

ESHAGUM

Plastomeric Bituminous Waterproofing Membranes
(APP -10°C)



GENERAL DESCRIPTION

Plastomeric waterproofing membranes **ESHAGUM** are produced from special types of bitumen and selected polymer materials based on propylene (APP). This special composition enables **ESHAGUM** to withstand extremely high climatic temperatures and exposure to solar radiation, while maintaining all its characteristic qualities at very low temperatures.

ESHAGUM is a guarantee for the absolute and long-term waterproofing of works which exposed to extreme climate temperature changes and intense sunlight.

The selection of the appropriate combination of reinforcement, surface finishing and weight / thickness of the membrane offers a variety of applications and high quality solutions in every problem of waterproofing, like:

- Waterproofing of flat and inclined roofs
- Waterproofing of metal decks
- Re-roofing, refurbishment
- Waterproofing of underground works / Foundations
- Waterproofing of bridge-decks & parking decks
- Waterproofing of reservoirs (tanks) and canals

REINFORCEMENT

ESHAGUM possible reinforcements are:

- Spunbond Polyester (SP) of great durability, which gives the membrane increased resistance to mechanical deformations (cracking, puncture, tearing etc.) and an extended stretching ability.
- High stability composite polyester fabric with embedded glass yarns in order to maximize torching membrane's stability & eliminate "banana" effects.
- Composite polyester glass mat giving the membrane isotropic mechanical strength properties.
- High quality glass fleece which gives the membrane dimensional stability.

CHARACTERISTICS/ADVANTAGES

As a result of their high quality **ESHAGUM** membranes offer the following advantages:

- ▶ Excellent resistance to ultraviolet radiation.
- ▶ Increased resistance to ageing.
- ▶ Increased resistance to high temperatures.
- ▶ Flexibility at low temperatures.
- ▶ Wide temperature application window & operating range.
- ▶ Very good behavior in a corrosive environment (acids, inorganic salts, air pollutants, ozone etc.).
- ▶ High resistance to mechanical deformation.
- ▶ Advanced weldability to any substrate.

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SURFACE FINISH

ESHAGUM possible finishes include:

- Mineral chipping in various colors (green-gray, white, red- brown), when exposed to sunlight.
- A thin film of polyethylene for cases where the waterproofing layer is protected by other materials (tiles, concrete, etc.).
- Quartz sand.
- Woven polypropylene fabric that can be painted with acrylic-based waterproofing (**ESHACRYCOAT**) or aluminum bitumen solution (**ESHALUMIN**).

STORAGE

Membrane rolls should be stored in their original package, in vertical position, protected from direct sunlight, rain, snow and ice. In cold weather it is recommended that the rolls should be kept at temperature $>5^{\circ}\text{C}$ for at least 10 hours before installation.

Avoid strong and sudden roll impact, as well as fast unrolling during installation, transportation and storage, at low temperature conditions.

APPLICATION PROCEDURE

Surface preparation

- Before application of the membrane it is necessary to prepare properly the substrate surface. The substrate surface must be thoroughly cleaned, remove all dust, loose matter and remaining oils in order to be smooth and dry.
- Recommended surface slope: 1.5% minimum.
- Recommended substrate relative moisture $\leq 6\%$.
- The surface must be primed with eco friendly (VOCs free), elastomeric, waterproofing, bituminous primer with new generation technology **ESHATOPRIMER** at a consumption $\sim 0.3 \text{ Lt/m}^2$.
- Alternatively the surface can be primed with **ESHALAC 50-S** at a consumption $\sim 0.3 \text{ Lt/m}^2$.
- As soon as the surface is tack-free, the bituminous membrane can be torch applied.

Application of the bituminous membrane

- To avoid water vapor condensation and localized stresses that can lead to local surface cracking, it is recommended to apply a separating/ ventilating layer by installing a special **ESHAPERFO** or **ESHAVENT** or by another similar method of separating the waterproofing membrane **ESHAGUM**.
- Membrane application starts from the lowest point of slopes in order to secure unobstructed water flow, when membranes are torched one in parallel to the other.
- The membrane is then rolled and positioned parallel to its adjacent one. It is then rerolled half-way without shifting.
- The bottom surface of the re-rolled part is heated with a propane torch until bitumen becomes fluid and the membrane is unrolled again to apply evenly on the substrate.

CERTIFICATION

Esha Bituminous membranes comply with **EN 13707**, **EN 13969** and are certified with **CE No.1020-CPR-010021423**.

Application to roofs/decks according to **EN 13707** and underground structures according to **EN 13969**. For Bridge Decks according to **EN 14695**.

For all available certificates and certifications please contact Esha Sales Department.



EPD certification is an independent assessment of a product's environmental impact throughout its entire life cycle, from initial production to disposal or recycling at the end of its life cycle. It contributes points to some of the leading green building programs, such as LEED certified building projects.

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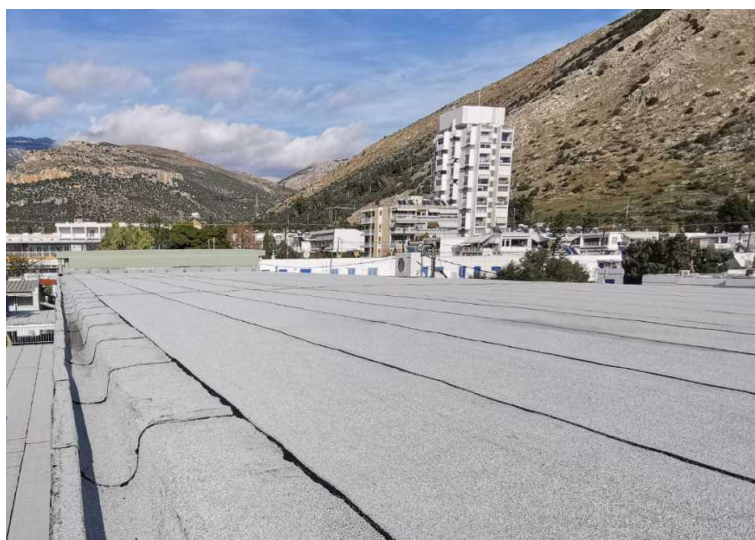
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- Longitudinal overlaps must be at least 8 cm while transversal ones must be kept to a minimum of 12 cm.
- The overlaps of the membranes during welding are heated and pressed lightly until the molten bitumen appears at the joint, indicating that the membranes are welded tightly.
- Overlapping joints are treated with a metallic lapjoint cylinder in order to apply the optimal pressure in these demanding areas.
- In multiple layer waterproofing, application of the successive layers follows the same procedure and is done in the same direction as the previous ones. Care is taken so that overlaps do not coincide with those of the previous layer.
- In the case of loose-laid waterproofing (not bonded to the substrate), a protective layer of sufficient weight should be provided to eliminate the risk of the waterproofing membrane being lifted by high wind speeds.

Application notes

- Application temperature should be higher than 5°C.
- Waterproofing should be carried out by technicians, properly trained and certified in the bituminous membranes application.

For a more detailed description of bituminous waterproofing membranes' application please contact Esha Sales Department.



Today, Esha is the No. 1 producer of bituminous waterproofing membranes in Greece, while also offering more than 500 specialized products (emulsions and solutions for surface protection and waterproofing, joint sealing materials, acrylics, epoxies, polyurethanes, polysulfides, modified road asphalt (elastomers, plastomers, recycled tires), asphalt road emulsions, asphalt bridge waterproofing materials, polyurethane thermal insulation boards, etc.).



See the products
and their applications
on our new website
www.esha.gr

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TECHNICAL CHARACTERISTICS

Characteristics	Standard	T	Nominal values					Units
			Glass fleece	Non woven polyester	Non woven polyester combined with reinforcing glass yarns	Spun Bond Polyester (SP)	Spun Bond Polyester (SP250)	
Length	EN 1848-1	±0.2	10	8 or 10	8 or 10	8 or 10	8 or 10	m
Width	EN 1848-1	---	1	1	1	1	1	m
Upper surface covering	---	---	PE film / mineral granules					---
Bottom surface covering	---	---	PE film / Quartz sand					---
Thickness	EN 1849-1	±0.2	2.5-5	2.5-5	2.5-5	2.5-5	2.5-5	mm
Weight	EN 1849-1	±0.2	3-6	3-6	3-6	3-6	3-6	kg/m²
Type of bituminous mixture	---	---	Plastomeric (APP)					---
Softening Point	EN 1427	≥	148	148	148	148	148	°C
Penetration at 25°C	EN 1426	± 5	25	25	25	25	25	dmm
Antiroot Agent	---	---	---					---
Tensile strength L/T	EN 12311-1	± 20%	300/200	450/300	550/420	900/650	1100/900	N/50mm
Elongation L/T	EN 12311-1	± 15%	2/2	30/50	40/55	50/60	50/60	%
Tear resistance L/T	ASTM D4073-94	± 15%	100/200	200/350	300/400	350/450	600/700	N
Static puncture resistance (concrete)	EN 12730/UEAtc MOAT27	---	L2 (7-15)	L3 (15-25)	L3 (15-25)	L3 (15-25)	L4 (>25)	kg
Dynamic puncture resistance (concrete)	EN 12691/UEAtc MOAT27	≥	I3 (Φ10)	I3 (Φ8)	I3 (Φ8)	I3 (Φ8)	I3 (Φ8)	mm
Flexibility to low temperatures	EN 1109	± 5	-10	-10	-10	-10	-10	°C
Water tightness (72 h, 2 bar)	UEAtc/EN 1928	≥	Successfully Passed ≥2					bar
Vapor permeability coefficient	EN 1931	>	20000	20000	20000	20000	20000	---
Heat resistance	EN 1110	≤	130	130	130	130	130	°C
Reaction to fire	EN 13501-1	---	F	F	F	F	F	---
Dimensional stability L/T	EN 1107-1	≤	-0.1/+0.1	-0.15/+0.1	-0.15/+0.1	-0.4/+0.3	-0.4/+0.3	%
Thermal conductivity	---	---	0.2	0.2	0.2	0.2	0.2	W/mK

Fluctuations in nominal values are in accordance with the relevant standards. The manufacturer reserves the right to modify the properties of its products. Esha provides information and, in particular, recommendations regarding the application and end use of its products based on its current knowledge and experience, when the products are stored, used, and applied under normal conditions. In practice, there are variations in substrates and local application conditions, so Esha cannot guarantee the success of the application of any material. It is recommended that the user test the application of the material under the local application conditions.