

Data Sheet

The Protan SE range of PVC single ply membranes are designed for use in exposed mechanically attached installations, PROVAC and PROSIP systems. The membrane is suitable for new build and refurbishment applications, flat, pitched and barreled roofs.

Protan SE Membrane

Protan SE membrane is manufactured from pliable PVC reinforced with knitted polyester. The PVC contains stabilisers which make the product resistant to both high and low temperatures, is UV-stable and provides fire resistance. Protan SE membrane is available in the following thicknesses and specifications:

	Protan SE		
	1.2mm	1.6mm	1.8mm
Thickness	1.2mm	1.6mm	1.8mm
Roll Length	20m	20m	20m
Roll Width	1 & 2m	1 & 2m	1 & 2m
Weight	1.4kg/m ²	1.75 kg/m ²	2.1 kg/m ²
Weight of polyester	80 g/m ²	80 g/m ²	80 g/m ²

Protan SE can be used in either the Standard Overlap System or the Secret-Fix System to achieve FM Approval.

Low Temperature Flexibility

Protan SE was designed in Norway for the low temperature conditions in Scandinavia during winter months. The material remains flexible at low temperatures, during installation and use, without fracturing.

Properties	Protan SE		
	1.2mm	1.6mm	1.8mm
Foldability at low temperatures - EN 495- 5:2001	≤ -30°C		

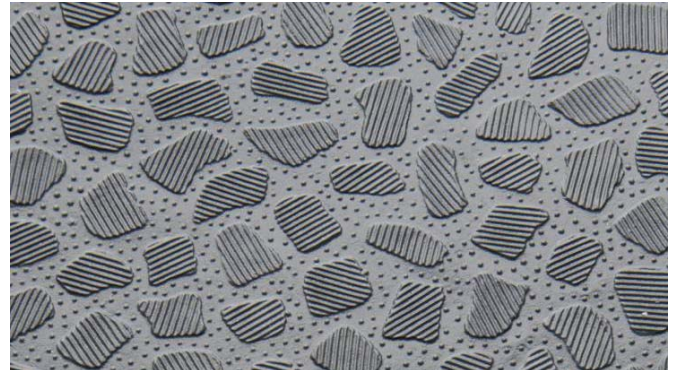
Water Vapour Permeability

Protan SE membrane is a vapour permeable material. Used as a mechanically attached roofing system, this membrane provides an ideal design solution for roof constructions with limited risk of interstitial condensation.

Durability

Accelerated weathering tests and performance in service confirm that satisfactory retention of physical properties is achieved. All available evidence indicates that Protan SE membranes should have a life in excess of 30 years. Refer to BBA Certificate No. 98/3459. Protan's oldest roof is 36 years old, and continues to perform well.

The effects of weathering commence at the external surface of the membrane and progress downwards through its thickness. Protan 1.6mm membrane thus may have an even longer life expectancy.



Tensile Strength and Tear Resistance

Tensile strength is an important property in determining the material's ability to resist wind uplift forces, thermal movement and differing movements of the building structure. High tear strength is essential for mechanically attached roofing membrane systems. Tensile and tear resistance properties are shown in the table below:

Properties	Protan SE		
	1.2 mm	1.6mm	1.8mm
Tensile strength EN 12311-2:2000(A)	≥ 1050 N/50 mm		
Elongation EN 12311-2:2000(A)	≥ 15%		
Tear resistance EN 13210-2:2000	≥ 210N		

Puncture Resistance

Protan SE membrane is resistant to normal foot traffic during roof maintenance and inspections. Where frequent foot traffic is expected, Protan walkway membrane can be attached to the Protan SE membrane, and is available in contrasting colours. The different thickness of Protan SE membrane provides suitable resistance according to substrate. Details of puncture resistance are shown in the following table:

Properties	Protan SE		
	1.2mm	1.6mm	1.8mm
Resistance to Puncture by Static Loading EN 12730:2001(A)	≥ 20 kg		
Resistance to Puncture by impact at +23°C EN 12691:2006(A)	≥ 400 mm		
Resistance to Puncture by impact -10°C EN 12691:2001	≤ 8mm/diam		

Solar Reflection

A reflective, light coloured roofing material can reduce surface temperature during warm weather, and heat gain within the interior of the building. Where air conditioning is in use, cost savings may be significant.

Data Sheet

Fire Resistance

When tested in accordance with BS 476-3: 2004, a system comprising of:

(i) A 0.7mm profiled steel flat decking, 50mm polyurethane insulation with an aluminium foil facing the upper side, and glass tissue facing to the underside and one layer of Protan SE mechanically fixed, achieved an EXT.F.AA rating.

(ii) A 0.7mm profiled steel sloped deck, a 0.21mm thick vapour control layer, one 90 mm thick layer of foil faced PIR insulation and one layer of Protan SE membrane fixed with telescopic washers and fastener combination achieved a EXT.S.AB rating.

The use of Protan SE with other non-combustible insulates, such as Rockwool, would indicate equal performance.

Additionally, Protan SE fulfils the requirements of class BROOF (t2) according to EN 13501-5 for all underlay except EPS/XPS insulation. When using a migration barrier of at least 120 g/m² and 50 g/m² glass felt respectively, Protan SE fulfils class BROOF (t1) and (t2) also on EPS/XPS-insulation.

Colours

Protan SE		
Colour	Protan Ref.	Closest RAL No.
Dark grey	F94	7012
Light grey	F91	7040
Copper Green	F41	6021
Black	F99	7021
Red*	F12	3013
Blue*	F68	5009

*subject to minimum order

Anti-Slip Surface

All Protan SE membranes have a unique anti slip surface as standard. Compared with non-textured materials this feature provides a significant safety factor when walked upon in wet weather.

Storage

Protan SE membranes must be stored dry. At the building site, it is important that rolls are stored on pallets (raised from the floor) and that they are covered with a tarpaulin.

Environment

Protan SE membrane can be recycled after its working life. For more environmental details please see the Protan SE environmental product declaration.

Environmental Indicators	
Global Warming	5.7 kg CO2 equiv.
Energy Use	28.6 kWh
Recycled Materials	0%
Indoor air classification (Classification according to CR 1752:1999)	Not Relevant

Chemical Resistance

The chemical resistance of Protan membranes depends upon concentration, duration of contact and temperature. The table below provides a guide to the resistance of Protan SE 1.2mm thickness membrane at ambient temperature, to various common substances. For further information please contact Protan (UK) Ltd.

Material	Resistance
Aluminium	Well suited
Asphalt	Not resistant
Bitumen	Not resistant
Carbon monoxide	Well suited
Carbon tetrachloride	Conditional
Caustic potash	Well suited
Common salt	Well suited
Copper & ferrous materials	Well suited
Detergents	Well suited
Diesel oil & fuel oil	Conditional
Ethyl ether	Not resistant
Fats (animal and vegetable)	Not resistant
Formaldehyde	Conditional
Iron residues	Conditional
Motor oils	Conditional
Nitric acid	Conditional
Non-aromatic mineral oils	Conditional
Oils (animal and vegetable)	Not resistant
Paraffin	Conditional
Petrol	Not resistant
Salt of aluminium	Not resistant
Salt of ammonium	Well suited
Salt of calcium	Well suited
Salt of magnesium	Well suited
Salt of potassium	Well suited
Salt of sodium	Well suited
Sea water	Well suited
Soaps	Well suited
Softeners	Not resistant
Solvent	Not resistant
Steam	Well suited
Tar	Not resistant
Turpentine oil	Not resistant
Urea	Well suited
Weed killer (aqueous)	Well suited
Wood preservative	Conditional

References

For further technical information please refer to:

- BBA Certificate 98/3459
- IAB Certificate 06/0262
- SINTEF NBI Approval 2010
- European Technical Approval No. ETA-06/0251
- Environmental Product Declaration NEPD No. 032
- FM Approval

All of the above documents are available from Protan (UK) Ltd.