

## PRODUCT DATA SHEET

# Sarnafil® AT-18

Polymeric FPO membrane for mechanically fastened and ballasted roof waterproofing

### PRODUCT DESCRIPTION

Sarnafil® AT-18 (thickness 1,8 mm) is a multi-layer synthetic membrane based on flexible polyolefines (FPO) with an internal fabric and backing according to EN 13956. Sarnafil® AT-18 is a hot air weldable roof membrane formulated for direct exposure and designed for use in all global climatic conditions.

### USES

Sarnafil® AT-18 may only be used by experienced professionals.

Waterproofing membrane for:

- Mechanically fastened roofing systems
- Loose laid ballasted roofs with different ballast materials (e.g. gravel, concrete slabs)
- Green roofs (intensive, extensive)
- Utility roofs
- Inverted roofs
- Terraces with pedestrian traffic

### CHARACTERISTICS / ADVANTAGES

- Resistant to UV exposure
- Resistant to permanent wind exposure
- Resistant to all common environmental influences
- Hot air weldable
- No open flame equipment required
- High dimensional stability from glass fleece inlay
- Resistant against impact load and hail
- Resistant to mechanical influences
- Resistant to root penetration
- Compatible with old bitumen

### ENVIRONMENTAL INFORMATION

- Conformity with LEED v4 SSc 5 (Option 1): Heat Island Reduction - Roof (only traffic white)
- Conformity with LEED v4 MRc 3 (Option 2): Building Product Disclosure and Optimization - Sourcing of Raw Materials
- Conformity with LEED v4 MRc 4 (Option 1 and Option 2): Building Product Disclosure and Optimization - Material Ingredients
- Conformity with LEED v4 MRc 2 (Option 1): Building Product Disclosure and Optimization - Environmental product declarations
- IBU Environmental Product Declaration (EPD) available
- Cradle to Cradle Certified™ Silver

### APPROVALS / STANDARDS

- CE Marking and Declaration of Performance to EN 13956 - Polymeric sheets for roof waterproofing
- EN 13501-5 Brooft4

## PRODUCT INFORMATION

<b>Product Declaration</b>	EN 13956: Polymeric sheets for roof waterproofing	
<b>Chemical Base</b>	Flexible polyolefins (FPO)	
<b>Reinforcing Material</b>	Multi-layer synthetic membrane based on flexible polyolefines (FPO) with an internal reinforcement of glass-fleece, polyester and a polymer non-woven backing of not more than 70 g/m <sup>2</sup> .	
<b>Packaging</b>	Sarnafil® AT-18 standard rolls are wrapped individually in a blue PE-foil.	
	Packing unit	Refer to price list
	Roll length	15,00 m
	Roll width	2,00 m
	Roll weight	60,00 kg
	Refer to current price list for packaging variations.	
<b>Shelf Life</b>	5 years from date of production.	
<b>Storage Conditions</b>	Product must be stored in original unopened and undamaged packaging in dry conditions and temperatures between +5 °C and +30 °C. Store in a horizontal position. Do not stack pallets of the rolls on top of each other, or under pallets of any other materials during transport or storage. Always refer to packaging.	
<b>Appearance / Colour</b>	Surface	matt
	Colours	
	Top surface	window grey (~RAL 7040) basalt grey (~RAL 7012)
	Bottom surface	dark grey
<b>Visible Defects</b>	Pass	(EN 1850-2)
<b>Length</b>	15,00 m (-0 % / +5 %)	(EN 1848-2)
<b>Width</b>	2,00 m (-0,5 % / +1 %)	(EN 1848-2)
<b>Effective Thickness</b>	1,80 mm (-5 % / +10 %)	(EN 1849-2)
<b>Straightness</b>	≤ 30 mm	(EN 1848-2)
<b>Flatness</b>	≤ 10 mm	(EN 1848-2)
<b>Mass per unit area</b>	2,00 kg/m <sup>2</sup> (-5 % / +10 %)	(EN 1849-2)

## SYSTEM INFORMATION

<b>System Structure</b>	<p>The following products must be considered for use depending on roof design:</p> <ul style="list-style-type: none"><li>▪ Sarnafil® AT-18 FSA P self adhered membrane for parapet</li><li>▪ Sarnafil® AT D Sheet for detailing</li><li>▪ Sarnafil® T Metal Sheet</li><li>▪ Sarnabar® / Sarnafast®</li><li>▪ Sarnafil® T Welding Cord</li><li>▪ Sarnacol® T 660</li><li>▪ Sarnafil® T Clean</li></ul>
<b>Compatibility</b>	<p>The substrate can be one of the following materials:</p> <ul style="list-style-type: none"><li>▪ Concrete, lightweight concrete, screed, brick masonry, plaster, Oriented Strand Boards (OSB), plywood panels, timber boards, metal decking.</li><li>▪ All thermal insulation types and levelling layers suitable for roofing. No additional separation layer is required.</li><li>▪ Existing bituminous roofing that is clean and level e.g. re-roofing over old flat roofs. Discolouration of the membrane surface may occur if in direct contact with bitumen.</li></ul>

## TECHNICAL INFORMATION

<b>Resistance to Impact</b>	hard substrate	$\geq 1500$ mm	(EN 12691)
	soft substrate	$\geq 2500$ mm	
<b>Hail Resistance</b>	rigid substrate	$\geq 27$ m/s	(EN 13583)
	flexible substrate	$\geq 40$ m/s	
<b>Resistance to Static Load</b>	soft substrate	$\geq 20$ kg	(EN 12730)
	rigid substrate	$\geq 20$ kg	
<b>Resistance to Root Penetration</b>	Pass		(EN 13948)
<b>Tensile Strength</b>	longitudinal (md) <sup>1)</sup>	$\geq 950$ N/50 mm	(EN 12311-2)
	transversal (cmd) <sup>2)</sup>	$\geq 900$ N/50 mm	

<sup>1)</sup> md = machine direction  
<sup>2)</sup> cmd = cross machine direction

<b>Elongation</b>	longitudinal (md) <sup>1)</sup>	≥ 18 %	(EN 12311-2)
	transversal (cmd) <sup>2)</sup>	≥ 18 %	
<small>1) md = machine direction 2) cmd = cross machine direction</small>			
<b>Tear Strength</b>	longitudinal (md) <sup>1)</sup>	≥ 300 N	(EN 12310-2)
	transversal (cmd) <sup>2)</sup>	≥ 300 N	
<small>1) md = machine direction 2) cmd = cross machine direction</small>			
<b>Joint Peel Resistance</b>	failure mode: C, no failure of the joint		(EN 12316-2)
<b>Joint Shear Resistance</b>	≥ 400 N/50 mm		(EN 12317-2)
<b>Dimensional Stability</b>	longitudinal (md) <sup>1)</sup>	≤  0,4  %	(EN 1107-2)
	transversal (cmd) <sup>2)</sup>	≤  0,2  %	
<small>1) md = machine direction 2) cmd = cross machine direction</small>			
<b>Foldability at Low Temperature</b>	≤ -50 °C		(EN 495-5)
<b>Water Tightness</b>	Pass		(EN 1928)
<b>Water Vapour Transimission</b>	μ = 190 000		(EN 1931)
<b>Exposure to Bitumen</b>	Pass		(EN 1548)
<small>3) Sarnafil® AT is compatible to old bitumen</small>			
<b>Effect of Liquid Chemicals, Including Water</b>	Resistant to many chemicals. Contact Sika Technical Services for additional information.		(EN 1847)
<b>UV Exposure</b>	Pass (> 5000 h / grade 0)		(EN 1297)
<b>External Fire Performance</b>	B <sub>ROOF</sub> (t4) up to 10°		(EN 13501-5)
<b>Reaction to Fire</b>	Class E		(EN ISO 11925-2, classification to EN 13501-1)

## APPLICATION INFORMATION

<b>Ambient Air Temperature</b>	-20 °C min. / +60 °C max.
<b>Substrate Temperature</b>	-30 °C min. / +60 °C max.

## VALUE BASE

All technical data stated in this Product Data Sheet are based on laboratory tests. Actual measured data may vary due to circumstances beyond our control.

## FURTHER DOCUMENTS

### Installation

- Application Manual

## LIMITATIONS

Installation work must only be carried out by Sika® trained and approved contractors, experienced in this type of application.

- Sarnafil® AT-18 must only be applied to compatible substrates (refer to compatibility section).
- Sarnafil® AT-18 must be installed by loose laying and without stretching or installing under tension.
- The use of Sarnafil® AT-18 membrane is limited to geographical locations with average monthly minimum temperatures of -50 °C. Permanent ambient temperature during use is limited to +50 °C.
- The use of some ancillary products such as adhesives, cleaners and solvents is limited to temperatures above +5 °C. Observe temperature limitations in the appropriate Product Data Sheets.
- Special measures may be compulsory for installation below +5 °C ambient temperature due to safety requirements in accordance with national regulations.

## ECOLOGY, HEALTH AND SAFETY

Fresh air ventilation must be ensured, when working (welding) in closed rooms.

### REGULATION (EC) NO 1907/2006 - REACH

This product is an article as defined in article 3 of regulation (EC) No 1907/2006 (REACH). It contains no substances which are intended to be released from the article under normal or reasonably foreseeable conditions of use. A safety data sheet following article 31 of the same regulation is not needed to bring the product to the market, to transport or to use it. For safe use follow the instructions given in the product data sheet. Based on our current knowledge, this product does not contain SVHC (substances of very high concern) as listed in Annex XIV of the REACH regulation or on the candidate list published by the European Chemicals Agency in concentrations above 0,1 % (w/w).

## APPLICATION INSTRUCTIONS

### EQUIPMENT

#### Hot welding overlap seams

Electric hot air welding equipment, such as hand held manual hot air welding equipment and pressure rollers or automatic hot air welding machines with controlled hot air temperature capability of a minimum +600 °C.

Recommended type of equipment:

- Manual: Leister Triac
- Automatic : Sarnamatic 681/Leister Varimat

### SUBSTRATE QUALITY

The substrate surface must be uniform, smooth and free of any sharp protrusions or burrs, etc. Sarnafil® AT-18 must be separated from any incompatible substrates / materials by an effective separation layer to prevent accelerated ageing. The supporting layer must be compatible to the membrane, solvent resistant, clean, dry and free of grease and dust. Metal sheets must be degreased with Sarna Cleaner before adhesive is applied.

### APPLICATION

#### Installation procedure

Strictly follow installation procedures as defined in method statements, application manuals and working instructions which must always be adjusted to the actual site conditions.

#### Fixing method - General

The waterproofing membrane is installed by loose laying ( without stretching membrane or installing under tension) with mechanical fastening in seam overlaps or independent from overlaps. Overlap seams are hot air welded using specialised hot air equipment.

#### Fixing method - Linear fastening (Sarnabar®)

Unroll the Sarnafil® AT-18 membrane, overlap by 80 mm, weld immediately and fix to the substructure by means of the Sarnabar® fasteners. The preferred type of fastening will be advised by Sika. The spacing of the fasteners is in accordance with the project specific Sika calculations. The perimeter piece ends must be secured with the Sarnabar® Load Distribution Plate. For protection fasten a piece of Sarnafil® AT-18 under bar end and plate. Leave a 10 mm clearance between bar ends. Do not fasten in hole nearest bar end. Cover the bar ends with a piece of Sarnafil® AT-18 and weld. After installation the Sarnabar® must immediately be made watertight with a Sarnafil® AT-18 cover strip. At upstands and at all penetrations, the Sarnafil® AT-18 membrane must be secured with a Sarnabar®. The 4 mm diameter S-Welding Cord protects the Sarnafil® AT-18 roof covering against tearing and peeling off by wind uplift.

#### Fixing method - Spot fastening (Sarnafast®)

Sarnafil® AT-18 must always be installed at right angles to the deck direction. Sarnafil® AT-18 is fixed by means of the Sarnafast® fasteners and barbed washers/tubes along the marked line, 35 mm from the edge of the membrane. Sarnafil® AT-18 is overlapped by 120 mm. The spacing of the fasteners is in accordance with the project specific Sika calculations. At upstands and at all penetrations, the Sarnafil® AT-18 membrane must be secured with a Sarnabar®. The 4 mm diameter S-Welding Cord protects the Sarnafil® AT-18 roof covering against tearing and peeling off by wind uplift.

#### Fixing method - Field fastening

Sarnafil® AT-18 is fixed by induction welding Sarnadisc hot melt coated washers and Sarnafast® fasteners according to the project specific instructions. Sarnafil® AT-18 is overlapped by 80 mm. The spacing

of the fasteners is in accordance with the project specific Sika calculations. At upstands and at all penetrations, the Sarnafil® AT-18 membrane must be secured with a Sarnabar®. The 4 mm diameter S-Welding Cord protects the Sarnafil® AT-18 roof covering against tearing and peeling off by wind uplift.

#### **Fixing method - Loose laid**

The roof waterproofing membrane is installed by unrolling, overlapping by 80 mm, loose laying and welding immediately. It is then covered with the appropriate roof material according to the roof design and the local wind loading conditions. Mechanical fixing along the roof perimeter with Sarnabar® including T-Welding Cord must be used to keep membrane in place.

#### **Fully bonded roof junctions and flashings**

The membrane is bonded to the substrate and flashing by using Sarnacol® T 660 contact adhesive. Refer to Product Data Sheet.

#### **Self adhered roof junctions / flashings / upstands**

The membrane is bonded onto the adjoining surfaces using Sarnafil® AT FSA P self adhered membrane. Refer to Product Data Sheet.

#### **Hot air welding method**

Overlap seams must be welded by electric hot air welding equipment. Welding parameters including temperature, machine speed, air flow, pressure and machine settings must be evaluated, adapted and checked on site according to the type of equipment and the climatic conditions prior to welding.

#### **Testing overlap seams**

The seams must be mechanically tested with screwdriver (rounded edges) to ensure the integrity/completion of the weld. Any imperfections must be rectified by hot air welding.

## **LOCAL RESTRICTIONS**

Please note that as a result of specific local regulations the performance of this product may vary from country to country. Please consult the local Product Data Sheet for the exact description of the application fields.

## **LEGAL NOTES**

The information, and, in particular, the recommendations relating to the application and end-use of Sika products, are given in good faith based on Sika's current knowledge and experience of the products when properly stored, handled and applied under normal conditions in accordance with Sika's recommendations. In practice, the differences in materials, substrates and actual site conditions are such that no warranty in respect of merchantability or of fitness for a particular purpose, nor any liability arising out of any

legal relationship whatsoever, can be inferred either from this information, or from any written recommendations, or from any other advice offered. The user of the product must test the product's suitability for the intended application and purpose. Sika reserves the right to change the properties of its products. The proprietary rights of third parties must be observed. All orders are accepted subject to our current terms of sale and delivery. Users must always refer to the most recent issue of the local Product Data Sheet for the product concerned, copies of which will be supplied on request.

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#### **Product Data Sheet**

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