chose our product.

Property	Value
Width*	6, 8m ± 0,3m
Wound length*	25, 33mb ± 0,5mb
Colour*	Black, blue and blue and green

*or other according to the agreement with the customer

During the installation of the foil, it is important to remember to properly prepare the bottom of the tank - its surface should be even and smooth, without sharp stones, glass, etc. The foil is installed by spreading the foil over the prepared tank and then lowering it and laying it loosely starting from the deepest point of the excavation up to the edges of the tank.

Available film colours: black, blue, blue-green or other on request.

Standard foil size: 6m x 25m





WARTER



polymers

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