

# WATERPROOFING MEMBRANES

## ELASTOMERIC BITUMINOUS MEMBRANES (SBS)



### ELASTOMERIC BITUMINOUS WATERPROOFING MEMBRANES (SBS -20 °C)

#### GENERAL DESCRIPTION

Elastomeric waterproofing membranes **ESHADIEN** are produced from special bitumen, modified with thermoplastic elastomeric materials (SBS). This modification results in a binding material with enhanced elasticity, even at extremely low temperatures (-20°C), and improved viscoelastic properties which are ideal for the production of superb quality bituminous waterproofing products.

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 (**ESHADIEN GEO**, polyester with geotextile top finish)
- Waterproofing of bridge-decks & parking decks
- Waterproofing of reservoirs (tanks) and canals
- Absolute vapor barrier (aluminium foil reinforced) **ESHADIEN sandwich**
- Electromagnetic radiation barrier (**ESHADIEN P-AL**, high reflective aluminum top finish)

#### CHARACTERISTICS/ADVANTAGES

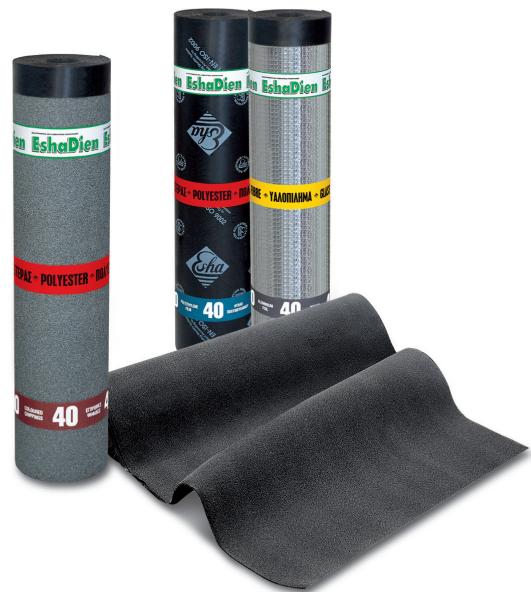
As a result of their high quality **ESHADIEN** membranes offer the following advantages:

- Great elasticity (ability to stretch and recoil to its initial dimensions). Elastic recovery value for the membrane's modified compound exceeds 90%.
- High flexibility at very low temperatures (-20°C) compared with other types of bituminous membranes.
- Consistent waterproofing properties on a long term basis.
- Wide temperature application window & operating range
- High resistance to cracking, owing to its elastic properties
- High puncture resistance and resistance to mechanical deformations
- Advanced weldability to any substrate.
- Increased resistance to ageing

#### SURFACE FINISH

**ESHADIEN** 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
- High reflective aluminium foil
- High reflective ultra white tri laminated reinforced polymeric film **ESHADIEN ultra white**
- Paintable woven polypropylene fabric



#### REINFORCEMENT

**ESHADIEN** 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.
- Composed aluminium glass fleece: **ESHADIEN sandwich**

#### NORMS/CERTIFICATION

Esha Bituminous membranes comply with EN 13707, EN 13969 and are certified with CE No. 1020-CPR-010021423 Application to roofs according to EN 13707 and underground structures according to EN 13969.

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



# DIEN

### ELASTOMERIC BITUMINOUS WATERPROOFING MEMBRANES (SBS -20 °C)

#### 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  $\sim 0,3\text{Lt}/\text{m}^2$ .
- Alternatively the surface can be primed with **ESHALAC 50S** at a consumption  $\sim 0,3\text{ Kg}/\text{m}^2$ .
- As soon as the surface is tack-free, the bituminous membrane can be torch applied.
- 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 a ballasted roofing, a well calculated ballast should be placed on an adequate membrane protection layer to avoid damage.
- **ESHADIEN** waterproofing membranes are suitable to use on mechanical fixation systems (e.g. metal decks or inclined roofs).

##### 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.*

##### Application of the bituminous membrane

- 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.
- Longitudinal overlaps must be at least 8 cm while transversal ones must be kept to a minimum of 15 cm.

Overlapping joints are treated with a metallic lap-joint cylinder in order to apply the optimal pressure in these demanding areas.

#### 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.



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### TECHNICAL CHARACTERISTICS

Characteristics	Standard	T	Nominal values						Unit
			Glass Fleece	Glass mat combined with polyester	Non woven polyester	Polyester combined with glass yarns	Spun Bond Polyester (SP-180)	Spun Bond Polyester (SP-250)	
Visible defects			No defects						
Length	EN 1848-1	±0,2%	8 or 10	8 or 10	8 or 10	8 or 10	8 or 10	8 or 10	m
Width	EN 1848-1		1	1	1	1	1	1	m
Straightness			Fulfills requirements						
Upper surface covering	-		PE film/mineral granules/ aluminium foil						---
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	2.5-5	mm
Weight	EN 1849-1	±10%	3-6	3-6	3-6	3-6	3-6	3-6	kg/m <sup>2</sup>
Type	-		Elastomeric (SBS)						---
Softening Point	EN 1427	± 10	130	130	130	130	130	130	°C
Penetration at 25 °C	EN 1426	± 5	35	35	35	35	35	35	dmm
Elastic recovery of the bituminous binder of the membrane	EN 13398	≥	90	90	90	90	90	90	%
Elastic recovery after the oxidative aging, EN 12607-1	EN 13398	≥	90	90	90	90	90	90	%
Tensile strength L/T	EN 12311-1	± 20%	320/220	650/650	480/350	560/420	900/650	1100/900	N/50mm
Elongation L/T	EN 12311-1	± 15%	2/2	4/4	30/45	45/55	50/60	50/60	%
Tear resistance L/T	ASTM D4073-94	± 15%	100/250	375/375	220/350	250/400	360/550	600/700	N
Static puncture resistance (concrete)	EN 12730/UEAtc MOAT27		L2 (7-15)	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 (Φ10)	I3 (Φ8)	I3 (Φ8)	I3 (Φ8)	I3 (Φ8)	mm
Flexibility to low temperatures	EN 1109	± 5	-20	-20	-20	-20	-20	-20	°C
Water tightness (72h, 2 bar)	UEAtc/EN 1928		Successfully passed						
Vapor permeability coefficient	EN 1931	≥	20000	20000	20000	20000	20000	20000	---
Heat resistance	EN 1110	≤	110	110	110	110	110	110	°C
Reaction to fire	EN 13501-1	≥	F	F	F	F	F	F	---
Dangerous substances			Contains no asbestos and coal tar						
Dimensional stability L/T	EN 1107-1	≤	-0.1/+0.1	-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	0.2	W/mK

Tolerances in the nominal values are in accordance with respective standards. Producer reserves the right to modify the properties of his products.

The information contained in this leaflet is, to the best of our knowledge, true and reliable and is supported by the present state of our knowledge. According to the care taken and the method of application, upon which we have no influence, the values are subject to divergence. Therefore for best results, prior to use, an application test should be made by the user under his own processing conditions.

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EN ISO 9001:2008



EN ISO 14001:2004

