

PRODUCT DATA SHEET

Sarnafil® G 410-20 EL

Polymeric PVC membrane for adhered and ballasted roof waterproofing



DESCRIPTION

Sarnafil® G 410-20 EL is a PVC, multi-layer, lacquered, matt finish, weldable sheet membrane for roof waterproofing. Contains a glass fibre reinforcing inlay, ultra-violet light stabilisers and flame retardants to provide a low maintenance and durable membrane. It can be quickly installed as a fully bonded system or as a loose laid ballasted system. Thickness 2,0 mm.

USES

Sarnafil® G 410-20 EL may only be used by experienced professionals.

Waterproofing membrane for:

- Fully bonded, exposed roofs
- Ballasted roofs (e.g. Green roofs, Utility roofs, Inverted roofs, Gravel roofs)
- Enhancement of solar reflection of existing PVC roofs (~RAL 9016 SR)

CHARACTERISTICS / ADVANTAGES

- Proven performance over decades
- Lacquer coated surface
- Various colours available
- Fast installation with Sarnacol® adhesives
- High reflectance properties for excellent cool roofing characteristics (relevant only for colour ~RAL 9016 SR).
- Resistant to UV exposure
- High dimensional stability from glass fleece inlay
- High water vapour permeability
- Resistant to all common environmental influences
- Resistant to mechanical influences
- Resistant to micro-organisms
- Resistant to root penetration
- Heat weldable
- Recyclable

SUSTAINABILITY

- Conformity with LEED v4 SSc 5 (Option 1): Heat Island Reduction - Roof (only traffic white (SR))
- Conformity with LEED v4 MRc 2 (Option 1): Building Product Disclosure and Optimization – Environmental Product Declarations
- Conformity with LEED v4 MRc 3 (Option 2): Building Product Disclosure and Optimization - Sourcing of Raw Materials
- Conformity with LEED v4 MRc 4 (Option 2): Building Product Disclosure and Optimization - Material Ingredients
- Conformity with LEED v2009 SSc 7.2 (Option 1): Heat Island Effect - Roof (only traffic white (SR), beige)
- BRE Environmental Product Declaration (EPD)

APPROVALS / CERTIFICATES

- CE Marking and Declaration of Performance to EN 13956 - Polymeric sheets for roof waterproofing
- FM Approved, Certificate of Compliance, Sarnafil® G 410 EL, Approval Identification No. 3047304

PRODUCT INFORMATION

Composition	Polyvinyl Chloride (PVC)	
Packaging	Standard rolls are wrapped individually in a blue PE-foil.	
	Roll size	
	Length	15,00 m
	Width	2,00 m
	Weight	75,00 kg
Appearance / Colour	Surface	matt
	Colours	
	Top surface	light grey (nearest RAL 7047) lead grey (Sika colour no. 9500) window grey (nearest RAL 7040) copper brown (nearest RAL 8004) copper patina (Sika colour no. 6525) traffic white, solar reflective (RAL 9016 SR)
	Bottom surface	dark grey
Shelf life	5 years from date of production	
Storage conditions	The Product must be stored in original, unopened and undamaged sealed packaging in dry conditions and temperatures between +5 °C and +30 °C. Always refer to packaging.	
Product declaration	EN 13956 - Polymeric sheets for roof waterproofing	
Visible defects	Pass	(EN 1850-2)
Length	15 m (-0 / +5 %)	(EN 1848-2)
Width	2 m (-0.5 / +1 %)	(EN 1848-2)
Effective thickness	2,0 mm (-5 / +10 %)	(EN 1849-2)
Straightness	≤ 30 mm	(EN 1848-2)
Flatness	≤ 10 mm	(EN 1848-2)
Mass per unit area	2.5 kg/m ² (-5 / +10 %)	(EN 1849-2)

TECHNICAL INFORMATION

Resistance to impact	hard substrate	≥ 1000 mm	(EN 12691)
	soft substrate	≥ 1500 mm	
Hail resistance	rigid substrate	≥ 28 m/s	(EN 13583)
	flexible substrate	≥ 36 m/s	
Resistance to static loading	soft substrate	≥ 20 kg	(EN 12730)
	rigid substrate	≥ 20 kg	
Resistance to root penetration	Pass		(EN 13948)
Tensile strength	longitudinal (md) ¹⁾	≥ 10 N/mm ²	(EN 12311-2)
	transversal (cmd) ²⁾	≥ 9 N/mm ²	

¹⁾ md = machine direction

²⁾ cmd = cross machine direction

Elongation	longitudinal (md) ¹⁾	≥ 230 %			(EN 12311-2)
	transversal (cmd) ²⁾	≥ 210 %			
¹⁾ md = machine direction ²⁾ cmd = cross machine direction					
Dimensional stability	longitudinal (md) ¹⁾	≤ 0,2 %			(EN 1107-2)
	transversal (cmd) ²⁾	≤ 0,1 %			
¹⁾ md = machine direction ²⁾ cmd = cross machine direction					
Joint peel resistance	Failure mode: C, no failure of the joint				(EN 12316-2)
Joint shear resistance	≥ 600 N/50 mm				(EN 12317-2)
Foldability at low temperature	≤ -25 °C				(EN 495-5)
External fire performance	B _{ROOF} (t1) < 20°, > 20°				(EN1187) (EN13501-5)
Reaction to fire	Class E				(EN ISO 11925-2, classification to EN 13501-1)
Effect of liquid chemicals, including water	Resistant to many chemicals. Contact Sika Technical Services for additional information.				(EN 1847)
Resistance to UV exposure	Pass (> 5 000 h / grade 0)				(EN 1297)
Water vapour transmission	μ = 15 000				(EN 1931)
Watertightness	Pass				(EN 1928)
Solar reflectance index	Colour	Initial	3-year aged	Test Institute	(ASTM E 1980-01)
	RAL 9016 SR	111	99	CRRC	
	RAL 9016	106	77	CRRC	
	Nr. 9525	55	-	Sika	
	Nr. 9500	4	-	Sika	
CRRC tested products are listed in Cool Roof Rating Council (CRRC) product date base.					
USGBC LEED Rating	Colour	Initial	3-years aged	(ASTM E 1980-01)	
	RAL 9016 SR	SRI > 82	SRI > 64		
	RAL 9016	SRI > 82	SRI > 64		

SYSTEMS

System structure

The following products must be considered for use depending on roof design:

- Sarnafil® G 410-20EL sheet for detailing
- Sarnafil® Metal Sheet
- Sarnabar®
- Sarna Seam Cleaner
- Sarnacol® 2170 / 2172 Spray (contact adhesive)
- Sarna Cleaner

Ancillary products: wide range of accessories is available e.g. prefabricated parts, roof drains, scuppers, walkway pads and decor profiles

Compatibility

Not compatible in direct contact with bitumen, tar, fat, oil, solvent containing materials and other plastic materials, e.g. expanded polystyrene (EPS), extruded polystyrene (XPS), polyurethane (PUR), polyisocyanurate (PIR) or phenolic foam (PF). These materials could adversely affect the product properties.

APPLICATION INFORMATION

Ambient air temperature -20 °C min. / +60 °C max.

Substrate temperature -30 °C min. / +60 °C max.

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

SUBSTRATE QUALITY

The substrate surface must be uniform, smooth and free of any sharp protrusions or burrs, etc. Sarnafil® G 410-20 EL (CH_CE) 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 Solvent T 660 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.

Adhered roof membrane and flashings

The membrane is bonded to the substrate and flashing by using Sarnacol® 2170 / 2172 Spray contact adhesive.

Ballasted roof membrane

The roof waterproofing membrane is installed by loose laying and covering with ballast. The weight of ballast required must be calculated in accordance with project specific calculations based on national standards. Mechanical fixing at the roof perimeter with Sarnabar® including S-Welding Cord must be used to keep the membrane in place. The membrane is then covered with a protective layer of S-Felt protective layer or Sarnafil® Protective Sheet which is then fully covered evenly with a minimum 50mm thickness of washed gravel (8-16 or 16-32 mm diameter).

Hot welding overlap seams

Overlap seams must be welded by electric hot 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. The effective width of welded overlaps by hot air must be minimum 20 mm.

Testing overlap seams

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

FURTHER INFORMATION

Installation

- Application Manual

IMPORTANT CONSIDERATIONS

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

- Ensure Sarnafil® G 410-20 EL is prevented from direct contact with incompatible materials (refer to compatibility section).
- Do not apply to wet, damp or unclean surfaces
- 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.

BASIS OF PRODUCT DATA

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.

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.

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 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).

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.

Sika Hellas ABEE

15 Protomagias Str.
14568 Kryoneri
Attica-Greece
Tel.: +30 210 8160 600
Fax: +30 210 8160 606
www.sika.gr | sika@gr.sika.com



Product Data Sheet

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