

SINTEF Building and Infrastructure confirms that

## Index double-layer roof waterproofing membrane

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

### 2. Product description

Index double-layer roof waterproofing membrane is a double layer bituminous roofing system where the overlay is fully torched to the underlay. The double layer system consists of:

- Underlay: Index Helastopol P3
- Overlay: Index Mineral Helasta P4 "Supertekk"

Mineral Helasta P4 consists of SBS modified bitumen with a non woven reinforcement of Spunbond polyester and has granules on the upper side. The underside has a thin plastic film that will melt away during torching. Mineral Helasta P4 can be delivered in different colours. Standard colours are grey and black.

Helastopol P3 is a SBS modified bituminous membrane with a non-woven Spunbond polyester reinforcement and sand finishing on top. The underside has a thin plastic film that will melt away during torching.

Measures and tolerances for the two membranes are given in table 1.

The product is CE marked in accordance with EN 13707.

Table 1. Measurements and tolerances for Mineral Helasta P4 and Helastopol P3

Property	Values	
	Mineral Helasta P4	Helastopol P3
Thickness	4.5 mm $\pm$ 5 %	2.5 mm $\pm$ 5 %
Weight	5.3 kg/m <sup>2</sup> $\pm$ 10 %	3 kg/m <sup>2</sup> $\pm$ 10 %
Width	1 m $\pm$ 1 %	1 m $\pm$ 1 %
Roll length	8 m -0/+2 %	10 m -0/+2 %
Weight of reinforcement	Ca. 180 g/m <sup>2</sup>	Ca. 150 g/m <sup>2</sup>

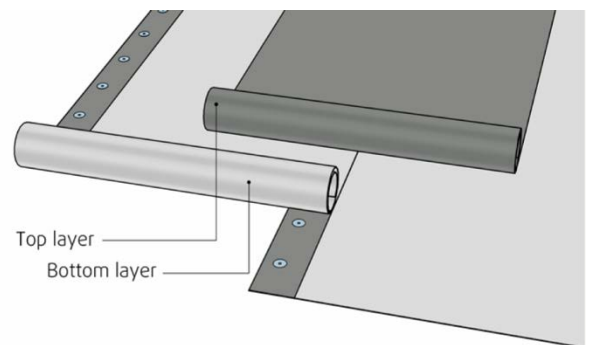


Fig 1  
Index double-layer roof waterproofing membrane. The top layer is fully bonded to the bottom layer by welding.

### 3. Fields of application

Index double-layer roof waterproofing membrane can be used as roofing on tilted and flat roofs. It can be used both on new buildings and in rehabilitation projects. The system is designed especially for use as mechanically fixed double roofing membrane, see figure 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.

### 4. Properties

#### Material properties

Product properties for fresh material are shown in Table 2.

Table 2  
Product properties for fresh material for products in Index double layer roof waterproofing membrane

Property	Test method EN	Helastopol P3 Bottom layer		SINTEF's recommended minimum performance <sup>3)</sup>	Mineral Helasta P4 Top layer		SINTEF's recommended minimum performance <sup>4)</sup>	Unit
		DoP <sup>1)</sup>	Control limit <sup>2)</sup>		DoP <sup>1)</sup>	Control limit <sup>2)</sup>		
Dimensional stability	1107-1:1999	-	0.6	± 0.6	-	± 0,3	± 0.6	%
Flexibility at low temperature upper side out underside out	1109:1999	- ≤ -20	≤ -20 ≤ -20	≤ -15 ≤ -15	- ≤ - 25	≤ -25 ≤ - 25	≤ -15 -	°C
Flow resistance at elevated temperature	1110:1999	≥ 100	≥100	≥ 90	≥100	≥100	≥ 90	°C
Watertightness 10 kPa/24 h	1928:2000 (A)	Tight <sup>6)</sup>	Tight	Tight	Tight <sup>6)</sup>	Tight	Tight	kPa
Adhesion of granules <sup>5)</sup>	12039:2000	-	-	-	-	≤ 2,5	≤ 2.5	g
Resistance to tearing (nail shank)	L T 12310-1:2000	215 - 30 % 215 - 30 %	≥ 150 ≥ 150	≥ 150 ≥ 150	285 - 30 % 430 - 30 %	≥ 200 <sup>7)</sup> ≥ 300 <sup>7)</sup>	-	N
Tensile strength	L T 12311-1:2000	750 - 20 % 600 - 20 %	≥600 ≥480	≥ 400 ≥ 400	875 - 20 % 750 - 20 %	≥ 700 ≥ 600	≥ 400 ≥ 400	N/50 mm
Elongation	L T 12311-1:2000	45 - 15 45 - 15	≥ 30 ≥ 30	≥ 10 ≥ 10	45 - 15 45 - 15	≥ 30 ≥ 30	≥ 10 ≥ 10	%
Peel resistance of joints Average	12316-1:2000	100 ± 20 %	80	≥ 50	-	≥ 100 <sup>7)</sup>	-	N/50 mm
Maximum		-	-	-	150 - 20 %	≥ 120 <sup>7)</sup>		
Shear resistance of joints	L T 12317-1:2000	600 - 20 % 500 - 20 %	≥480 ≥400	≥ 400 ≥ 400	750 - 20 % 750 - 20 %	≥ 600 <sup>7)</sup> ≥ 600 <sup>7)</sup>	-	N/50 mm
Resistance to: Impact +23 °C Impact -10 °C Static loading	12691:2006 (A) 12691:2001 12730:2001 (A)	≥ 500 - ≥ 15	≥500 - 15	≥ 500 - ≥ 15	≥ 1000 - ≥ 20	≥ 1000 ≤ 10 <sup>7)</sup> ≥ 20	≥ 500 - ≥ 15	mm mm diam. kg
Watertightness after 10 % stretching at low temp. (-10 C)	13897:2005	-	-	-	-	Tight <sup>7)</sup>	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 the bottom layer in double layer system

<sup>4)</sup> SINTEF's recommended minimum performance in SINTEF Technical Approval for the top layer in double layer system

<sup>5)</sup> Modified to only give the result of weight loss of granules in gram

<sup>6)</sup> Tested according to EN 1928 method B

<sup>7)</sup> Control limit concerns Mineral Helasta "Supertekk" as a one-layer system

Table 3  
Index double-layer roof waterproofing membrane achieves reaction-to-fire classification class B<sub>ROOF</sub> (t2) on the following substrates

Type of sub construction	Index double-layer roof membrane
EPS	No
Stone wool	Yes
Wooden sheeting	Yes
Concrete	Yes
Reroofing on old membrane on EPS	No
Reroofing on old membrane on stone wool	Yes
Reroofing on old membrane on wooden roofing	Yes
Reroofing on old membrane on concrete	Yes

#### *Safety in case of fire*

Index double-layer roof waterproofing membrane fulfills the requirements of class B<sub>ROOF</sub> (t2) according to EN 13501-5 on substrates shown in Table 3. The testing is performed according to CEN/TS 1187-2.

#### *Durability*

Helastopol P3 and Mineral Helasta P4 have shown satisfying properties after artificially ageing performed at SINTEF Building and Infrastructure.

#### *Fastener capacity*

Fastening capacities of various fasteners used for anchoring the roofing membrane are given in Table 4. For weak foundations, the connection between the foundation and the fastener might limit the capacity. This must be considered.

The lowest value for membrane/foundation must always be used.

Calculation of fastener spacing is given in SINTEF Building Design Sheet 544.206, and in "TPF informs No. 5" issued by the Roofing Manufacturers' Research Group, Norway.

Table 4

Design capacity in ultimate limit state for fixing Index double-layer roof waterproofing membrane double layer roofing membrane

Type of fastener, fixed in minimum 100 mm welded overlap	Capacity N/fastener
SFS ISO TAK RH-45	590
SFS MW-40FH steel washer	500

## 5. Environmental aspects

### *Substances hazardous to health and environment*

Index double-layer roof waterproofing membrane 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 Index double-layer roof waterproofing membrane.

## 6. Special conditions for use and installation

### *Installation*

The bottom layer Helastopol P 3 shall be mechanically fastened with 100 mm overlaps which are welded over the entire width. The fasteners shall be placed ca. 50 mm from the edge of the sheet. Minimum 20 mm bonding on the inside and minimum 30 mm bonding on the outside of the fastener is required. The number of fasteners along the overlap must be in accordance with the wind uplift forces and not less than one every 300 mm.

The top layer Mineral Helasta P4 shall be installed with 120 mm welded overlaps and the sheets shall be fully welded to the bottom surface. Mineral Helasta P4 top layer shall be installed straddling the lines of the overlaps of the bottom layer.

Transverse joints are normally performed with 150 mm overlaps for both the bottom layer and top layer. The transverse joints of the bottom layer shall be mechanically fastened.

### *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.

Fasteners with good telescopic effect must be used when the membrane is installed on thermal insulation materials with lower compressive strength.

### *Welding of overlaps*

Before welding of overlaps the membrane shall be rolled out and positioned. The overlaps have to be welded with a burner or with a welding machine.

In addition the membrane shall be installed in accordance with the guidelines from the manufacturer and the principles shown in SINTEF Building Design Sheets 544.203, 544.204 and 544.206 together with "TPF informs No. 5".

### *Transport and storage*

Helastopol P 3 and Mineral Helasta P 4 must be stored in an upright position on a smooth, flat surface.

### *Traffic on the roof*

Special precautions must be taken to protect the roofing membrane when traffic on the roof exceeding activity levels required for inspection and maintenance can be expected.

## 7. Factory production control

The product is produced by Index S.p.A, 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 and documented in type testing 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; heat aging, flexibility at low temperature and tensile properties for fresh and aged material)
- SINTEF Building and Infrastructure. Report 3D1043 dated 2010-11-10 (Impact at -10°C)
- SINTEF Building and Infrastructure. Report 102010145-4 dated 2015-10-15 (Type testing of material properties)
- SINTEF Building and Infrastructure. Report 102010145-4 dated 2015-09-07 (Wind load testing)
- SP. Report 6P03270-1 (Fire testing)

### 9. Marking

Packaging on all rolls shall be marked with producer, the manufacturer's product code, product name and batch number.

The product is CE marked in accordance with EN 13707.

The approval mark for SINTEF Technical Approval No. 20477 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

A handwritten signature in blue ink that reads 'Marius Kvalvik'.

Marius Kvalvik  
Approval Manager