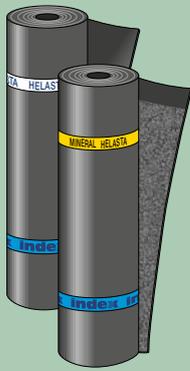


HELASTA EXTREME MINERAL HELASTA EXTREME

ELASTOMER POLYMER DISTILLED BITUMEN WATERPROOFING MEMBRANES
BASED ON DISTILLED BITUMEN AND STYRENE AND BUTADIENE BLOCK
RADIAL AND LINEAR THERMOPLASTIC ELASTOMER COPOLYMERS,
REINFORCED WITH SPUNBONDED NON-WOVEN POLYESTER FABRIC
STABILIZED WITH GLASS FIBRES FOR WATERPROOFING IN EXTREME
CLIMATES



GRANTS *LEED* CREDITS

CATEGORY	CHARACTERISTICS			ENVIRONMENTAL						METHOD OF USE		
ELASTOMERIC	WATERPROOF	REACTION TO FIRE	ECO GREEN	ASBESTOS FREE	TAR FREE	CHLORINE FREE	RECYCLABLE	NON DANGEROUS WASTE	EXHAUSTED OIL FREE	TORCH APPLICATION	HOT AIR APPLICATION	NAILING

1

PROBLEM



WATERPROOFING IN EXTREME CLIMATES

Apply the elastoplastomer polymer distilled bitumen membranes in extreme climates, also as an alternative to synthetic vulcanized rubber sheets.

2

SOLUTION

HELASTA EXTREME are membranes designed to withstand and be applied in areas with extreme climates. They represent the evolution of the best long-durability, high-performance elastomer polymer distilled bitumen membranes produced to date.

The reliability of the performance and long durability of this new line is supported by the DVT/Agrément certificates issued by ITC-CNR (former ICITE) on the HELASTA POLIESTERE membrane from which they directly derive. The body has verified their over-thirty-year durability on work performed back in 1979.

Whereas **MINERAL HELASTA EXTREME** is designed to be exposed directly to atmospheric agents, **HELASTA EXTREME** is intended for applications under heavy protection, under a layer of gravel or under a concrete hood. Both have cold flexibility of -35°C which reaches the levels of the most common vulcanized rubber membranes used for waterproofing roofs also considering the fact that, compared to them, they are three times thicker. Their +120°C heat resistance means they can also be applied in very hot climates without the risk of sliding.

The unreinforced mix is extremely elastic and comparable with rubber sheets, boasts cold flexibility lower than -40°C, ultimate elongation over 2000% and elastic recovery over 300%, absolutely in line with if not higher than the

levels reached by the above sheets. Once reinforced with spunbonded non-woven polyester fabric stabilized with glass fibres, the membrane acquires good mechanical resistance and high and uniformly distributed resistance to static and dynamic loading. The synthetic fibre reinforcement associated with mineral fibres guarantees that the membrane has dimensional stability lower than 0.25% on an unbonded sheet, and shrinkage that is less than half that of unreinforced rubber sheets whose stability is in the order of 0.50 - 1.00 %. The membrane can also be fully bonded and in that case the dimensional shrinkage drops to values in the order of 0.02-0.05%.

HELASTA EXTREME membranes do not contain migrating plasticizers as the plasticizer of the polymers contained is bitumen, which is notoriously stable, so stable that it is still possible now to note their presence in Assyro-Babylonian architecture.

Another important characteristic that differentiates **HELASTA EXTREME** membranes from synthetic sheets is their high thickness, at least 4 mm for membranes applied in a single layer, which certainly makes them more compatible with building requirements where the unit of measurement is not 1/10 mm.



INTENDED USE OF "CE" MARKING SPECIFIED ACCORDING TO THE AISPEC-MBP GUIDELINES

EN 13707 - REINFORCED BITUMEN SHEETS FOR ROOF WATERPROOFING

- Under layer or intermediate layer in multi-layer systems without permanent heavy surface protection
 - HELASTA EXTREME POLIESTERE
- Upper layer in multi-layer systems without permanent heavy surface protection
 - MINERAL HELASTA EXTREME POLIESTERE
- Exposed single-layer
 - MINERAL HELASTA EXTREME POLIESTERE
- Single-layer under heavy protection
 - HELASTA EXTREME POLIESTERE
- Under heavy protection in multi-layer systems
 - HELASTA EXTREME POLIESTERE

EN 13969 - BITUMEN DAMP PROOF SHEET INCLUDING BITUMEN BASEMENT TANKING SHEETS

- Membranes for foundations
 - HELASTA EXTREME POLIESTERE

DESCRIPTION

HELASTA EXTREME are elastomer waterproofing membranes based on a polymeric continuous phase alloy between a special distilled bitumen selected for the purpose and a very high content of styrene and butadiene block radial and linear thermoplastic elastomer copolymers.

HELASTA EXTREME membranes do not weaken, maintaining their elasticity properties over time. After thirty years from application, when exposed outdoors the cold flexibility of the **MINERAL HELASTA** membrane, from which they derive, had only varied by 10°C.

The high-resistance spunbonded composite non-woven polyester fabric reinforcement is rot-proof and elastic and is previously stabilized with glass fibres to give the membrane greater dimensional stability than that of rubber sheets.

HELASTA EXTREME membranes are characterized by high resistance at the joints -

METHOD OF USE AND APPLICATION FIELDS

Although it still requires a certain degree of training, the application technique for **HELASTA EXTREME** membranes is much more intuitive and easier than that used for synthetic sheets in general, plus there is no need for costly accessories and fixing devices; the latter are indeed often calculated separately in the metric estimation of synthetic coverings and have a significant economic impact on the cost of the roof, especially those with fractioned elements and/or with numerous skylights. The peculiarity of **HELASTA EXTREME** membranes lies in the fact that the membrane itself becomes adhesive due to torch heating and in that to be bonded onto the application surface no adhesives or extra materials are required. The possibility to bond **HELASTA EXTREME** membranes in total adherence limits water seepage in the case of leaks and facilitates traceability. Unlike rubber sheets the sealing of the overlaps does not require the use of heat-adhesive strips or sealants. The same torch bonding technique is used to seal the overlaps and, through melting, a secure autogenic seal is obtained; considering such outstanding operational simplicity, no further inspections are necessarily required afterwards, as is the typical case for the operational techniques in which there are no obvious and definite signs of efficient execution right from the laying phase; with **HELASTA EXTREME** membranes, a clear continuous trickle of melted mix can be seen approximately 10 mm outside the overlap, thus guiding the operator and confirming the successful seal both for the operator and in a later inspection step, just like you would see when welding metals. Whereas, in order to prevent moisture getting trapped when bonding on the laying surface, application at temperatures less than +2°C is not recommended, in the event of low-adhesion application, the sealing of the overlaps alone can even be performed at less than 0°C.

If the overlaps need to be sealed without a naked flame, the joints can be sealed more quickly than rubber sheets, also in hot air, using either manual welders or automatic ones, such as Leister BITUMAT B2. Again thanks to the fact that the membranes are torch-bonded, which is not the case for rubber sheets, old polymer-bitumen coverings can easily be

when traction is applied, the membrane breaks away from the joint - and they have extremely high resistance to peeling, such as to make them preferable in the case of application by mechanical fastening methods under the overlap.

Both faces of the **HELASTA EXTREME** membrane are coated in a **FLAMINA** hot-melt film which allows easy unwinding of the roll wraps together with quick, secure sealing of the overlaps.

The top face of the **MINERAL HELASTA EXTREME** membrane is self-protected with slate granules which are bonded and hot pressed except for a lateral overlapping strip 8 cm wide without mineral protection but protected with a band of hot-melt film which melts with a torch or hot air to weld the joint, whereas the bottom face is coated with the hot-melt film.

repaired without any special preparation in advance, if not a quick brushing to remove dirt that may have settled on the coverings, even those protected with mineral granules where the application methods are the same as those used to seal the ends of the new coverings (in the case of repair work on old coverings made up of synthetic membranes on the other hand, the latter have to be cleaned in advance with special solvents and in many cases combined with strenuous mechanical brushing work). Another just as important advantage that distinguishes **HELASTA EXTREME** membranes from vulcanized rubber membranes is yet again determined by the thermo-plastic characteristics of the material and by how simple patch repair work can be done just as easily without using adhesives. A covering can also be completely renewed simply by laying a new layer on top of the old one, bonding it using a torch in total adherence, consequently avoiding demolition expenses and transport costs to the tip. The result will not just be a new single-layer covering (which is what happens necessarily when renewing a rubber covering where the new one cannot be bonded on top of the old one), because when the new polymer-bitumen membrane is bonded onto the old one, any imperfections will melt and merge together, actually creating a new multi-layer covering, which also exploits the old reinforcement because it is incorporated into the new layer.

The wide stability range at high and low temperatures, over time, allows the membrane to be used both in cold and tropical climates. The excellent adhesion to the surfaces to be covered and the excellent seal of the joints guarantees durability and allows connection to be made either by torch bonding or mechanical fastening under the joint. The long-lasting mechanical resistance and elasticity of **HELASTA EXTREME** membranes means they can be used as a single- or multi-layer sealing element either in building or civil engineering, for new jobs or for repairs:

- On all sloping surfaces, both flat and upright and on curved surfaces.
- On different types of application surfaces: cement, site-cast or prefabricated surfaces; on metal or wooden roofing and on the most widely used thermal insulation systems for the building industry.
- For the most extensive range of uses: terraces,

SPECIFICATION ITEMS

HELASTA EXTREME - Elastomer polymer distilled bitumen waterproofing membranes for waterproofing in extreme climates, such as **HELASTA EXTREME**, based on a polymeric continuous phase alloy, of styrene and butadiene block radial and linear thermoplastic elastomer copolymers and special selected distilled bitumens, having cold flexibility (EN 1109) of 40°C, ultimate elongation (NF T 46-002) of 2000% and elastic recovery (NF-XP 84-360) of 300%, with Spunbond non-woven polyester fabric composite reinforcement stabilized with glass fibres. The 4 mm thick membrane (EN 1849-1) will be classified in Euroclass E for reaction to fire (EN 13501-1), will have tensile strength (EN 12311-1) L/T of 900/700 N/50 mm, ultimate elongation (EN 12311-1) L/T of 50/50 %, resistance to tearing (EN 12310-1) L/T of 200/200 N, fatigue resistance (UEAtc-2001) greater than 1,000 cycles on both new material and on artificially aged material, resistance to impact (EN 12691 - method A) of 1,250 mm, resistance to static load (EN 12730 - method A) of 20 kg, hot dimensional stability (EN 1107-1), L/T of -0.3/+0.15%, cold flexibility (EN 1109) of -35°C and heat resistance (EN 1110) of 120°C.

MINERAL HELASTA EXTREME - Elastomer polymer distilled bitumen waterproofing membrane, self-protected with slate granules, for waterproofing in extreme climates, such as **MINERAL HELASTA EXTREME**, based on a polymeric continuous phase alloy, of styrene and butadiene block radial and linear thermoplastic elastomer copolymers and special selected distilled bitumens, having cold flexibility (EN 1109) of 40°C, ultimate elongation (NF T 46-002) of 2000% and elastic recovery (NF-XP 84-360) of 300%, with Spunbond non-woven polyester fabric composite reinforcement stabilized with glass fibres. The 4 mm thick membrane (EN 1849-1) measured on the selvage will be classified in Euroclass E for reaction to fire (EN 13501-1), will have tensile strength (EN 12311-1) L/T of 900/700 N/50 mm, ultimate elongation (EN 12311-1) L/T of 50/50 %, resistance to tearing (EN 12310-1) L/T of 200/200 N, fatigue resistance (UEAtc-2001) greater than 1,000 cycles on both new material and on artificially aged material, resistance to impact (EN 12691 - method A) of 1,250 mm, resistance to static load (EN 12730 - method A) of 20 kg, hot dimensional stability (EN 1107-1), L/T of -0.3/+0.15%, cold flexibility (EN 1109) of -35°C and heat resistance (EN 1110) of 120°C.

Self-protection MINERAL REFLEX WHITE -(to be added to the items mentioned so far if it is a cool roof) - The **MINERAL REFLEX WHITE** version of the membrane features a self-protection with ultra-reflecting ceramic granules with high saturation and brightness that fulfils the criteria of solar reflectance above 0.65 as required for "cool roof" flat roofs in Annex 1 of the Interministerial Legislative Decree dated 26/06/2015 in force since 1/10/2015 and with a Solar Reflectance Index RSI = 80%, certified by the EELab of the University of Modena and Reggio Emilia, and meets the CAM minimum environmental criteria in the Ministerial Decree of 24 December 2015, in force since 2 February 2016 in point 2.2.3, and those provided for by the ITACA Protocol standard UNI/PdR 13.1:2015 CRITERION C.6.8.

flat and sloping roofs, foundations including earthquake-resistant ones, rooftop car parks and waterproofing for civil engineering works.

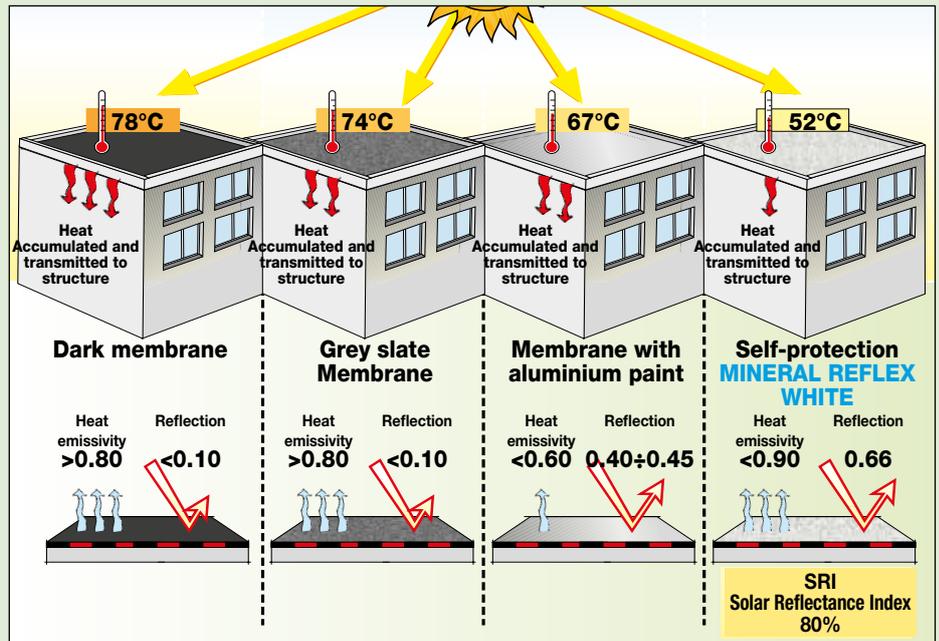
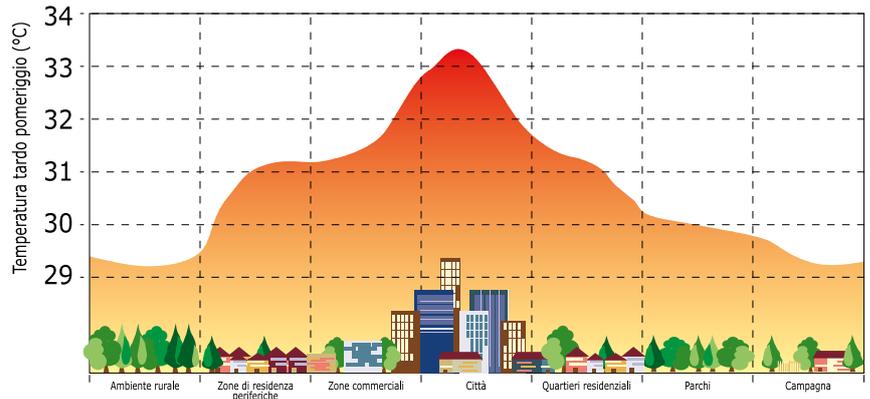
Environmental qualities

HELASTA EXTREME membranes fulfil the criteria of the environmental protocols for sustainable building.

Unlike synthetic sheets, the slate-coated surfaces of **MINERAL HELASTA EXTREME** can be painted with ecological water-based paints and the most varied roof colours can be obtained. The slate-coated surface constitutes the ideal substrate for long-lasting paint, hence it is possible to further increase the reflectance of the roof with the special water-based paint **WHITE REFLEX** that reduces the temperature of the covering exposed to the sun from about 80°C to about 40°C and allows the roof to be cooled down and/or save on summer air conditioning costs. However it is also available on request with the self-protection made of **MINERAL REFLEX WHITE** ultra-reflecting, high saturation and luminosity, white ceramic-coated granules, the version of **MINERAL HELASTA EXTREME** that already has a reflectance of over 0.65 allowing a cool roof to be provided, in compliance with the solar reflectance criteria required for flat cool roofs in Annex 1 of the Interministerial Decree of 26/06/2015 in force since 01/10/2015.

The **MINERAL WHITE REFLEX** protection, with a Solar Reflectance Index RSI higher than 80%, certified by the EELab of the University of Modena and Reggio Emilia, meets the CAM minimum environmental criteria for flat roofs in the Ministerial Decree of 24 December 2015 in force since 2 February 2016 in point 2.2.3 (SRI ≥ 78), those provided for by the ITACA Protocol standard UNI/PdR 13.1:2015 CRITERION C.6.8. (SRI ≥ 75) and those of the Protocol LEED GBC ITALY "To design, build and renovate institutional and commercial buildings" of 2009 updated on 9 February 2016 under the item SS CREDIT 7.2 - HEAT ISLAND EFFECT (SRI ≥ 78). As we know, the good environmental quality of a building product/system is denoted by its long durability, since the production of demolition waste is diluted over time. This is opposite to what happens for repairing a synthetic covering where the new one cannot be bonded onto the old one building a uniform and integral system. The peculiar characteristic of polymer distilled bitumen membranes is that they can be integrally superimposed. This provides the unique possibility in the field of prefabricated membranes of renewing an old covering by bonding a new membrane with total adhesion, thereby

URBAN HEAT ISLANDS EFFECT



extending the durability of the new layer which will have even higher performance than the previous one since it is thicker. This property of polymer-bitumen membranes meets the criteria of sustainable building and adds a new concept of service life, which is no longer mere durability but rather the "typical service life" of the system; the coverings can indeed be renewed by laying the new membranes over the old covering with which they become integrally merged, without producing demolition waste, up to 1-2 times; based on the overlying protection system applied, the service life of the layered arrangement is 60-90 years.

HELASTA EXTREME membranes do not contain any plasticizers that are harmful to the environment or any halogenated substances and they widely comply with the limits on air and water pollutants envisaged by the environmental protocols.

The increase in the reflectance and emissivity provided by the **WHITE REFLEX** paint applied to the waterproof covering

Surface	Reflection	Emissivity
Dark membrane	<10% (<0.1)	>80% (>0.8)
Painted aluminium membrane	40±45% (0.40±0.45)	<60% (<0.6)
Self-protected membrane MINERAL REFLEX WHITE	66% (0.66)	<90% (<0.90)

Solar Reflectance Index

MINERAL REFLEX WHITE
SRI* >80%

* SRI according to wind speed:
low wind=79%, medium wind=80% and high wind=81%.

The advantages of **MINERAL REFLEX WHITE** self-protection

- It increases the efficiency of photovoltaic panels.
- You avoid painting operations and it is more durable.
- It extends the life of the waterproof covering
- It improves comfort and you save on the costs of summer air conditioning.
- It reduces the temperature of urban heat islands and also power consumption and therefore emissions of CO₂.

TECHNICAL CHARACTERISTICS

	Standard	T	HELASTA EXTREME		MINERAL HELASTA EXTREME
Reinforcement			"Non-woven" Spunbond polyester fabric stabilized with fibreglass		"Non-woven" Spunbond polyester fabric stabilized with fibreglass
Thickness	EN 1849-1	±0,2	4 mm	5 mm	4 mm
Mass per unit area MINERAL	EN 1849-1	±15%	-	-	-
Roll size	EN 1848-1	-1%	1x10 m	1x10 m	1x10 m
Watertightness • after ageing	EN 1928 - B	≥	60 kPa		60 kPa
Shear resistance L/T	EN 12316-1	-20 N	-		200 N/50 mm
Maximum tensile force L/T	EN 12317-1	-20%	800/600 N/50 mm		800/600 N/50 mm
Elongation L/T	EN 12311-1	-20%	900/700 N/50 mm		900/700 N/50 mm
Resistance to impact	EN 12311-1	-15% V.A.	50/50%		50/50%
Resistance to static loading	EN 12691 - A		1 250 mm		1 250 mm
Resistance to tearing (nail shank) L/T	EN 12730 - A		20 kg		20 kg
Dimensional stability L/T	EN 12310-1	-30%	200/200 N		200/200 N
Flexibility to low temp. • after ageing	EN 1107-1	≤	-0.30/+0.15%		-0.30/+0.15%
Flow resist. at high temp. • after ageing	EN 1109 EN 1296-1109	≤ +15°C	-35°C -35°C		-35°C -35°C
UV ageing	EN 1110 EN 1296-1110	≥ -10°C	120°C 110°C		120°C 110°C
Reaction to fire Euroclass	EN 13501-1		E		E
External fire performance	EN 13501-5		F roof		F roof

Thermal specifications

Thermal conductivity			0.2 W/mK	0.2 W/mK	0.2 W/mK
Heat capacity			5.20 KJ/K·m ²	6.50 KJ/K·m ²	4.80 KJ/K·m ²

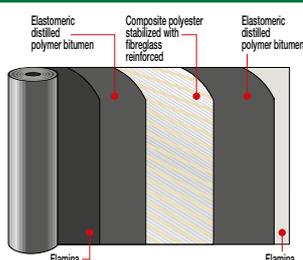
Compliant with EN 13707 in terms of the resistance factor to steam penetration for reinforced polymer-bitumen membranes, the value of $\mu = 20\ 000$ may be considered, unless declared otherwise.

Slate membranes may change colour depending on the storage periods. The colour may change away within 2-3 months for membranes. The colour may change to their original colour after 12 months. The aspect of this type of membrane and cannot be the basis for a complaint. The same is true regarding the maintenance of colour and the different colourings that can occur among the variously exposed areas of the covering based on the types of artificial colouring.

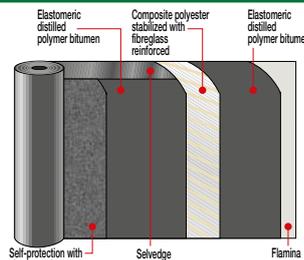
the numerous possible uses and the possible interference of conditions or elements beyond our control, we assume no responsibility regarding the results which are obtained. The purchasers, of their own accord and under their own responsibility, must establish the suitability of the product for the envisaged use.

COMPOSITION OF THE MEMBRANE

HELASTA EXTREME



MINERAL HELASTA EXTREME



PRODUCT FINISHING



"FLAMINA" PE FOIL. Plastic protection film helping prevent coils from sticking to the roll. As it withdraws under the action of the flame right during its installation, it signals the best melting point in order to correctly glue the membrane to the brackets and rises. When not heated, it can be used as a sliding layer.



SELF-PROTECTION WITH SLATE GRANULES. On the visible face of the membrane, a protective coating made up of slate granules of various colours is hot bonded. This mineral shield protects the membrane from ageing caused by UV rays.



MINERAL REFLEX WHITE SELF-PROTECTION. A special high saturation and luminosity white mineral self-protection is applied to the face of the membrane to remain visible, which protects it from ageing due to UV rays, with high solar reflectance and very high heat emissivity.

* Surface treatment suitable for application under photovoltaic systems.

The figures shown are average indicative figures relevant to current production and may be changed or updated by INDEX at any time without previous warning. The advice and technical information provided, is what results from our best knowledge regarding the properties and the use of the product. Considering

• FOR ANY FURTHER INFORMATION OR ADVICE ON PARTICULAR APPLICATIONS, CONTACT OUR TECHNICAL OFFICE • IN ORDER TO CORRECTLY USE OUR PRODUCTS, REFER TO INDEX TECHNICAL SPECIFICATIONS •

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Construction Systems and Products

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