

Exposed Roofs with Sika® Single Ply Membranes, mechanically fixed
New Construction and Refurbishment

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Roof Waterproofing Sheet Membranes for New Construction and Refurbishment

Sikaplan® G/VG/VGWT membranes are designed to be used in new construction and for the refurbishment of existing roofs. The ideal solution for cost-effective lightweight structures that can be installed quickly with the built up roof, even under adverse weather conditions.

Sikaplan® G/VG/VGWT roofing membranes, produced from PVC by calendaring, consist of plasticized PVC with polyester reinforcement embedded symmetrically into two layers of the material. The top layer is resistant to UV light and weathering. The standard light grey colour maintains low surface temperatures for a long life expectancy in any location.

Sikaplan® G

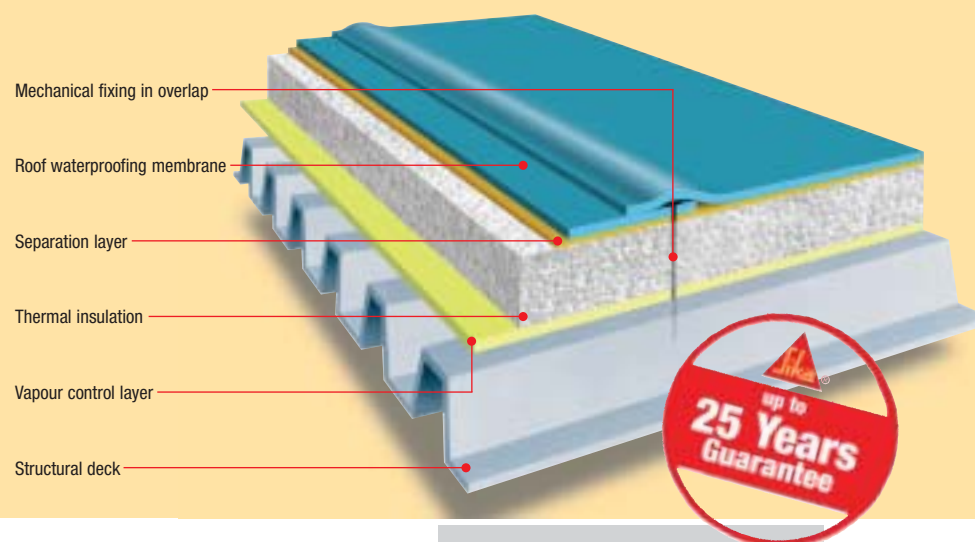
- Reinforced membrane
- Minimum thickness of 1.2 mm
- 0.6 mm UV resistant top layer
- Complies with European Standards
- Complies with National Building Regulations

Sikaplan® VG

- Equivalent physical properties to **Sikaplan® G**
- Increased fire resistance
- Higher level of self-extinguishing in fire
- Less damage potential in the event of a fire

Sikaplan® VGWT

- Increased flexibility at cold temperatures
- For locations where temperatures drop below –30 °C during the winter
- Installation may be carried out at temperatures below 0 °C
- Highest performance in fire



Application of Sikaplan® G

Fixing

Sikaplan® G sheets are loosely laid on the top surface of the deck and secured against wind uplift with mechanical fixings. The individual fixings are screwed into the seam overlaps or with washers to clamp the membrane to the substrate. When the fixings are outside of the seams, the perforated membrane must then be covered with patches or strips of the same membrane to ensure watertightness.

Welding

The seam overlaps are hot air welded together using temperatures well above 500 °C, by pressing the heated material surfaces together in a thermoplastic condition which results in a homogeneous compound when it has cooled down. Automatic welding machines heat up the material under the weight of the machine. Modern machines ensure welding with precisely controlled air temperature and air flow, with adjustable constant pressure and speed to adapt the welding parameters to the site conditions, particularly the weather. Different nozzles are provided to optimize the welding characteristics.

Detailing

Junctions are made at the roof perimeter and at any penetrations or other structures or equipment fixed on the roof. This requires skilled installers who carry out the detailing work with special tools and equipment to the same quality as the overall surface membrane. Detail seam overlaps are welded with manual welding machines. **Sikaplan® D** homogeneous roofing sheets must be used to reinforce the details and to form the membrane into the angles and other shapes needed in the roof design.

Sikaplan® 15 VG grey

Sikaplan® 15 G slate grey

Sikaplan® 15 G green

Sikaplan® 15 G red

Trocal® S grey

Sikaplan® 15 VGWT grey

Sikaplan® 15 VGWT slate grey

Sikaplan® 15 G white

Resistance to permanent UV Irradiation

Sika's PVC Experience

Sika has been involved in the waterproofing business since 1910. Sika also has more than 40 years of experience with PVC waterproofing membranes on roofs. This started with homogeneous polymer sheets in 1962, and the reinforced membrane technology of **Sikaplan® G** was launched in 1977. **Sikaplan® G** membranes now cover millions of square metres of roofs on many different types of structure.

Approvals

- ISO 9001:2000
- ISO 14001
- Responsible Care

Durability

The symmetrical design of the top and bottom layers in **Sikaplan® G** roofing sheet results in a minimum 0.6 mm top layer with outstanding resistance to UV light and cover of the embedded polyester reinforcement, even above the knots of the woven fabric. **Sikaplan® G** membranes with a thickness of more than 1.2 mm provide even better ageing resistance and durability in addition to their increased resistance to mechanical damage.

Approvals

Sikaplan® G type sheets are to be CE-marked and they comply with the National and International approvals of

- SIA V 280
- DIN 16734 (External Monitoring)
- prEN 13956 and ETAG 006: 2000
- UEAtc: UBAtc, BBA, Avis technique, Komo, LNEC, Swedish Approval
- Factory Mutual (FM), UL, ICBO and Miami Dade
- Opotnue and other National Certification bodies

Fire Resistance

Sikaplan® G membranes are self-extinguishing in fire and do not produce burning droplets. Additionally they have low ignition and fire loading characteristics. Sika can also provide individual products for local market requirements, which are also fully tested and approved for their behaviour in fire.

Sikaplan® G

- Belgium: prEN 1187-1
- Germany: DIN 4102 part 1-B2
- Germany: DIN 4102 part 7-ABP
- Switzerland: SIA 183/2-Class 4.2
- France: NF P52 501-M3

Sikaplan® VG/VGWT

- Belgium: A1 (NBN S21-203)
- Switzerland: SIA 183/2-Class 5.1
- France: NF P52 501-M2
- UK: BS 476, part 3: 1958-FAA
- Scandinavia: NT Fire 006-Class T

Cold Temperature Performance

Sikaplan® G/VG

Cold folding capabilities at temperatures as low as –35 °C without cracks allows the application of **Sikaplan® G/VG** to be undertaken even in locations with an average monthly minimum temperature of –25 °C.

Sikaplan® VGWT

Sikaplan® VGWT is a particularly soft and flexible membrane designed to withstand –40 °C cold folding without cracks. This membrane's application can be undertaken when the average minimum temperatures drop below –25 °C. If temperatures regularly drop below 0 °C during installation, then **Sikaplan® VGWT** is the most efficient membrane system for the installation.

Physical Properties

- **Sikaplan® G, VG** and **VGWT** have outstanding performance in tensile and tear strengths, as well as having high "peel" resistance at the seam overlaps, to enable the installation to be optimized with any mechanical fixing system.

Application and Design

Wind Load Calculation Standard

- According to local building regulations
- Fixings are UEAtc approved
- Sufficient pull-out resistance of the substrate
- Standard design load of 400 N

Sika MISTRAL

Due to the extensive wind uplift testing that has been completed, **Sikaplan® G/VG/VGWT** membranes can be fastened to meet the individual project's design loads, by the selection of the appropriate fixings and fixing pattern which is also agreed with their manufacturer. This optimizes the roof design according to the local wind loads requirements. Sika's own MISTRAL software can provide a full service for planning, design and installation based on the individual site data and the local building regulations. On request the local wind loads can be determined to evaluate the roof design and the best performing fixings and fixing pattern for the specific substrate and structure.

Special Systems

Trocal® S: Homogeneous PVC Sheet

- For use with the disc fixing system
- For special surface designs and shapes
- Solvent welding is possible
- Seam overlap fixing and hot air welding is also possible

Trocal® FUTURA G: TPO/FPO Sheets

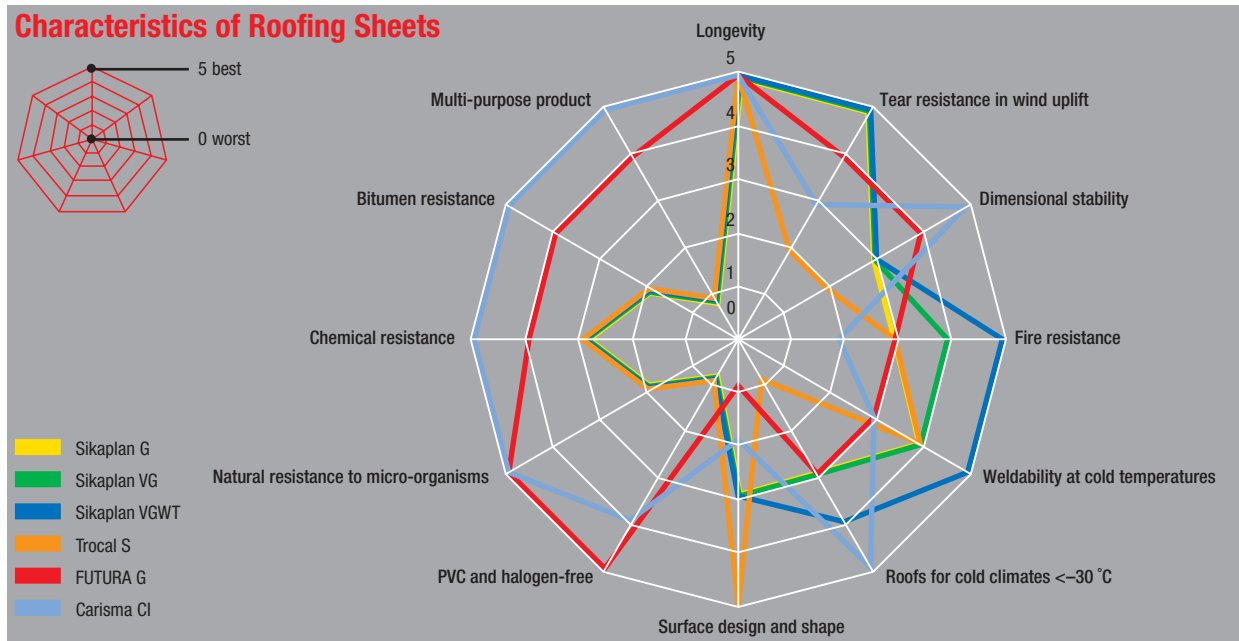
- Equivalent layers of thermoplastic, polyethylene compound
- Does not contain PVC or halogens
- Light grey colour and glass grid reinforced
- Outstanding UV resistance
- Natural resistance to micro-organisms for ballasted roofs
- Increased chemical resistance

Carisma® CI: ECB Sheet

- With an intermediate glass non-woven fabric inlay
- Bitumen resistant for direct contact if required
- Can recover existing bitumen roofs
- Outstanding chemical resistance
- For roofs where chemical pollution may occur
- Multi-purpose product for exposed and ballasted roofs



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Accessories for Sikaplan® G/VG/VGWT

For Application		For the Roof Buildup
Sikaplan® 18 D for detailing	Sika-Trocal® C 733 contact adhesive for up-stands and roof lights	Sikaplan® protective layer for protection of water-proofing membrane
Sikaplan® prefabricated corners, angles and pipe flashing for detailing	Sika-Trocal® CV 705/733 thinners for the contact adhesive	Sikaplan® Walkway for protection and demarcation of service walkways
Sika-Trocal® laminated metal sheet type S, type D for terminations and junctions	Sika-Trocal® Cleaner 2000 cleaner for welding seam overlaps	Sika-Trocal® SE profiles for special effects of standing seams on inclined roofs
	Sika-Trocal® liquid PVC: PVC solution to seal the welded seam overlaps	Sika-Trocal® DS-PE water vapour control layer based on PE
		Sika-Trocal® glass fleece: 120 g/m² glass fleece for separating non-compatible surfaces and additional fire protection
		Sika-Trocal® polyester fleece: 300 g/m² polyester fleece for separating non-compatible surfaces

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