

SINTEF Technical Approval

TG 20032

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 Provided listed on
www.sintefcertification.no

SINTEF confirms that

Astroflex SBS 5000 SUPRA and Astroflex 6000 SUPRA bituminous roofing 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

Copernit S.p.A.
 Via Provinciale Est 64,
 46020 Pegognaga (Mantova), Italy
www.copernit.it

2. Product description

Astroflex SBS 5000 SUPRA and Astroflex SBS 6000 SUPRA are single layer roofing membranes made of SBS modified bitumen. The products are covered on the upper face with slate granules and with a thin plastic film on the lower face which melts off when the joints are welded. The reinforcement in the membrane is composite polyester stabilised with longitudinal glass fibres. Measures and tolerances for the membranes are shown in Table 1.

The membranes are delivered with black mineral finish (on demand other colours are available).

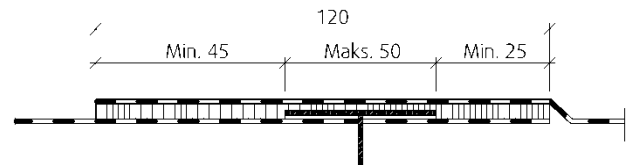
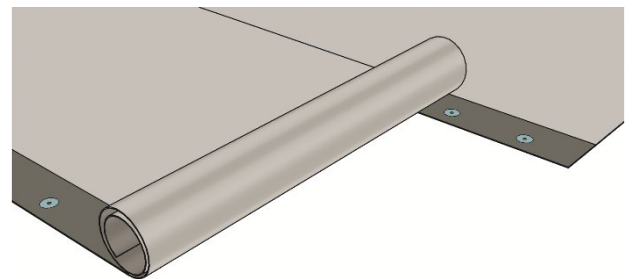


Fig. 1
 Astroflex SBS 5000 SUPRA and Astroflex SBS 6000 SUPRA mechanically fixed in a 120 mm welded side-overlap

Astroflex SBS 5000 SUPRA and Astroflex SBS 6000 SUPRA flexible roofing membranes can be used for new roofing or for rehabilitation.

4. Properties

Material properties

Product properties for fresh material are shown in Table 2.

Properties related to fire

Astroflex SBS 5000 SUPRA and Astroflex SBS 6000 SUPRA fulfil the requirements of class B_{ROOF} (t2) according to EN 13501-5 regarding external fire performance on substrates shown in table 3. Testing is performed according to CEN/TS 1187, test 2.

Durability

Astroflex SBS 5000 SUPRA and Astroflex SBS 6000 SUPRA have shown satisfying properties after artificial ageing in connection with type-testing and audit testing.

Table 1 Dimensions and tolerances ¹⁾

Property	Astroflex SBS SUPRA		Tolerance
	5000	6000	
Thickness	4.5 mm	5.0 mm	± 5 %
Weight	5.0 kg/m ²	5.7 kg/m ²	± 5 %
Width	1 m	1 m	-1 %
Roll length	8m ²⁾	²⁾	-1 %
Weight of reinforcement	Ca. 160 g/m ²	Ca.160 g/m ²	-

¹⁾ Measures and tolerances according to EN 1848-1 and EN 1849-1

²⁾ According to customer's request

3. Fields of application

Astroflex SBS 5000 SUPRA and Astroflex SBS 6000 SUPRA flexible roofing membranes are used as single layer membranes for covering sloping and flat roofs.

Roofs must have adequate slope to drain water from rain and melted snow. SINTEF recommends in general a minimum slope of 1:40 for all roofs.

The systems are designed specially for use as mechanically fixed single layer roofing membranes. See Fig. 1.

SINTEF is the Norwegian member of European Organisation for Technical Assessment, EOTA, and European Union of Agrément, UEAtc

Table 2 Product characteristics for fresh material of Astroflex SBS 5000 SUPRA and Astroflex SBS 6000 SUPRA flexible roofing membranes

Property	Test method EN	Astroflex 5000		Astroflex 6000		SINTEF's recommended minimum performance ³⁾	Unit
		DoP ¹⁾	Contr. Limit ²⁾	DoP ¹⁾	Contr. Limit ²⁾		
Dimensional stability	1107-1	≤ ± 0.3	± 0.3	≤ ± 0.3	± 0.3	± 0.6	%
Flexibility at low temperature	1109	≤ -20	-20	≤ -20	-20	≤ -15	°C
Flow resistance at elevated temperature	1110	≥ 100	100	≥ 100	100	≥ 90	°C
Water tightness 10kPa / 24t	1928 (A)	Tight	Tight	Tight	Tight	Tight	-
Adhesion of granules ⁴⁾	12039	30	30	30	30	≤ 2.5 g ⁴⁾	%
Resistance to tearing nail shank	12310-1	265 ± 30 % 395 ± 30 %	185 275	265 ± 30 % 395 ± 30 %	185 275	≥ 150	N
Tensile strength	12311-1	815 ± 20 % 750 ± 20 %	650 600	875 ± 20 % 750 ± 20 %	700 600	≥ 600	N/50 mm
Elongation	12311-1	45 ± 15 50 ± 15	30 35	45 ± 15 50 ± 15	30 35	≥ 10	%
Maximum peel resistance of joints	12316-1	100 ± 20	80	100 ± 20	80	-	N/50mm
Average peel resistance of joints		60 ± 10	50	60 ± 10	50	≥ 50	
Shear resistance of joints Sidelap/Endlap	12317-1	750 ± 20 %	600	750 ± 20 %	600	≥ 600	N/50mm
Resistance to puncturing	12691 (A)	≥ 900	900	≥ 900	900	≥ 500	mm
	12691:2001	-	30	-	30	≤ 30	mm diam
	12730 (A)	≥ 20	20	≥ 20	20	≥ 20	kg
Watertightness after stretching at low temperature (10% elongation at -10 °C)	13897	-	Tight	-	Tight	Tight	-

¹⁾ Manufacturers Declaration of Performance, DoP.

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

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

⁴⁾ Modified to mass loss of granules in gram

L = Longitudinal

T = Transversal

Table 3 Astroflex SBS 5000 SUPRA and Astroflex SBS 6000 SUPRA achieves reaction-to fire classification class BROOF (t2) on following substrates

Type of substrate	Astroflex membranes
EPS *	No
EPS + glass tissue, density 120 (±20) g/m ² *	Yes
Rock wool	Yes
Wooden sheeting	Yes
Concrete	Yes
Reroofing on old membrane on EPS *	Yes
Reroofing on old membrane on EPS with glass tissue, density 120 (±20) g/m ² *	Yes
Reroofing on old membrane on rock wool	Yes
Reroofing on old membrane on wooden sheeting	Yes
Reroofing on old membrane on concrete	Yes

* In case of roofing on lightweight combustible insulation (eg EPS, XPS or PIR): See clause 6, regarding requirements for replacement of combustible insulation to non-combustible around passages and against adjacent structures.

Fastening capacity

The design capacity for fastening Astroflex SBS 5000 SUPRA and Astroflex SBS 6000 SUPRA is shown in table 4. This capacity applies to the connection between the membrane and the fastener according to EN 16002.

For weak substrates the connection between the substrate and the fastener might limit the capacity. This must be considered. The lowest value for membrane/substrate must always be used.

Calculation of fasteners spacing is carried out according to SINTEF Building Research Design Guide no. 544.206 and " TPF informerer nr. 5".

Table 4 Design capacity in ultimate limit state for Astroflex SBS 5000 SUPRA and Astroflex SBS 6000 SUPRA

Fastener	Capacity N/stk
SFS Iso-tak R45 with BS-4,8xL	800 ¹⁾

¹⁾ Measured according to method EN 16002 with the safety factor used in Norway $\gamma_m=1.3$

5. Environmental aspects

Chemicals hazardous to health and environment

Astroflex SBS 5000 SUPRA and Astroflex SBS 6000 SUPRA contain 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 products are evaluated to have no negative effects on soil or ground water.

Waste treatment/recycling

Astroflex SBS 5000 SUPRA and Astroflex SBS 6000 SUPRA shall be sorted as residual waste on the building/demolition site. The products shall be delivered to an authorized waste treatment plant for energy recovery.

Environmental declaration

No environmental declaration (EPD) has been worked out for the products. Special conditions for use and installation.

6. Special conditions for use and installation

Installation

Longitude joints of Astroflex SBS 5000 SUPRA and Astroflex SBS 6000 SUPRA can be torched or hot air welded, and shall achieve a width of 120 mm.

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. 1.

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 surface in bitumen before the joint is fully welded.

The roofing system shall be installed in accordance with the vendor's installation manual and the principles shown in SINTEF Building Research Design Guide no. 544.203, 544.204 and 544.206, plus "TPF informer nr. 5" published by Takprodusentenes Forskningsgruppe, see www.tpf-info.org.

Fasteners

Normal steel washers may be used in longitudinal overlapping joints on firm substrates such as wood-based roof sheathing or concrete.

On substrates of thermal insulation with compressive strength ≥ 80 kN/m² (level CS(10)80 according to EN 13163) steel washers with deep collars or plastic washers should be used.

Washers with integrated sleeves and good telescopic function must be used for installation on thermal insulation with lower compression strength, and the tightening of the fasteners must particularly be checked.

Substrate

When a fire classification is required the substrate must be in accordance with the provisions stated in section 4 regarding Properties related to fire.

Substrate of combustible insulation as EPS, XPS or PIR must be covered or divided, and also replaced with non-combustible insulation around bushings and adjacent constructions according to regulations in "Veiledning om tekniske krav til byggverk" § 11-9 and further description in "TPF informer nr. 6" *Branntekniske konstruksjoner for tak* published by Takprodusentenes Forskningsgruppe (TPF), see www.tpf-info.org.

For re-roofing on old roofing that contains softeners, as for example PVC, a separate migration barrier of approximately 150 g/m² polyester felt has to be used.

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.

Cleaning and maintenance

Before starting any welding, as a part of repair work, the roofing membrane must be cleaned locally, in accordance with the manufacturer's guidelines.

Transport and storage

Astroflex SBS 5000 SUPRA and Astroflex SBS 6000 SUPRA must be stored upright on pallets.

7. Factory production control

The product is produced by:

Copernit S.p.A.

Via Provinciale Est 64,

46020 Pegognaga (Mantova)

Italy

The holder of the approval is responsible for the factory production control in order to ensure that Astroflex SBS 5000 SUPRA and Astroflex SBS 6000 SUPRA are produced in accordance with the preconditions applying to this approval.

The manufacturing of Astroflex SBS 5000 SUPRA and Astroflex SBS 6000 SUPRA is subject to continuous surveillance of the factory production control in accordance with the contract regarding SINTEF Technical Approval.

Copernit S.p.A. has a quality management system certified by Bureau Veritas Italia S.p.A. in compliance with EN ISO 9001, certificate No. 176322.

8. Basis for the approval

The evaluation of Astroflex SBS 5000 SUPRA and Astroflex SBS 6000 SUPRA is based on reports owned by the holder of the approval.

9. Marking

Each roll of Astroflex SBS 5000 SUPRA and Astroflex SBS 6000 SUPRA shall be marked with the manufacturer's name, product description and production date.

Astroflex SBS 5000 SUPRA and Astroflex SBS 6000 SUPRA is CE marked according to EN 13707

The approval mark for SINTEF Technical Approval no. 20032 may also be used.

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

Hans Boye Skogstad
Approval Manager