PLASTFOIL®
polymeric waterproofing

Polymeric waterproofing for roofs and reservoirs

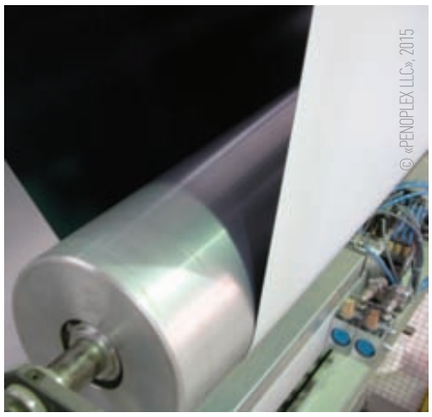
RELIABLE QUALITY

INTRODUCTION

PLASTFOIL® is a high quality waterproofing polymer PVC material.

The main uses for PLASTFOIL® polymeric membrane are waterproofing of roofs, underground facilities and tunnels, artificial ponds, basins, as well as reservoirs and liquid storage containers.

The PENOPLEX factory in Russia has the most advanced new generation European production lines. The company's own certified laboratory provides the highest quality control at each stage of the production cycle. PLASTFOIL® waterproofing materials are also subjected to quality control in accordance with Russian and European standards.



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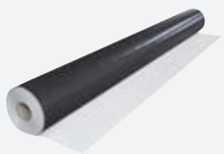
TYPES OF PLASTFOIL® POLYMERIC PVC MEMBRANE

PLASTFOIL® polymeric membrane is used to waterproofing roofs, underground facilities, tunnels and reservoirs. The following membranes are used for roof waterproofing: **PLASTFOIL® CLASSIC** (thickness 1.2, 1.5 and 1.8 mm), **PLASTFOIL® POLAR** (thickness 1.2 and 1.5 mm), **PLASTFOIL® ART** (thickness 1.5 mm), **PLASTFOIL® GEO** (thickness 1.5 and 2.0 mm), **PLASTFOIL® ECO** (thickness 1.2 and 1.5 mm) and **PLASTFOIL® LAY** (thickness 1.5 mm)**.**



PLASTFOIL® ECO for waterproofing of energy-efficient roofs with an improved reflectance coefficient (for white color).

PLASTFOIL® CLASSIC is a material, reinforced with polyester grid, intended for waterproofing roofs with mechanical fastening.

PLASTFOIL® LAY for waterproofing of all types of roofs. Front surface has a skid resistant stamping;

PLASTFOIL® POLAR is a frost-resistant material, reinforced with polyester grid, intended for waterproofing roofs with mechanical fastening.

PLASTFOIL® ART is a non-reinforced material, intended for waterproofing roofs (elements).

PLASTFOIL® GEO is a non-reinforced material, intended for waterproofing underground facilities (including tunnels, reservoirs and tanks).

Polymeric membranes **PLASTFOIL®** on request can be made in any color.

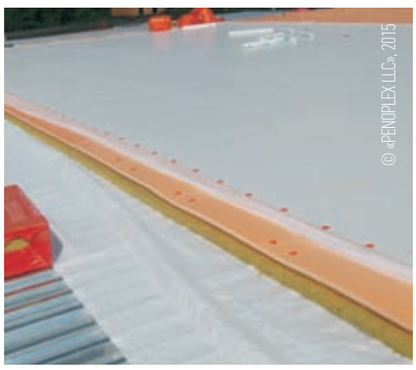
APPLICATION

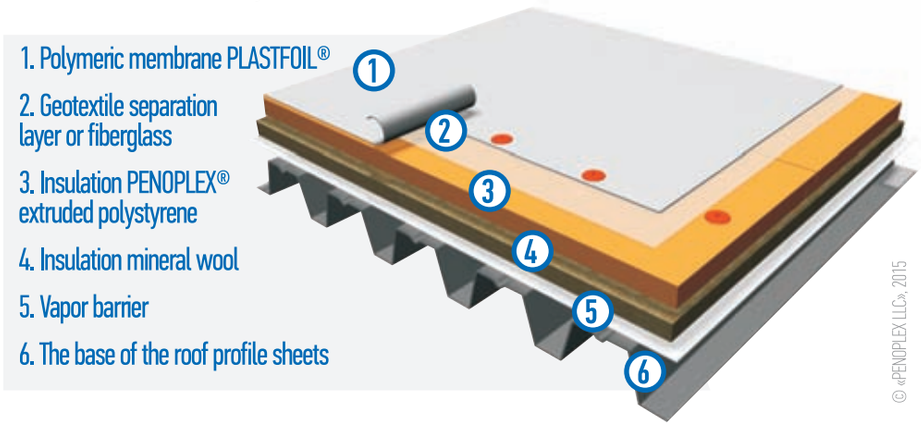
1. Mechanically fastened system

The mechanical system is where the PLASTFOIL® polymeric membrane is fixed to the base with the help of fastening elements. It is applied upon large area roofs on warehouse complexes, production buildings, exhibition complexes and retail centres.

The fastening of PLASTFOIL® membrane to the base depends on its type: corrugated metal sheet, monolith plate or precast concrete. For each of these there are specially designed fastening systems which fix the membrane securely.

The advantages of a mechanical fastening system are the ease and speed of installation, the ability to be installed in almost any weather and it is a cost-effective system.

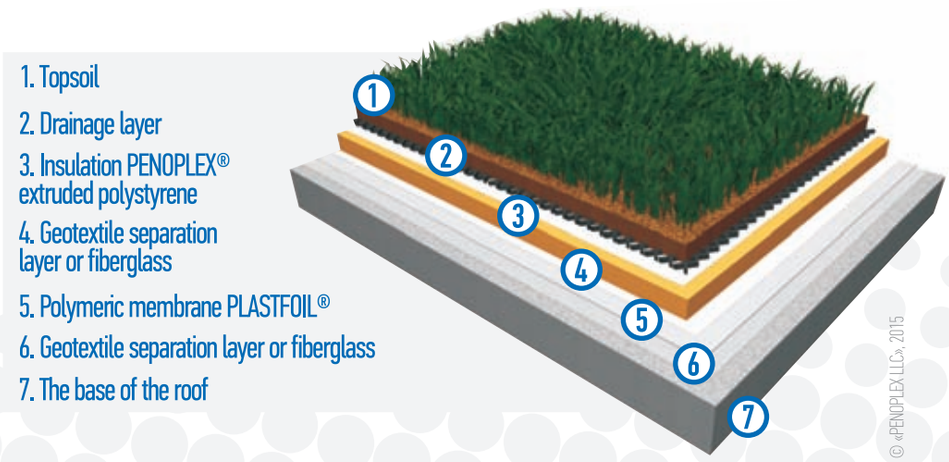




2. Inverted system

The inverted system is where the waterproofing layer is placed under heat insulation.
It is used on the roofs of public and residential buildings, and it allows for the most efficient use of the roof area.

Fastening is provided by set-on weight. Depending on the type of set-on weight the roof can be unused, operated with pedestrian or transport loads or with greenery. The advantages of the inverted system are: possibility of use; it does not require mechanical fastening to the base; ease and speed of installation; improved fire-resistance; improved resistance to mechanical damage; high durability and attractive external appearance.

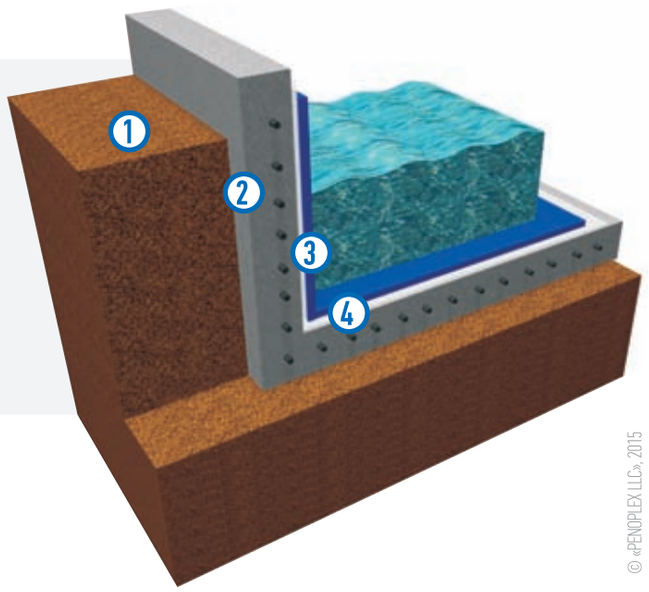


3. Tanks and reservoirs

For preventing water filtration into the soil and, therefore, its loss, it is necessary to provide waterproofing, which will meet the following requirements:
- water impermeability;
- resistance to root penetration;
- fungal resistance;
- frost resistance.

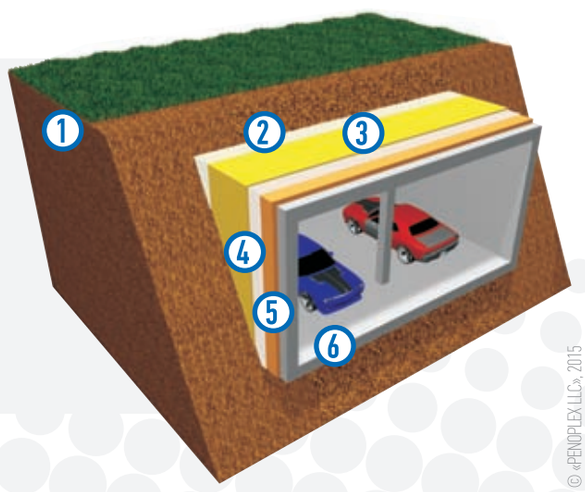
The same requirements are applied to treatment facilities and sedimentation tanks, with the difference that in these facilities waterproofing additionally protects the environment from the penetration of harmful substances.

1. Soil
2. Reinforced concrete structure
3. Geotextile separation layer or fiberglassr
4. Polymeric membrane PLASTFOIL®



The waterproofing layer is used to protect the underpasses, entrances and exits to parking lots, subway tunnels, buried structures from the damaging effects of groundwater and rainwater, ensuring a longer service life.
The polymeric membrane PLASTFOIL® has high elasticity, which ensures reliable waterproofing for structures shrinkage, biopersistence, abrasion resistance, tensile strength. Water resistance guarantees the longevity of building elements under water pressure.

1. Soil
2. Geotextile separation layer or fiberglass
3. Polymeric membrane PLASTFOIL®
4. Geotextile separation layer or fiberglass
5. Insulation PENOPLEX® extruded polystyrene
6. Reinforced concrete structure



PLASTFOIL®
polymeric waterproofing

Logistics facility. Kazan

Parking building. Nizhny Novgorod.

RELIABLE QUALITY

Automobile plant. Saint-Petersburg

Auto Repair Plant. Novosibirsk

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TECHNICAL FEATURES

Features	PLASTFOIL® CLASSIC / POLAR	PLASTFOIL® ECO	PLASTFOIL® LAY	PLASTFOIL® ART	PLASTFOIL® GEO
Thickness, mm	1,2 / 1,5	1,2 / 1,5	1,5	1,5	1,5 / 2,0
Width, mm	2 100	2 100		2 000	2 000
Length, mm	25 000 / 20 000	25 000 / 20 000	20 000	10 000	20 000
Weight of 1 sq.m, kg	1,5 / 1,9	1,5 / 1,9	1,7	2,0	2,0 / 2,7
Note – Other sizes, by length and width, of PLASTFOIL® may be produced with the agreement of the client					

Packing

Features	PLASTFOIL® CLASSIC		PLASTFOIL® POLAR		PLASTFOIL® ECO		PLASTFOIL® LAY	PLASTFOIL® ART	PLASTFOIL® GEO	
	1,2 mm	1,5 mm	1,2 mm	1,5 mm	1,2 mm	1,5 mm	1,5 mm	1,5 mm	1,5 mm	2,0 mm
Weight of 1 roll, kg	83,9	78,1	81,9	81,5	74,6	74,1	76,4	40,8	81,6	108,8
No. on pallet, pcs.	17	17	17	17	17	17	17	30	17	14
Pallet dimensions, WxLxH, m	1,3x2,1x0,77							1,3x2,0x0,77		
Pallet weight, kg	1449	1412	1476	1469	1352	1344	1383	1338	1478	1601

Physical and mechanical properties

Controlled features	EN test method	Unit	PLASTFOIL® ECO 1.2/1.5	PLASTFOIL® ART 1.5
Water tightness	EN 1928 (method B)		Pass	Pass
Reaction to fire	EN 13501-1		Class E	Class E
Average peel resistance of joints	EN 12316-2	N/50 mm	≥ 350	≥ 300
Shear resistance of joints	EN 12317-2	N/50 mm	≥ 700	≥ 600
Tensile strength	EN 12311-2 (method A)	N/50 mm	lengthwise ≥ 1100 crosswise ≥ 9000	lengthwise ≥ 1100 crosswise ≥ 15
Elongation	EN 12311-2 (method A)	%	lengthwise ≥ 17 crosswise ≥ 19	lengthwise ≥ 17 crosswise ≥ 19
Resistance to impact	EN 12691 (method A)	mm	700/1000	700
Resistance to static load	EN 12730 (method B)	kg	≥ 20	≥ 20
Tear resistance	EN 12310-2	N	≥ 200	≥ 200
Dimensional stability	EN 1107-2	%	± 0.5	± 3.0
Foldability at low temperature	EN 495-5	°C	≤-50	≤-55
UV exposure (1,000 h)	EN 1297	visually	Pass	Pass
Hail resistance	EN 13583	m/s	≥ 25	≥ 23
Water vapour properties – factor μ	EN 1931		21,000±3,000	16,300±3,000

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COMPARISON WITH BITUMEN MATERIALS

In recent years there has been a steady decrease in the share of bitumen materials. This is due to the low operating features of these materials.

An alternative solution to bitumen materials is the application of polymer membranes.

Comparison of technical features of bitumen materials and PLASTFOIL® polymeric membrane

Item	Description	Bitumen, bitumen-polymer materials	PLASTFOIL® waterproofing membrane
1	Weight of working layer (average index)	8.3 kg/ m^2	1.5 kg/m^2
2	UV resistance	low	high
3	Resistance to mechanical damage	low	high
4	Resistance to temperature change	low	high
5	Seam strength	strong	high-strength
6	Roll area	10–15 m^2	40–50 m^2
7	Susceptibility to decay	susceptible	not susceptible
8	Resistance to root penetration	depends on reinforcement	resistant
9	Average service life	10–15 years	about 30 years

Comparison of installation features of bitumen materials and PLASTFOIL® polymeric membrane

Index	Bitumen, bitumen-polymer materials	PLASTFOIL® waterproofing membrane
Average installation rate per shift	200–250 m^2/shift	500–1000 m^2/shift
Number of required layers	at least two	one
Use at sites with increased fire protection requirements	not recommended	recommended
Use of naked flame during installation	yes	no

CERTIFICATES


TECHNICKÝ A ZKUŠEBNÍ ÚSTAV STAVEBNÍ PRAHA, s.p.
Technical and Test Institute for Construction Prague

Notified Body 1020

CERTIFICATE OF CONFORMITY
OF THE FACTORY PRODUCTION CONTROL
No. 1020 – CPR – 020029890

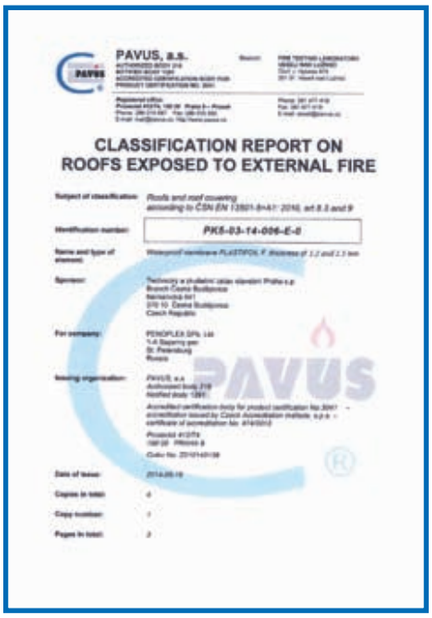
Waterproofing foil ПЛАСТФОЙЛ® (PLASTFOIL®)

EN 13956:2012

Česká Bučovice, 31st July 2015

Ing. Milan Plášek

Certificate of conformity of factory production control
№ 1020-CRP-020029890


PAVUS, a.s.

CLASSIFICATION REPORT ON
ROOFS EXPOSED TO external FIRE

Identification number: PK5-03-14-006-E-0

Reaction on fire Broof T3


CERTIFICATE
OF LIABILITY INSURANCE

Policyholder: Penoplex SPB, LLC

Insurer: OJSC IC Allianz

Insured object:

Insured event:

Insured activity:

Sum insured:

Validity period:

Claim submission period:

Covered territory:

On behalf of the Insurer:

Allianz

Certificate of Liability Insurance

Underground car tunnel. Saint-Petersburg

PLASTFOIL®
polymeric waterproofing

RELIABLE QUALITY

PLASTFOIL®
polymeric waterproofing

Longevity

Frost-resistance

Installation without fire

Absolute biopersistence

Environmentally friendly

Resistance to UV-rays

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