

# PRODUCT DATA SHEET

## Sarnafil® TS 77-18

### POLYMERIC MEMBRANE FOR MECHANICALLY FASTENED ROOF WATERPROOFING

#### PRODUCT DESCRIPTION

Sarnafil® TS 77-18 (thickness 1.8 mm) is a polyester reinforced, multi-layer, synthetic roof waterproofing sheet based on premium-quality flexible polyolefins (FPO) containing ultraviolet light stabilizers, flame retardant and an inlay of glass non-woven according to EN 13956.

Sarnafil® TS 77-18 is a hot air weldable roof membrane formulated for direct exposure and designed to use in all global climatic conditions. Sarnafil® TS 77-18 is produced with an inlay of glass non-woven for dimensional stability and a polyester reinforcement for high strength. Sarnafil® TS 77-18 is provided for mechanically fastened roofing systems.

Sarnafil® TS 77-18 has no built-in stress at the time of production and has a fully encapsulated carrier. The dimensional stability of Sarnafil® TS 77-18 is best in class.

#### USES

Waterproofing membrane for:

- Mechanically fastened roofing systems.
- Enhancement of solar reflection of existing TPO roofs (relevant only for colour RAL 9016 SR).

#### CHARACTERISTICS / ADVANTAGES

- Proven performance over decades.
- Various colours available.
- High reflectance properties for cool roofing characteristics (relevant only for colour RAL 9016 SR).
- Resistant to permanent UV irradiation.
- High dimensional stability due to glass fleece inlay.
- Resistant to permanent wind exposure.
- Resistant against impact load and hail.
- Resistant to all common environmental influences.
- Resistant to micro-organisms.
- Resistant to root penetration.
- Compatible to old bitumen.
- Hot air welding without use of open flames.
- Recyclable.

#### APPROVALS / STANDARDS

Sarnafil® TS 77-18 is designed and manufactured to meet the most international recognised standards.

- Polymeric sheets for roof waterproofing according to EN 13956, certified by notified body 1213-CPD-3915 and provided with the CE-mark.
- Reaction to fire according to EN 13501-1.
- External fire performance tested according to ENV 1187 and classified according to EN 13501-5: BROOF(t1).
- Factory Mutual (FM) Approvals Class: 4470.
- Official Quality Approvals and Agreement Certificates and approvals.
- Monitoring and assessment by approved laboratories.
- Quality Management system in accordance with EN ISO 9001/14001.

## PRODUCT INFORMATION

<b>Packaging</b>	Sarnafil® TS 77-18 standard rolls are wrapped individually in a blue PE-foil.	
	Packing unit:	see price list
	Roll length:	15.00 m
	Roll width:	2.00 m
	Roll weight:	59.50 kg
<b>Appearance / Colour</b>	Surface:	
	Standard:	matt
	Solar reflective:	glossy
	<b>Colours:</b>	<b>See current price list</b>
	Top surface:	beige window grey (nearest RAL 7040) traffic white (nearest RAL 9016)
	Bottom surface:	black
<b>Shelf Life</b>	5 years from date of production in unopened, undamaged and original packaging.	
<b>Storage Conditions</b>	Rolls must be stored between +5 °C and +30 °C in a horizontal position on pallet, protected from direct sunlight, rain and snow. Do not stack pallets of rolls or any other material during transport or storage.	
<b>Product Declaration</b>	EN 13956	
<b>Visible Defects</b>	Pass	(EN 1850-2)
<b>Length</b>	15 m (-0 % / +5 %)	(EN 1848-2)
<b>Width</b>	2 m (-0.5 % / +1 %)	(EN 1848-2)
<b>Effective Thickness</b>	1.8 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>	1.98 kg/m <sup>2</sup> (-5 % / +10 %)	(EN 1849-2)

## TECHNICAL INFORMATION

<b>Resistance to Impact</b>	hard substrate	≥ 1000 mm	(EN 12691)
	soft substrate	≥ 1250 mm	
<b>Hail Resistance</b>	rigid substrate	≥ 27 m/s	(EN 13583)
	flexible substrate	≥ 35 m/s	
<b>Resistance to Static Load</b>	soft substrate	≥ 20 kg	(EN 12730)
	rigid substrate	≥ 20 kg	
<b>Tensile Strength</b>	longitudinal (md) <sup>1)</sup>	≥ 1000 N/50mm	(EN 12311-2)
	transversal (cmd) <sup>2)</sup>	≥ 900 N/50mm	
	<sup>1)</sup> md = machine direction <sup>2)</sup> cmd = cross machine direction		
<b>Elongation</b>	longitudinal (md) <sup>1)</sup>	≥ 13 %	(EN 12311-2)
	transversal (cmd) <sup>2)</sup>	≥ 13 %	
	<sup>1)</sup> md = machine direction <sup>2)</sup> cmd = cross machine direction		
<b>Dimensional Stability</b>	longitudinal (md) <sup>1)</sup>	≤  0.2  %	(EN 1107-2)
	transversal (cmd) <sup>2)</sup>	≤  0.1  %	
	<sup>1)</sup> md = machine direction <sup>2)</sup> cmd = cross machine direction		

<b>Tear Strength</b>	longitudinal (md) <sup>1)</sup>	≥ 300 N	(EN 12310-2)		
	transversal (cmd) <sup>2)</sup>	≥ 300 N			
<sup>1)</sup> md = machine direction <sup>2)</sup> cmd = cross machine direction					
<b>Joint Peel Resistance</b>	no failure in seam		(EN 12316-2)		
<b>Joint Shear Resistance</b>	≥ 500 N/50 mm		(EN 12317-2)		
<b>Foldability at Low Temperature</b>	≤ -40 °C		(EN 495-5)		
<b>External Fire Performance</b>	BROOF(t1) < 20°		(EN 1187) (EN 13501-5)		
<b>Reaction to Fire</b>	Class E		(EN ISO 11925-2, classification to EN 13501-1)		
<b>Effect of Liquid Chemicals, Including Water</b>	On request		(EN 1847)		
<b>Exposure to Bitumen</b>	Pass <sup>3)</sup> <sup>3)</sup> Sarnafil® T is compatible to old bitumen		(EN 1548)		
<b>UV Exposure</b>	Pass (> 5000 h / grade 0)		(EN 1297)		
<b>Water Vapour Transimission</b>	μ = 150 000		(EN 1931)		
<b>Water Tightness</b>	Pass		(EN 1928)		
<b>Solar Reflectance Index</b>	<b>Colour</b>	<b>Initial</b>	<b>3 years aged</b>	<b>Test Institute</b>	(ASTM E 1980-01)
	RAL 9016 SR	109	94		
CRRC tested products are listed in Cool Roof Rating Council (CRRC) product data base.					
<b>USGBC LEED Rating</b>	<b>Colour</b>	<b>Initial</b>	<b>3 years aged</b>	(ASTM E 1980-01)	
	RAL 9016	SRI > 82	SRI > 64		
	RAL 9016 SR	SRI > 82	SRI > 64		
Conform on the minimum requirements of LEED V4 SS credit 5 option 1 Heat Island reduction - Roof.					

## SYSTEM INFORMATION

### System Structure

Wide range of accessories is available e.g. prefabricated parts, roof drains, scuppers and walkway pads.

The following accessories shall be used:

- Sarnafil® T 66-15 D Sheet for detailing
- Sarnafil® TS 77 Strips
- Sarnafil® T Metal Sheet
- Sarnabar® / Sarnafast®
- Sarnafil® T Welding Cord
- Sarnafil® T Prep
- Sarnacol® T 660
- Solvent T 660
- Sarnafil® T Clean

### Compatibility

Sarnafil® TS 77-18 may be installed on all thermal insulations and levelling layers suitable for roofing. No additional separation layer is required.

Sarnafil® TS 77-18 is suitable for installation directly on top of existing, carefully cleaned, levelled bituminous roofing, e.g. re-roofing over old flat roofs.

Colour changes in membrane surface may occur in case of direct contact with bitumen.

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## APPLICATION INFORMATION

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**Ambient Air Temperature** -20 °C min. / +60 °C max.

**Substrate Temperature** -30 °C min. / +60 °C max.

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## APPLICATION INSTRUCTIONS

### SUBSTRATE QUALITY

The substrate surface must be uniform, smooth and free of any sharp protrusions or burrs, etc. 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 Solvent T 660 before adhesive is applied.

### APPLICATION

Installation works to be carried out only by Registered Sika Sarnafil Roofing Contractors for roofing. Installation of some ancillary products, e.g. contact adhesives / cleaners is limited to temperatures above +5 °C. Please observe information given by Product Data Sheets. Special measures may be compulsory for installation below +5 °C ambient temperature due to safety requirements in accordance with national regulations.

### APPLICATION METHOD / TOOLS

#### Installation procedure:

According to the valid installation instructions of manufacturer for Sarnafil® TS 77-types system for mechanically fastened roofing systems.

#### Fixing Method, linear fastening (Sarnabar®):

Unroll the Sarnafil® TS 77-18 membrane, overlap by 80 mm, weld immediately and fix to the substructure by means of Sarnabar®. The preferred type of fastening will be advised by Sika. The spacing of the fasteners is in accordance with the project specific calculations made by Sika. The perimeter piece ends must be secured with the Sarnabar® Load Distribution Plate. For protection fasten a piece of Sarnafil® TS 77-18 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® TS 77-18 and weld. After installation the Sarnabar® must immediately be made watertight with a Sarnafil® T cover strip. At upstands and at all penetrations, the Sarnafil® TS 77-18 membrane must be secured with a Sarnabar®. The Sarnafil® T Welding Cord protects the Sarnafil® TS 77-18 roof covering against tearing and peeling off by wind uplift.

#### Fixing Method, spot fastening (Sarnafast®):

Sarnafil® TS 77-18 must always be installed at right angles to the deck direction.

Sarnafil® TS 77-18 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® TS 77-18 is overlapped by 120 mm. At upstands and at all penetrations, the Sarnafil® TS 77-18 membrane must be secured with a Sarnabar®. The Sarnafil® T Welding Cord protects the Sarnafil® TS 77-18 roof covering against tearing and peeling off by wind uplift.

#### Welding Method:

Before welding the seams must be prepared with Sarnafil® T Prep. Overlap seams are welded by electric hot air welding equipment, such as manual hot air welding machines and pressure rollers or automatic hot air welding machines with controlled hot air temperature.

#### Recommended type of equipment:

Leister Triac PID for manual welding and Sarnamatic 681 for automatic welding.

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 situation prior to welding. The effective width of welded overlaps by hot air must be minimum 20 mm.

The seams must be mechanically tested with screw driver to ensure the integrity / completion of the weld. Any imperfections must be rectified by hot air welding.

## LIMITATIONS

### Geographical / Climate

The use of Sarnafil® TS 77-18 membrane is limited to geographical locations with average monthly minimum temperatures of -50 °C.

Permanent ambient temperature during use is limited to +50 °C.

## VALUE BASE

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

## LOCAL RESTRICTIONS

Note that as a result of specific local regulations the declared data and recommended uses for this product may vary from country to country. Consult the local Product Data Sheet for the exact product data and uses.

## ECOLOGY, HEALTH AND SAFETY

Fresh air ventilation must be ensured, when working (welding) in closed rooms. Installation of RAL 9016 SR type requires the use of UV protection goggles.

### 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 this 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)

## 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.

### TECHNICAL ENQUIRIES

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