GeoSM
GEOSYNTHETICS

Manufacture and sales of geosynthetic materials

Presentation of products

Geoflax®
geosynthetic material

+7 (499) 322-14-98
geo-sm.com

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About us

The market of geosynthetic materials is actively growing, and new trading companies and small-scale production enterprises regularly enter the market and are willing to offer these popular products at low prices. In search of a profitable offer, you should not still sacrifice the quality, so it would be wiser to contact a time-proven manufacturer of such products.

GeoSM Group of Companies (GC) has been manufacturing and supplying geosynthetic and insulating materials since 2007. During this period, we were able to earn trust of more than 5000 customers – the leaders in the construction industry and integrated landscaping od Russia and the Commonwealth of Independent States.

5 000
customers

10 000 t
of products

1 500
shipments

Our company produces geosynthetic using the state-of-the-art equipment that meets the domestic and European standards: DILO needle-punching machines, TermoPlast heat-setting machines, Spinnbau Bremen carding machines and Dolci extruders.

Main manufacturing site is located, Nizhny Novgorod Region

All our products are certified, undergo mandatory quality control and have many times confirmed their compliance with the international standards at the industry specific trade shows. That is why we provide a 10 years extended warranty for our products.

About us

The rapid development of the company and the high level of its performance would have not been possible without a team of professionals, who make things happen on a daily basis turning their words into reality. Currently, our staff totals 300 people including administrative resources, production workers, warehouse and sales sand logistics department employees. It means that the specialists, whose qualification is regularly confirmed by the appropriate performance appraisal, work with our customers at each stage of cooperation.

Own production, Nizhny Novgorod region

7 000 m²
of production facilities

And yet, how we achieve such results in our activities in not that important for our customer. The main thing is what benefits the customer may get.

Firstly, our own production facilities make it possible to offer the quality products at reasonable prices.

Secondly, the storage spaces with the total area of more than 10 000 m2 provide uninterrupted supplies and the continuous availability of major items.

10 000 m²
of storage areas

Thirdly, our own logistics and branch offices in more than 30 regions (from Kaliningrad to Vladivostok) allow us to guarantee the shortest delivery times and the maximum efficiency at all stages of a transaction.

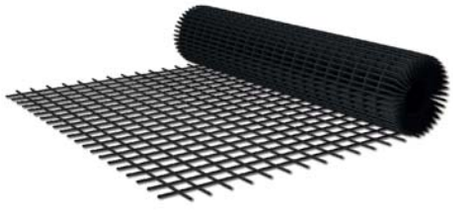
GeoSM GC Branch Offices, Russian

30 +
branch offices

Products

The 21st century is the era of high-end technologies characterized by reliability, efficient performance and environmental safety.

Geosynthetic materials such as geotextile, geomesh, geogrid, geomembrane and geomats, are capable to fully comply with these three parameters. These new generation materials have indisputable advantages over conventional construction materials and they are actively used in the road, industrial and civil construction, the landscape design and agriculture.



Functions of geosynthetics

Separation – preventing different layers from mixing and diffusing

Reinforcement – increase of the load-bearing capacity, strengthening of foundations

Protection – prevention of construction materials damage

Filtration – retention of particles in layers of bases under the action of fluids

Drainage – removal of surface flow of fluids in layers and bases

Erosion control – preventing soil from moving over the surface of facility

Waterproofing – prevention of liquid and gas penetration

Strengthening of walls / steep slopes – prevention of slope destruction

Advantages of geosynthetics

- The use of geosynthetics provides lower costs of construction materials and installation works, and also significantly increases the turnaround time.
- Geosynthetic materials have practically unlimited service life and are characterized by strength and durability are not affected by corrosion and destructive action of moisture.
- Geosynthetics is considered an all-purpose environmentally friendly material that if suitable for use in various conditions and in dealing with all kings of engineering and architectural issues.

Geotextile Geoflax

Non-woven Geoflax geotextile

Geotextile is made either of continuous polymer-melt threads using the spunbond technology, or of recycled staple fibers fastened using a needle-punching machine. Needle-punched non-woven geotextile has good drainage and filtration properties.

Geoflax geotextile id used for separation of inert layers and for reinforcement of soil, protection of drainage pipes and foundation waterproofing, filtration of water and air, separation of formation and filling materials is many sectors of construction and landscaping.

Construction of Bypass Highway M60, Khabarovsk Territory

Functions

- Reinforcement of foundations
- Separation of layers
- Filtration and drainage
- Membrane protection
- Erosion protection
- Wrapping of pipes
- Covering of plants

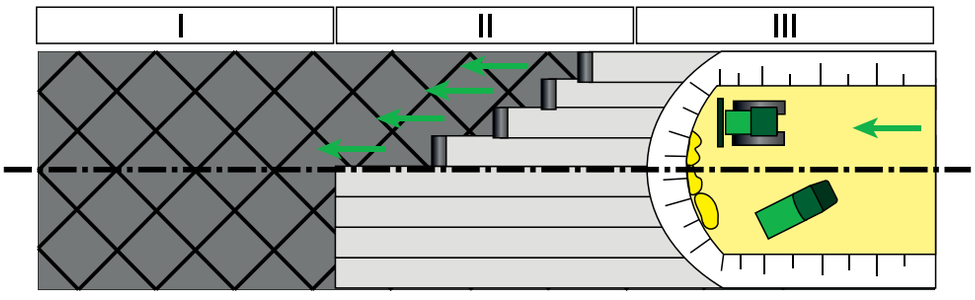
Advantages of non-woven Geoflax geotextile

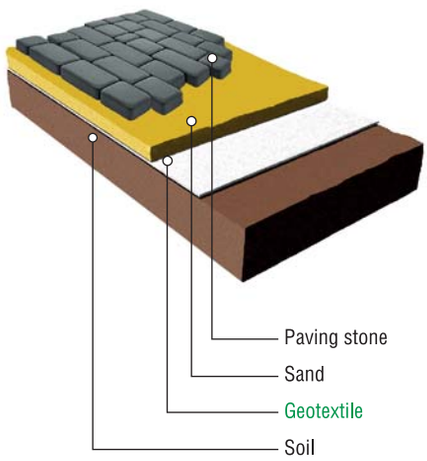
1. We use fibers directly from polymer melt, and the technology allows it to be bonded not only be needle-punching, but also additionally thermally calendered; therefore, the breaking loads are higher than those indicated in the old regulatory documents.
2. The use of Geoflax allows saving up to 25% of construction materials and increasing the turnaround time.

Physical and mechanical properties of non-woven Geoflax Geotextile

Parameters	100	150	200	250	300	350	400	450	500	550	600
Surface density, g/m^2	100	150	200	250	300	350	400	450	500	550	600
Breaking load, kN/m - lenghtwise - crosswise	2,8 2,8	4,4 4,4	6,0 6,0	6,6 6,6	8,8 8,8	11,8 11,8	13,0 13,0	14,0 14,0	16,0 16,0	18,0 18,0	20,0 20,0
Elongation at break, % - lenghtwise - crosswise	50 80										
The filtration coefficient in direction perpendicular to the web plane, at a load of 2 kPa, m/day, at least	90	90	85	85	80	80	75	75	70	70	70
Thickness at pressure of 2 kPa, mm, ±10%	0,95	1,5	1,7	2,2	2,8	3,3	3,7	4,0	4,4	4,8	5,2

Diagram of longitudinal installation of geotextile





Geotextile Geoflax

Non-woven Termo Geoflax geotextile

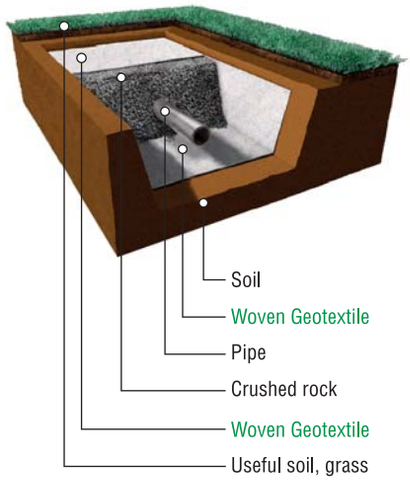
Geotextile is made of continuous polymer-melt threads using the spunbond technology with fibers being thermally bonded.

Non-woven Termo Geoflax geotextile is recommended for reinforcement and stiffeing of earth-fill building structures and reinforced soil structures due to its high strength properties and elastic modulus. Non-woven thermally bonded geotextile can be used in construction of erosion-control and road structures, in bank stabilization and in strengthening of embankment on soft soil.

Construction of transport infrastructure of World Student Games' facilities, Kazan

Functions

- Reinforcement of foundations
- Separation of layers
- Membrane protection
- Erosion protection
- Wrapping of pipes



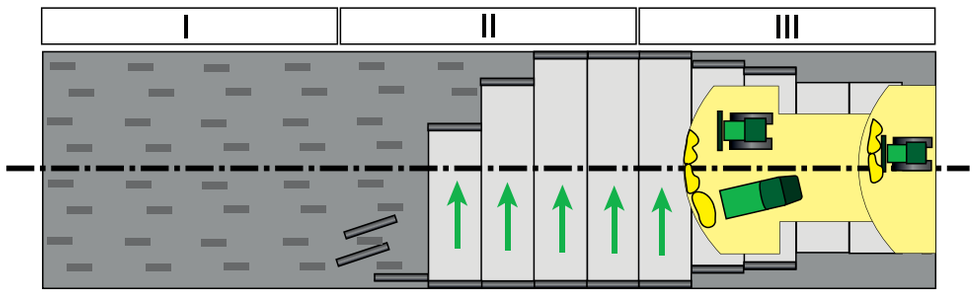
Advantages of non-woven Termo Geoflax geotextile

1. In manufacture of this material we use additional thermal bonding, which provides higher breaking loads.
2. The use of non-woven Termo Geoflax geotextile allows saving up to 40% of building materials and increase the turnaround time.

Physical and mechanical properties of non-woven Termo Geoflax geotextile

Parameters	100	150	200	250	300	350	400	450	500	550	600
Surface density, g/m^2	100	150	200	250	300	350	400	450	500	550	600
Breaking load, kN/m - lenghtwise - crosswise	4,5 2,6	5,8 3,8	8,8 7,0	10,8 9,0	14 11	16,2 13	18,4 14,8	20,6 16,8	21,6 18,4	23 19,8	24,8 21
Elongation at break, % - lenghtwise - crosswise	120 120					130 130				150 150	
The filtration coefficient in direction perpendicular to the web plane, at a load of 2 kPa, m/day, at least	60	60	55	55	50	50	45	45	40	40	40
Thickness at pressure of 2 kPa, mm	0,8	1,0	1,2	1,4	1,6	1,8	2,0	2,1	2,3	2,5	2,7

Diagram of transverse installation of geotextile



Geotextile Geoflax

Woven Geoflax geotextile

Woven geotextile is formed by directly weaving polyolefin strips produced by cutting extruded ribbons. Due to its structure, woven geotextile provides reliable separation of layered materials, and due to its composition, it is resistant to chemical and biological environmental exposure.

It can be used on limestone, karst or alkaline, clay soils. The reinforcing properties of the interweaving thread method used in woven geotextile allow using hardly suitable soils for earth foundation, motor and rail road embankments.

Construction of water drainage for highway, Sochi

Advantages of woven Geoflax geotextile

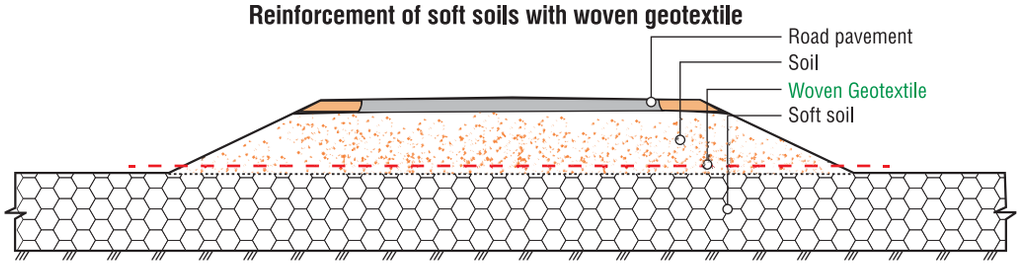
1. Compared to the non-woven geotextile, woven geotextile has higher strength and smaller elongation at break, which allows the material to take the loads faster.

2. Due to the uniform distribution of a load over the web surface, woven geotextile contributes to better strength, higher shear resistance of layers and has proven itself as a reinforcing material for soft bases.

Physical and mechanical properties of woven Geoflax geotextile

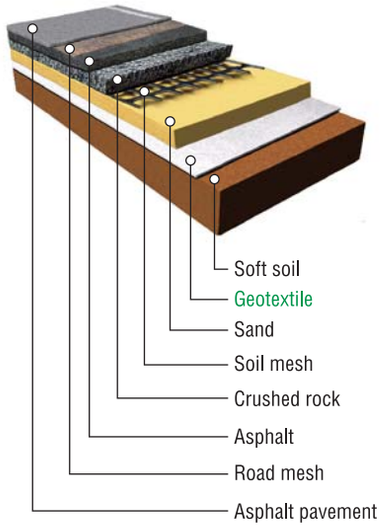
Parameters	Parameter value									
	18	20	25	33	40	50	60	70	80	100
Raw material	polypropylene									
Surface density, g/m²	85	120	155	175	235	275	340	380	420	500
Thickness at pressure of 2 kPa, mm	0,28	0,34	0,46	0,52	0,7	0,91	0,85	0,93	1,2	1,3
Rupture strength, kN/m										
- lengthwise	18	20	25	33	40	50	60	70	80	100
- crosswise	12	20	25	33	40	50	60	70	80	100
Relative elongation at rupture, %										
- lengthwise	17	17	16	16	15	15	15	15	15	15
- crosswise	15	15	15	15	15	15	15	15	13	13
Pore size, µm	101	105	155	145	150	130	125	150	160	175
Permeability at pressure of 10 kPa	10,0	13,0	17,0	12,0	10,0	25,0	24,0	23,0	24,0	24,0
Filtration coefficient, m/day, perpendicular to the web plane, at pressure:										
2 kPa	6,3	12,1	19,2	17,2	15,2	17,0	29,8	31,8	52,3	57,3
20 kPa	5,8	8,6	17,6	15,9	14,9	16,4	29,1	28,1	49,2	53,2
100 kPa	5,6	7,5	16,2	14,0	13,0	15,5	29,0	26,0	20,3	18,3
200 kPa	5,3	7,36	14,8	13,1	12,1	14,1	28,6	24,6	15,7	13,7
Impact puncture strength, N	1200	1500	3000	3500	5500	7000	9000	10000	11500	12000
Drop-cone impact resistance, mm	16,0	13,7	10,5	9,6	8,6	6,0	4,0	4,2	4,3	4,5
Resistance to corrosion environment, pH, %	90									
Resistance to UV radiation, %	90									
Frost-resistance (30 cycles), %	90									
Resistance to fungi	PG 113									

Reinforcement of soft soils with woven geotextile



Functions

- Reinforcement of foundations
- Separation of layers
- Filtration and drainage
- Membrane protection
- Erosion protection
- Wrapping of pipes



Geomesh Geoflax

Polypropylene Geoflax geomesh

Geomesh is made of polypropylene using the extrusion method followed by regular punching and stretching in two directions to obtain a biaxial flexible mesh of cells of the sane size and shape with the rigid connection of nodes.

In practice, biaxial soil Geoflax geomeshes or flat Geoflax geogrids are successfully used to increase the strength of landscape structures layered with grain-like materials (crushed stone, gravel, slag, expanded-clay aggregate, marble chips, decorative granulated glass, etc.). Geomesh is designed to stabilize the vegetable soil and earth on slopes, to prevent soil erosion, and to retain sediments during engineering landscape works. The installation of geomesh between layers (into load-bearing and under-rail formations of roads and tracks) together with geotextile contributes to improved efficiency of building structures and reduces the cost of materials.

Construction of access roads of Grabtsevo Industrial Park, Kaluga

Functions

- Reinforcement of foundations
- Separation of layers
- Erosion protection

Advantages of polypropylene Geoflax geomesh

1. In layering any structure, the use of geomesh reduces by up to 40% the backfilling layer of stone, sand, crushed rock, peat or granulated materials. At the same time, the project requirements for the structure stability are met as Geoflax geomesh serves to strengthen the layers regardless of the bed softness degree.
2. We add black carbon to polymer so shat high resistance to UV radiation is achived.

Physical and mechanical properties of polypropylene Geoflax geomesh

Parameters	Standard value for grid grades			
	20/20	30/30	40/40	45/45
Surface density, g/m²	240	340	530	560
Maximum load at tensile tests, kN/m, at least				
- lengthwise	20	30	40	45
- crosswise	20	30	40	45
Tensile stress at relative elongation of 2%, kN/m, at least				
- lengthwise	7	10	13	15
- crosswise	7	10	13	15
Tensile stress at relative elongation of 5%, kN/m, at least				
- lengthwise	15	21	26	30
- crosswise	15	21	26	30
Relative elongation at maximum load, %, no more than				
- lengthwise	15	15	15	15
- crosswise	15	15	15	15
Cell size, mm:				
- along roll length	37	37	37	37
- across roll width	37	37	37	37
Skewness of cells, deg.	±3	±3	±3	±3
Roll width, cm	400	400	400	400
Roll length, m	50	50	50	50

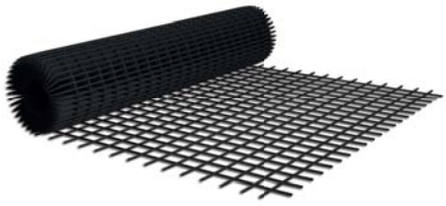
Geomesh Geoflax

Glass Geoflax geomesh

Bonded (impregnated glass geomesh SSP) or quilted (impregnated quilted glass geomesh SSNP) geomesh is made of fiberglass rovings and impregnated with bitumen.

A road geomesh takes up a portion of the temperature and transport loads on the operated road, slows down crack propagation on the existing pavement, stabilizes shoulders and slopes, protected and stabilizes layers in building structures.

Construction of Gornopravdinsk-Tyumen Road, Tyumen



Scope of application

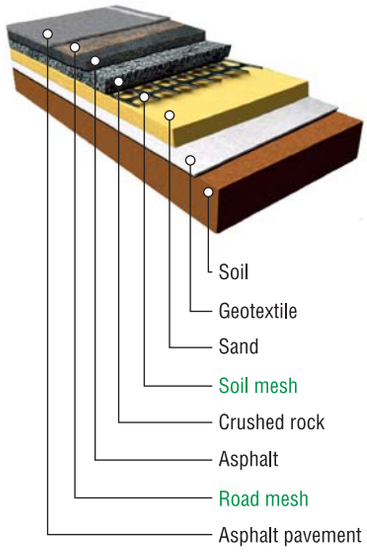
- Strengthening and reinforcement of pavement joints
- Protection against damage due to weather and operational changes
- Inhibiting of crack propagation and road repair
- Preventing of rutting due to permanent traffic loads

Functions

- Coating reinforcement
- Separation of layers

Advantages of glass Geoflax geomesh

1. Saves up to 45% on investment in construction, increases the turnaround time during operation, reduces amount of construction materials by 30% and, at the same time, provides good road quality.
2. Due to the low parameter of elongation, glass geomesh takes up the loads immediately after installation.



Physical and mechanical properties of glass Geoflax geomesh

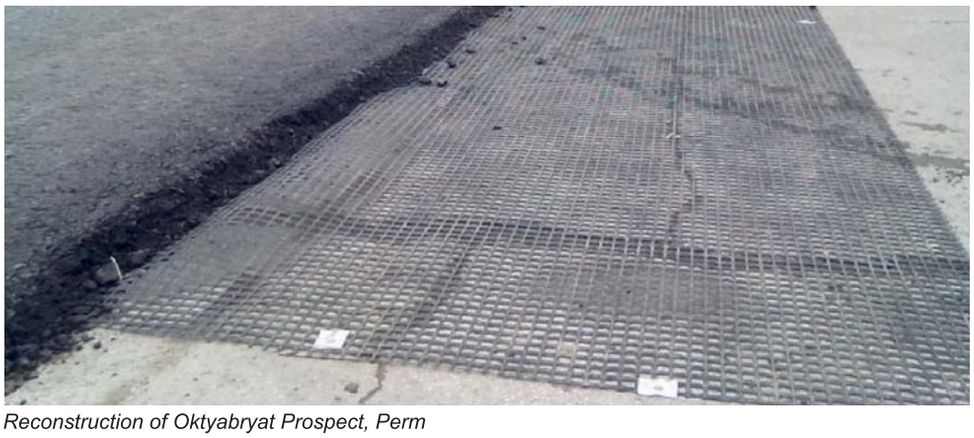
Parameters	50/50	70/70	80/80	100/100	120/120
Raw material	fiberglass				
Cell size, mm	20x20; 40x40				
Surface density	225	275	300	350	400
Relative strength, kN/m, at teast					
- lengthwise	50	70	80	100	120
- crosswise	50	70	80	100	120
Relative elongation at maximum load, %, no more than					
- lengthwise	3,0	3,0	3,0	3,0	3,0
- crosswise	3,0	3,0	3,0	3,0	3,0
Heat-resistance, % at least	90	90	90	90	90
Determination of flexibility at subzero temperatures	without defects				
Frost-resistance (30 cycles), %, at least	95	95	95	95	95
Resistance to corrosion environment, %, at least	95	95	95	95	95
Resistance to ultraviolet radiation, %, at least	95	95	95	95	95

Geomesh Geoflax

Polyester Geoflax geomesh

Polyester Geoflax geomesh consists of synthetic polyester fiber. The specific nature of this material is its high tensile strength; and special-purpose bitumen and polymer impregnations are also used in its manufacture; therefore, it is used to reinforce soil and road layers.

Polyester mesh stops the deformation of the road pavement layers, inhibits the destructive environmental factors.



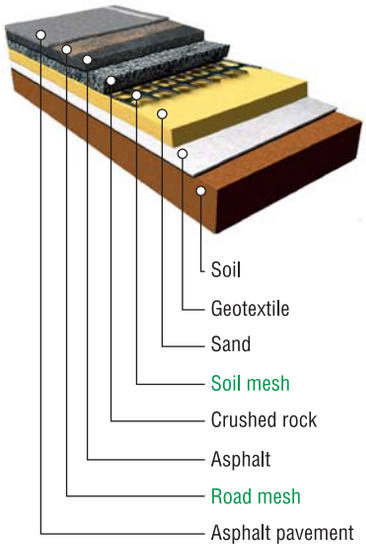
Reconstruction of Oktyabryat Prospect, Perm

Functions

- Coating reinforcement
- Separation of layers

Scope of application

- Strengthening and reinforcement of pavement joints
- Protection against damage due to weather and operational changes
- Inhibiting of crack propagation and road repair
- Preventing of rutting due to permanent traffic loads



Advantages of polyester Geoflax geomesh

1. Significant increase in resistance of asphalt concrete to shear and alternate stresses from transport loads.
2. Resistance to practically any external effects (high humidity, sustained high and low temperatures, UV radiation).
3. Non-biodegradable and unaffected by microbacterial action.
4. High elasticity.
5. Increase in overall strength of road pavement.

Physical and mechanical properties of polyester Geoflax geomesh

Parameters	Unit of measurement	50/50	70/70	80/80	90/90	100/100
Maximum rupture strength	kH/m	50/50	70/70	80/80	90/90	100/100
Surface density	g/m^2	200	280	320	360	400
Relative elongation at break	%	12,5				
Cell size, ±2 mm	mm	20x20, 25x25, 30x30, 40x40, 50x50				
Roll length/width	m	5,2x100	5,2x100	5,2x100	5,2x100	5,2x100
Polymer type		polyester				

Geomesh Geoflax

Basalt Geoflax geomesh

Basalt geomesh TM Geoflax is made of rovings (basalt fibers) using impregnation. Due to its properties, basalt mesh is the best possible alternative to metal reinforcing meshes.

By nature, basalt is a rock of igneous origin. It was formed during rapid cooling of lava. Meshes made of basalt rocks are resistant to abrasion, acid and alkali attack, and they are also durable and vapor-resistant.

Construction of a cottage village, Soshi

Basalt mesh is used

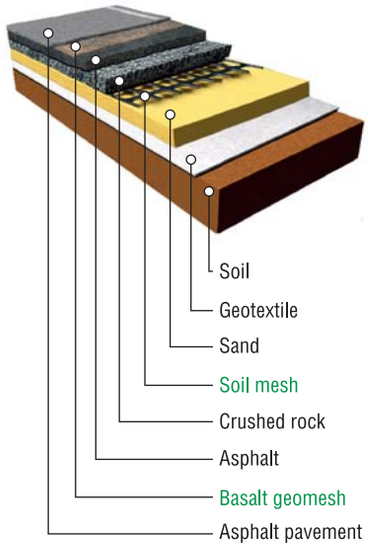
- when reinforcing asphalt concrete layers
- as an adhesive link in two-layers walls of different materials
- for reinforcement of walls made of stone materials
- when reinforcing the plaster layer of stone walls (allows increasing consolidation, seismic and crack resistance)
- when strengthening brick party walls and pillars by means of constructing mesh bandages
- when reinforcing horizontal masonry joints of walls (allows increasing load-bearing capacity and consolidation)
- when reinforcing masonry of ceramic stone walls with void ratio higher than 30% (to prevent mortar from penetrating into the masonry joints)
- when reinforcing floor screeds of concrete or mortar mixes (allows increasing strength, preventing the occurrence of shrinkage cracks)

Functions

- Reinforcement

Advantages of basalt Geoflax geomesh

1. Resistant to corrosion and effects of acid-base aggressive environment.
2. Increases thermal efficiency of structures while not being a “cold bridge” and has a low thermal conductivity.
3. Has a high degree of adhesion.
4. Has low weight: a basalt mesh is 7 times lighter than its metal equivalents.



Physical and mechanical properties of basalt Geoflax geomesh

Parameters	30/30	50/50	100/100	150/150
Raw material	basalt			
Cell size, mm	25x12; 25x25; 50x50			
Surface dencity	150	200	400	500
Tensile strength, kN/m, at least				
- lengthwise	30	50	100	150
- crosswise	30	50	100	150
Relative elongation at maximum load, %, no more than				
- lengthwise	4,0	4,0	4,0	4,0
- crosswise	4,0	4,0	4,0	4,0
Roll width, cm	25/37/50/100/400 (max 540)			
Roll length, m	50			

Geogrid Geoflax

Polymer Geoflax geogrid

Three-dimensional geodrid is made of polymer ribbons by means of extrusion from polyolefin granulate, it is impregnated with stabilizer and laser-welded. Depending on the purpose of use, it can be both without and with perforation.

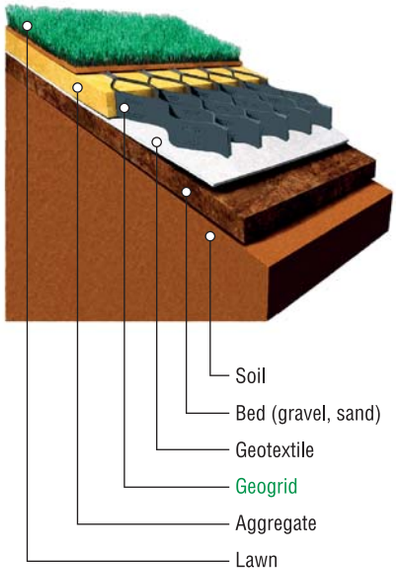
During construction works aimed at stabilization of soil layers, geogrid mechanically consolidates the functional backfill (rubble, sand mixtures) to control movement and mixing of these working layers. Geogrid made of polymer Geoflax strips is adapted to limit the shearing changes in the controlled horizontal surface.

By crating and consolidating a single volume of granular building materials by means of its three-dimensional structure, geogrid serves for reinforcement and distribution of dynamic loads.

Strengthening of water reservoir shoreline, chain of RusHydro Upper Volga HPPs

Functions

- Reinforcement of foundations
- Separation of layers



Advantages of polymer Geoflax geogrid

1. Reduced by 50% the scope of work and labor costs.
2. Reduced by 20-30% the direct costs for stabilization of conventional types.
3. We used laser welding to bond the geogrid ribbons which provides better strength of a weld.

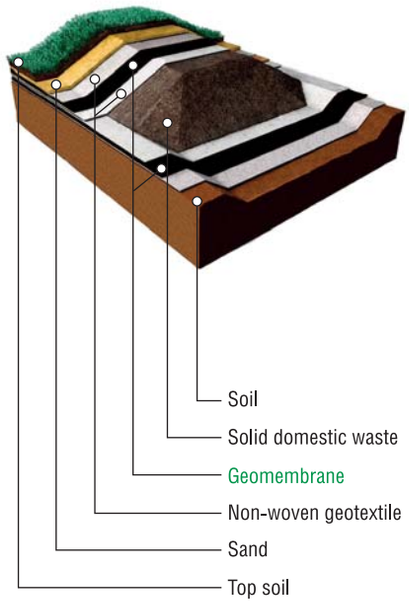
Physical and mechanical properties of polymer Geoflax geogrid

Parameters	Value					
Geogrid ribbon thickess, mm and limiting deviation, mm	1,25	1,35	1,50	1,60	1,80	2,0
Ribbon height, mm, and limiting deviation, mm	50; 75; 100; 150; 200					
Tenstile strength in longitudinal direction kN/m, at leats **- flat ribbon to GOST 11262** **- weld to GOST 16971**	15 10	18,5 12	22 15	24 18	28 20	30 24
Relative elongation of flat ribbon to GOST 11262, %, at **- rupture/yield strength**	at least 250 / no more than 30					
Rib stiffness to GOST 8977-74	1000 cH				2500 cH	
Operation temperature	from -60 to +70 °C					
Installation temperature	from -60 to +50 °C					
Flexibility at subzero temperatures to GOST 2678	no higher than -40 °C					
Chemical resistance, pH	4-9					
Resistance to fungi to GOST 9.049	no higher than PG_{113}					
Toxicity	none					
Resistance to solar radiation	high					
Frost-resistance	in compliance with SNiP 2.05.02-85					
Operating life	50 years					

Geomembrane Geoflax

Functions

- Waterproofing
- Vapor barrier
- Shielding



HPD and LDP Geoflax geomembrane

HPD and LDP Geoflax geomembrane is a smooth insulating web material made of extruded polypropylene 0.5 to 4 mm thick. The maximum width of our geomembrane may reach 5 m. This geosynthetic material is placed on a site where 100% waterproofing is required or where passage of a fluid flow through its structure needs to be reduced.

The joints between the adjacent sheets are welded using dedicated machines, and the entire surface becomes leak-tight.

Private fish farm, Nizhegorodskaya region

Scope of application

- Waterproofing of foundations, roofs, banks and bottoms
- Protection of soils and road pavement materials against silting by groundwater
- Strengthening of road shoulders in lowlands and other wet road sections
- Reinforcement and load distribution on soil
- Waterproofing of operated ballasted roofs, living walls in landscape design

Advantages of HPD and LDP Geoflax geomembrane

1. Saves up to 30% on conventional waterproofing materials.
2. Saves up 25% on labor costs related to conventional waterproofing construction methods.
3. Has a higher density due to the catalytic treatment so that this material can be used to isolate even very toxic waste.

Physical and mechanical properties of HPD and LDP Geoflax geomembrane

Name of parameter	Type of membrane									
	HDPE					LDPE				
Thickness, mm	1,0	1,5	2,0	2,5	3,0	1,0	1,5	2,0	2,5	3,0
Tensile strength along/across the web, MPa, not less	27	27	27	27	27	14	14	14	14	14
Density of the membrane g/cm3	>0,944					>0,939				
Tensile strength along/across the fabric, %, min	700					450				
Puncture resistance, H	320	480	640	800	960	250	370	500	620	750
Water permeability, water absorption	0					0				
Vapour permeability	0					0				
Temperature range, °C	from -70 to +60					from -70 to +60				
UV resistance, %, min	90					90				

HDPE and LDPE sheets Geoflax

Geoflax HDPE and LDPE sheets

HDPE and LDPE sheets are geosynthetic material produced from polyethylene (thermoplastic polymer) by extrusion (single or multi-layer). LDPE sheets are produced with a density from 0.93 g/m3 and with a thickness from 1 to 12 mm.

The material has excellent combination of properties: mechanical strength, chemical resistance, moisture resistance. It is perfectly mouldable and can be machined in various ways, as well as hot gas, filler rod, friction and resistance welding.

HDPE sheet tanks and reservoirs

Scope of application

- Food industry (storage tanks, bottles, tanks);
- Automotive industry (petrol tanks, fenders, parts of extremes);
- Light industry (transport containers, pallets, packaging, crates, sports equipment);
- Construction (roofing and flooring, ponds and pool bowls, ventilation shafts, waterproofing of water bodies).

Functions

- Waterproofing
- Shielding
- Reinforcement

Benefits of Geoflax HDPE and LDPE sheets

1. Chemical resistance.
2. Capable of operating in a wide temperature range from -50°C to +60°C.
3. Not subject to rotting, corrosion, rusting processes.
4. It is a crack-resistant dielectric.
5. Completely safe for human beings and the environment, can come into contact with foodstuffs.

Physical and mechanical properties of HDPE and LDPE sheets Geoflax

Name of parameter	HDPE sheets	HDPE sheets
Appearance	The surface of the sheet must be free of bubbles, cracks, through holes and other defects	
Tensile yield strength, MPa, not less	22	14
Tensile strength at break along / across the web, %, no less	600	
Low temperature resistance, °C	-50	
Sheet sizes:		
Length, mm	3000	
Width, mm	1500	
Thickness, mm	from 1 to 20	
Water absorption during 72 h, %, max.	0,02	

Geomembrane Geoflax

Profiled Geoflax geomembrane

Geoflax profiled membrane is a sheet of high-density polyethylene (HPDE) with 8 mm high rounded protrusions.

The surface of the profiled geomembrane "Geoflax" effectively distributes the soil pressure over the entire area of the foundation or foundations of buildings and structures. This eliminates the formation of local (point) loads.

The space between the wall and the Geoflax profiled geomembrane fabric, formed by protrusions, allows air to freely circulate, improving the temperature and humidity conditions of the room.

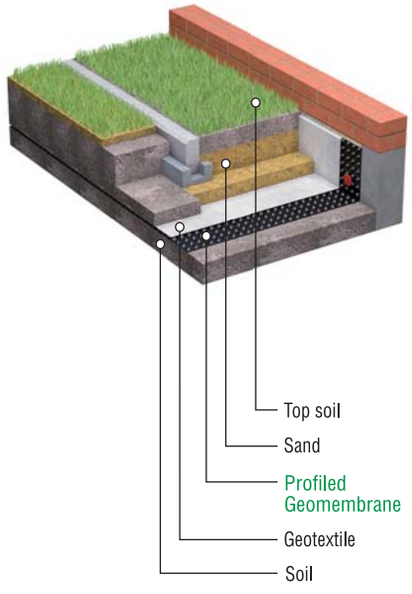
Waterproofing profiled geomembrane, Kursk

Functions

- Waterproofing
- Protection from aggressive chemicals
- Physical protection
- Thermal insulation
- Able to absorb moisture

Scope of application

- Foundation waterproofing
- Protection of roof structures from moisture
- Drainage of water from certain structures
- Substitution of concrete underpinning with foundation waterproofing
- Use as a vapour barrier with single-sided permeability



Benefits of Geoflax profiled geomembranes

1. Effectively distributes the ground pressure over the entire area of the foundation or foundations of buildings and structures.
2. It is characterised by high mechanical strength and resistance to chemically aggressive media.
3. Not affected by mould and bacteria, resistant to tree root penetration.
4. Can be laid both horizontally and vertically.

Physical and mechanical properties of profiled Geoflax geomembrane

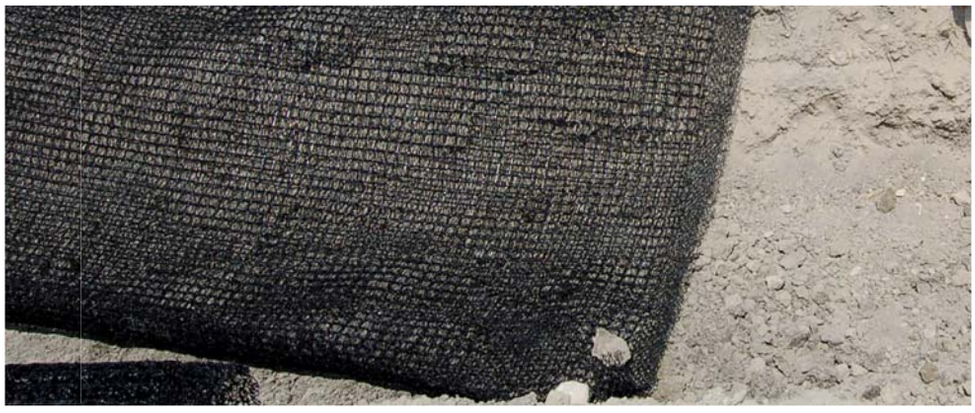
Parameters	Unit of measurement	ECO	Standard	GEO
Material	High-density polyethylene (HDPE)			
Availability of geotextile fabric (filter)	-	no	no	yes
Total weight of the membrane	g/m^3	450	550	650
Thickness of the membrane with projections	mm	8	8	8
Tensile breaking strength, not less **- in longitudinal direction** **- in transverse direction**	N/5sm	 270 270	 300 300	 420 420
Max. elongation, not less **- longitudinally** **- in transverse direction**	%	 20 20	 20 20	 30 30
Water resistance at a pressure of at least 0,001 MPa for 24h	-	no sign of water ingress		
Flexibility on bar with radius of 5 mm at low temperature, not more	°C	-45	-45	-45
Resistance to static suppression, method B, not less	kg	20	20	20

Geomat Geoflax

Three-dimensional geomat Geoflax

Geomat is a three-dimensional geocomposite material made of permeable random structures of polypropylene or polyethylene filaments produced by extrusion method and thermally interconnected.

Geomats Geoflax are used to protect the slopes against natural erosion, to restore the fertile layer with vegetation cover, to protect the banks of water bodies and channels against caving. Due to its structure in 90% consisting of voids, geomat provides accumulation of soil particles inside it, thus contributing to the growth of grass and shrubs through it. During heavy rains geomat prevents landslides, strengthens the upper soil layers and contributes to the formation of a durable turf cover. It is installed together with geotextile.



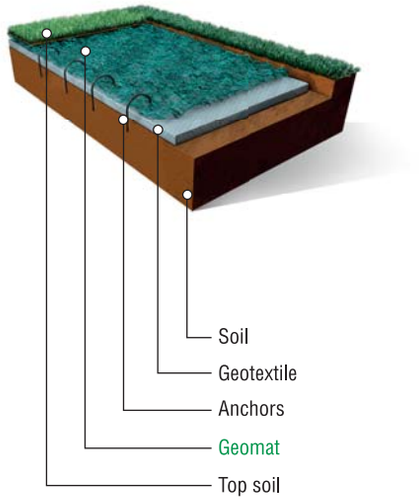
Protection of slopes against erosion on section of Northern Route Perm-Surgut Highway

Functions

- Surface reinforcement
- Erosion protection
- Restoration of vegetation

Scope of application

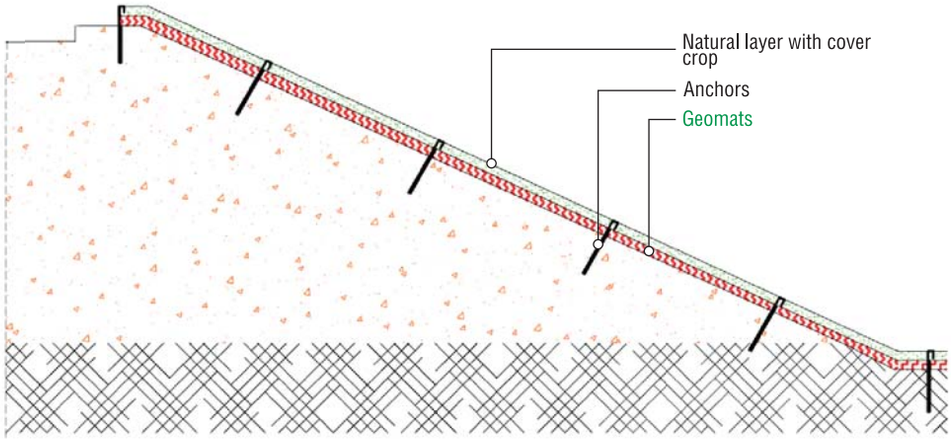
- Strengthening of slopes and banks of water bodies
- Strengthen of road cambers
- Landscape Design
- Planting of greenery on slopes and banks



Advantages of Geoflax geomat

1. Restoration of vegetation cover with natural appearance is 60% faster.
2. Savings of 75% labor when restoring the vegetable soil.

Diagram of strengthening of embankment slopes using geomats



Geocomposites Geoflax

Geosynthetic-based geocomposites

Geocomposites are a composition of two or more types of geosynthetic materials that is made by mixing geotextiles, geomeshes, flat geogrids, geomembranes, and geomats in various combinations.

Geocomposites are used for drainage, reinforcement, erosion control, as well as for waterproofing. A composition of layers and the application of this material depends on its intended use.

Storage pond, Shamkhal-Tarmen village

Categories and scope of application of geocomposites:

- Drainage geocomposite is a three-dimensional material consisting of a combination of a drainage core and non-woven geotextile. It is used to build a water discharge (drainage system).
- Reinforcing geocomposite is a material consisting of a geomesh combined with non-woven geotextile. The principal application is to strengthen the roadway.
- Waterproofing geocomposite is a material consisting of geomembrane combined with one or two layers of non-woven geotextile. The main function is waterproofing. In this case, geotextile protects geomembrane against mechanical damage.
- Erosion-control geocomposite is a material consisting of a geomat bonded with non-woven geotextile. The main purpose is to control soil erosion.

Geocomposite laying during road construction, Ufa

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+7 (499) 322-14-98
geo-sm.com