



# Technical Approval

SINTEF Building and Infrastructure confirms that

## Index Mineral Helasta P4 takbelegg "Supertekk"

has been found to be fit for use in Norway and to meet the provisions regarding product documentation given in the regulation relating to the marketing of products for construction works (DOK) and regulations on technical requirements for building works (TEK), with the properties, fields of application and conditions for use as stated in this document

### 1. Holder of the approval

Index S.p.A  
 Via G. Rossini, 22  
 37060 Castel d'Azzano (Verona)  
 Italy  
[www.index-spa.com](http://www.index-spa.com)

### 2. Product description

Index Mineral Helasta P4 takbelegg "Supertekk" is a single layer bituminous roofing membrane. It consists of SBS modified bitumen with an unwoven reinforcement of Spunbound polyester and has granules on the upper side.

The underside has thin plastic film that will melt away during torching of the joints. Mineral Helasta P4 can be delivered in different colours. Standard colours are grey and black. The roofing membrane is based on overlapping, welded joints and mechanical fixing.

Measures and tolerances for membrane is given in table 1.

The product is CE marked in accordance with EN 13707.

Table 1.  
 Measures and tolerances for Mineral Helasta P4 according to EN 1848-1 og EN 1849-1

Property	Value	
Thickness	4,5 mm	± 5 %
Weight	5,3 kg/m <sup>2</sup>	± 10 %
Width	1 m	± 1 %
Roll length	8 m	-0/+2 %
Weight of reinforcement	Ca. 180 g/m <sup>2</sup>	

### 3. Fields of application

Mineral Helasta P4" is used as a single layer membrane for covering sloping and flat roofs and terraces. It can also be used as a top layer in a double layer system, see SINTEF Technical Approval no. 20477. Mineral Helasta P4 can be used for new roofing or in rehabilitation. The system is designed specially for use as a mechanically fastened single layer roofing membrane. See fig. 1.

The slope of the roof must be sufficient to allow rain and melting water to drain away. SINTEF Building and Infrastructure recommends a slope of at least 1:40 for all roofs.

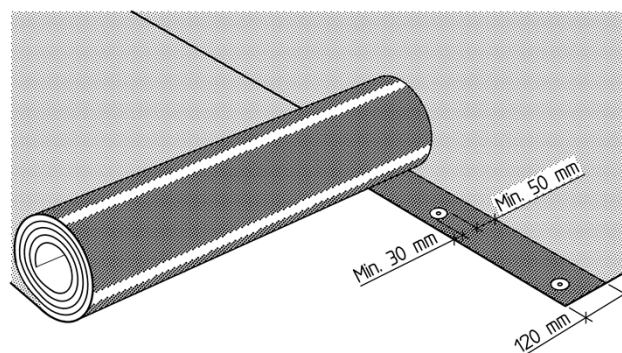


Fig. 1  
 Mineral Helasta P4 mechanically fastened in a 120 mm fully torched or hot air welded overlap joint.

### 4. Properties

#### Material properties

Product properties for fresh material are shown in Table 2.

#### Safety in case of fire

Mineral Helasta P4 fulfils the requirements of class B<sub>ROOF</sub> (t2) according to EN 13501-5 for underlays shown in table 3. The products have been tested in accordance with CEN/TS 1187-2.

Table 2  
Product characteristics for fresh material of Mineral Helasta P4 flexible roofing membrane

Property	Test method EN	Mineral Helasta P4		SINTEF's recomened minimum performance <sup>3)</sup>	Unit
		DoP <sup>1)</sup>	Contr. limit <sup>2)</sup>		
Dimensional stability	1107 -1 :1999	-	± 0,3	± 0,6	%
Flexibility at low temperature	upper face lower face 1109 :2013	- ≤ - 25	≤ - 25 ≤ - 25	≤ -15 ≤ -15	°C
Flow resistance at elevated temperature	1110 :2010	≥100	≥100	≥ 90	°C
Water tightness	10kPa / 24t 1928 :2000 (A)	Tight <sup>5)</sup>	Tight	Tight	-
Adhesion of granules <sup>4)</sup>	12039 :2000	-	≤ 2,5	≤ 2,5	
Resistance to tearing nail shank	L: T: 12310 -1 :2000	285 - 30 % 430 - 30 %	≥ 200 ≥ 300	≥ 150	N
Tensile strenght	L: T: 12311 -1 :2000	875 - 20 % 750 - 20 %	≥ 700 ≥ 600	≥ 600	N/50 mm
Elongation	L: T: 12311 -1 :2000	45 - 15 45 - 15	≥ 30 ≥ 30	≥ 10	%
Average peel resistance of joints Maximum peel resistance of joints	12316 -1 :2000	- 150 - 20 %	≥ 100 ≥ 120	- ≥ 50	N/50mm
Shear resistance of joints	L: T: 12317 -1 :2000	750 - 20 % 750 - 20 %	≥ 600 ≥ 600	≥ 600	N/50mm
Resistance to puncturing	Impact +23 °C: Impact -10 °C: Static load: 12691 :2006 (A) 12691 :2001 12730 :2001 (A)	≥ 1000 - ≥ 20	≥ 1000 ≤ 10 ≥ 20	≥ 500 ≤ 30 ≥ 20	mm mm diam kg
Watertightness after stretching at low temperature	13897 :2005	-	Tight	Tight	-

<sup>1)</sup> Manufacturers Declaration of Performance, DoP.

<sup>2)</sup> Control limit shows the values the product has to satisfy during internal factory production control and audit testing

<sup>3)</sup> SINTEF's recommended minimum performance in SINTEF Technical Approval for single layer bituminous waterproofing membrane

<sup>4)</sup> Modified to mass loss of granules in gram

<sup>5)</sup> Tested according to EN 1928, method B. Pressure: 60 kPa

Table 3  
Mineral Helasta P4 achieves reaction-to-fire classification  
class B<sub>ROOF</sub> (t2) on following substrates

Type of substrate	Mineral Helasata P4
EPS	No
Rock wool	Yes
Wooden sheeting	Yes
Concrete	Yes
Reroofing on old membrane on EPS	Yes
Reroofing on old membrane on rock wool	Yes
Reroofing on old membrane on wooden sheeting	Yes
Reroofing on old membrane on concrete	Yes

#### Fastener capacity

Fastening capacities of various fasteners used for anchoring the roofing membrane are given in Table 4. This capacity applies to the connection between the membrane and the fastener according to EN 16002. Testing is performed according to ETAG 006 on wooden underlay. For weak underlays the connection between the underlay and the fastener might limit the capacity. This must be considered. The lowest value for membrane/underlay must always be used.

Calculation of fastener spacing is given in SINTEF Building Research Design Sheet no. 544.206 and "TPF Informs No. 5" issued by the Roofing Manufacturers' Research Group, Norway. See also SINTEF Technical Approval no. 2137 for SFS fasteners.

Table 4

Design capacity in ultimate limit state for fixing of Mineral Helasta P4 with 120 mm overlapping joints (or outside overlap)

Fastener	Capacity N/fastener
SFS Intec R45 FB-S-T25, 45x85 plastic fastener	385

#### Durability

Mineral Helasta P4 has shown satisfying properties after artificially ageing based on both type testing and annual control testing.

## 5. Environmental aspects

### *Substances hazardous to health and environment*

Mineral Helasta P4 contains no hazardous substances with priority in quantities that pose any increased risk for human health and environment. Chemicals with priority include CMR, PBT or vPvB substances.

### *Effect on soil, surface water and ground water*

The leaching properties of the product are evaluated to have no negative effects on soil or ground water.

### *Waste treatment/recycling*

The product shall be sorted as residual waste on the building/demolition site. The product shall be delivered to an authorized waste treatment plant for energy recovery.

### *Environmental declaration*

No environmental declaration (EPD) has been worked out for Mineral Helasta P4.

## 6. Special conditions for use and installation

### *Installation*

Mechanical fasteners shall be placed at welded overlaps with a minimum width of 120 mm. The fasteners must be positioned at a distance from the membrane edges that provides minimum 25 mm bonding on the inside and minimum 45 mm bonding on the outside of the fastener, see fig. 2. Transverse joints must have a 150 mm overlap. The underlying corner is fastened, and the overlying corner is cut at an angle. A good result is achieved by 'drowning' the surfaces in bitumen before the joint is fully welded.

Joints can be torched or hot air welded, and shall achieve a width of 120mm. In addition the roofing system shall be installed in accordance with the guidelines from the manufacturer and principles shown in the instruction sheet of the manufacturer and the in SINTEF Building Design Sheets 544.203, 544.204 and 544.206 together with "TPF informs No. 5".

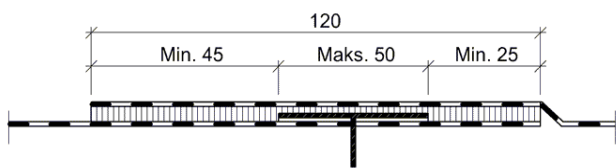


Fig. 2 Fastening of single layer bituminous roofing membrane.

### *Fasteners*

Fastening with ordinary steel washers and screws in longitudinal overlaps may be used on firm underlays such as woodbased sheathing or concrete.

On underlays of thermal insulation with good compression strength, such as expanded polystyrene (EPS) 20 kg/m<sup>3</sup>, steel washers with deep collars or telescopic plastic washers should be used. Roofing on EPS can only be done on small houses with a minimum distance of at least 8,0 m

between each construction and unclassified roofing can be used. Small houses is understood as single unit houses, duplex houses and other low-rise buildings with a small amount of people.

Fasteners with good telescopic effect must be used when the membrane is installed on thermal insulation materials with lower compressive strength. The tightening of the fasteners must be specially checked.

### *Traffic on the roof*

Special precautionary measures should be taken to protect the roofing membrane if the roof is expected to have more traffic than is necessary for inspection and maintenance purposes only.

### *Requirements for the underlay*

When a fire classification is required for the roofing membrane Mineral Helasta P4 can only be used on wooden underlay and the incombustible underlays concrete, lightweight concrete or rock wool.

Wooden roof sheathing must be in accordance with SINTEF Building Design Sheet 525.861 about wooden roof sheathing.

For re-roofing on old roofing that contains softeners, as for example PVC, a separate migration barrier of minimum 140 g/m<sup>2</sup> polyester felt has to be used.

### *Maintenance*

In case of repair work the membrane must be cleaned locally before welding can start.

### *Storage*

Mineral Helasta P4 must be stored in an upright position on a smooth, flat surface.

## 7. Factory production control

The product is produced by Index SpA, Via G. Rossini, 22, 37060 Castel d'Azzano (Verona), Italy.

The holder of the approval is responsible for the factory production control in order to ensure that the product is produced in accordance with the preconditions applying to this approval.

The manufacturing of the product is subject to continuous surveillance of the factory production control in accordance with the contract regarding SINTEF Technical Approval.

Index S.p.A has a quality management system certified by Bureau Veritas Italia S.p.A in compliance with EN ISO 9001:2008, certificate 191934.

Index S.p.A has an environmental management system certified by Bureau Veritas Italia S.p.A in compliance with EN ISO 14001:2004, certificate IT235284.

### 8. Basis for the approval

Product properties have been verified by tests carried out at SINTEF Building and Infrastructure, CBI Betonginstituttet and Sveriges Tekniska Forskningsinstitut (SP), and documented in the following reports:

- CBI Betonginstituttet. Report P803400 dated 2009-08-13, summary of material properties.
- SP. Report F903820B dated 2009-05-28, material properties (flexibility at low temperature and tensile properties for fresh and aged materiale) .
- SP. Report P900188A dated 2009-06-24, wind up-lift.
- SP Fire Research AS. Test report F16 130004-16 dated 2016-10-08, fire testing
- SP Fire Research AS. Classification report 130003-10 dated 2016-10-26, fire testing
- SP. Report P803684B dated 2008-08-27, fire testing.
- SINTEF Byggforsk. Report 3D1043 dated 2010-11-10, resistance to puncture by impact at -10°C.

### 9. Marking

Packaging on all rolls shall be marked with producer, the manufacturer's product code, product name and date of production.

The product is CE marked in accordance with EN 13707.

The approval mark for SINTEF Technical Approval No. 20102 may also be used.



Approval mark

### 10. Liability

The holder/manufacturer has sole product responsibility according to existing law. Claims resulting from the use of the product cannot be brought against SINTEF beyond the provisions of Norwegian Standard NS 8402

for SINTEF Building and Infrastructure

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