

## PRODUCT DATA SHEET

# SikaProof® T-10

FULLY BONDED, PRE-APPLIED ORGANIC-INORGANIC COMPOSITE MEMBRANE FOR TUNNELS

### DESCRIPTION

SikaProof® T-10 is a fully bonded, pre-applied sheet membrane waterproofing system for tunnel structures. It is two layer composite membrane combined with existing single EVA sheet layer (polymer layer) and cement filled material layer (functional layer). SikaProof® T-10 has strong chemical and physical bonding property between cement filled material and inner lining fresh concrete in tunnels, so lateral water migration between membrane and the inner concrete of the tunnel is reduced to a minimum. SikaProof® T-10 is including non-woven geotextile as a drainage layer

### USES

Waterproofing of tunnels against water ingress

### CHARACTERISTICS / ADVANTAGES

- Strong bonding with inner lining concrete chemically and physically
- No lateral water underflow or migration between the inner concrete structure and the membrane system
- Optimized workability and thermally weldable
- Optimized flexibility, tensile strength and multi-axial elongation
- Excellent flexibility in cold temperatures
- Highly flexible with crack bridging abilities
- Excellent dimensional stability
- High water vapour permeability
- Excellent structural movement properties

### APPROVALS / STANDARDS

SikaProof® T-10 is designed and manufactured to meet most international recognised standards. Conforms to KS F 4911 (Waterproofing sheet of synthetic polymer).

### PRODUCT INFORMATION

<b>Chemical Base</b>	Polymer layer : modified EVA based membrane Functional layer : Cement filled membrane
<b>Packaging</b>	SikaProof® T-10 standard rolls are wrapped individually in a PE-foil. 2.2 m (width) x roll length 20 m or individual as specified
<b>Appearance / Colour</b>	Top surface: Smooth / White to grey Bottom surface: Rough / Dark grey
<b>Shelf Life</b>	SikaProof® T-10 membrane rolls have a shelf-life of 12 months from date of production
<b>Storage Conditions</b>	Product must be stored in original unopened and undamaged sealed 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>Effective Thickness</b>	1.4mm (EVA layer 1.0mm / cement filled layer 0.4mm) (-5% / +10%)	
<b>Resistance to Impact</b>	> 350 mm	(EN 12691)
<b>Resistance to Static Load</b>	Pass	(EN 12730 (Method B, 24h/20kg))
<b>Resistance to Static Puncture</b>	> 1.5 kN	(EN ISO 12236)
<b>Tensile Strength</b>	Machine direction : > 8 N/mm <sup>2</sup> Cross direction : > 8 N/mm <sup>2</sup>	(EN 12311-2)
<b>Elongation</b>	Machine direction : > 500% Cross direction : > 500%	(EN 12311-2)
<b>Adhesion in Peel</b>	> 20N/50mm	(EN 1372)
<b>Resistance to tear (nail shank)</b>	Machine direction : > 500 N Cross direction : > 500 N	(EN 12310-1)
<b>Joint Peel Resistance</b>	Peel resistance of welded seam : > 80 N/50mm	(EN 12316-2)
<b>Joint Shear Resistance</b>		
<b>Reaction to Fire</b>	E	(EN ISO 11925-2)
<b>Water Vapour Transimission</b>	0.4 g/m <sup>2</sup> X 24 hr	(EN 1931 (+23°/75% r.h.))
<b>Water Tightness</b>	Pass	(EN 1928 B (24h/60kPa))
<b>Resistance to lateral water migration</b>	Pass	(ASTM D 5385 mod)
<b>Durability of Water Thightness against Ageing</b>	Pass	(EN 1296 (28d/+23°) (EN 1928 B (24h/60kPa))
<b>Durability of Water Thightness against Chemicals</b>	Pass	(EN 1296 (28d/+23°) (EN 1928 B (24h/60kPa))

## APPLICATION INSTRUCTIONS

### SUBSTRATE QUALITY

The profile of the shotcrete surface must not exceed a ratio of length to depth of 5:1 and its min. radius must be 20 cm. The shotcrete surface must not contain broken aggregates. Any leaks must be sealed with Sika® waterproof plugging mortar, or drained with a Sika® FlexoDrain system. Where necessary to achieve the desired profile/surface, apply a fine sprayed concrete layer on the shotcrete surface with a min. thickness of 3-5 cm and aggregate diameter not exceeding 8 mm.

Steel (girders, reinforcement mesh, anchors, etc.) must also be covered with a minimum of 4 cm fine sprayed concrete. The shotcrete surface must be clean (no loose stones, nails, wires, etc.).

A polypropylene geotextile ( $\geq 400 \text{ g/m}^2$ ) or a compatible drainage layer must also be installed with SikaProof® T-10 membrane installation at the same time.

### APPLICATION METHOD / TOOLS

The SikaProof® T-10 membrane is installed loose laid and mechanically fastened, or loose laid and ballasted as appropriate in accordance with the Sika Method Statement for sheet waterproofing membrane installations (available separately on request).

The jointing faces must be dry and free from contaminations. For contaminated / soiled surfaces, follow the instructions for cleaning and preparation etc. in the Sika Method Statement.

All membrane overlaps must be heat welded using hand welding guns and pressure rollers or automatic heat welding machines, with individually adjustable and electronically controlled welding temperatures (such as the manual Leister Triac PID / automatic: Leister Twinny S / semi-automatic: Leister Triac Drive). Welding parameters, such as speed and temperature must be established with trials on site, prior to any welding works.

The execution of T-joints demands particular preparation of the weld area. In the previously fabricated weld area the overlaps must be chamfered carefully.

### LIMITATIONS

Installation works must only be carried out by Sika trained contractors, experienced in the waterproof lining of tunnels and belowground structures.

Particular precautions must be taken for installation in wet conditions, at temperatures below +5°C and when the relative air humidity (RH) is more than 80 %.

The effectiveness of these measures must be proven. Fresh air ventilation must always be ensured, especially when working (welding) in closed rooms and in accordance with all relevant local regulations.

The membrane is not resistant to permanent contact with materials including bitumen, and some types of plastics other than EVA or Sika approved system components. For use over or adjacent to these materials, a separation layer of polypropylene geotextile ( $\geq 150$  g/m<sup>2</sup>) is required. The membrane is not UV stabilized and cannot be installed on structures permanently exposed to sunlight and weathering.

## 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 declared data for this product may vary from country to country. Please consult the local Product Data Sheet for the exact product data.

## ECOLOGY, HEALTH AND SAFETY

For information and advice on the safe handling, storage and disposal of chemical products, users shall refer to the most recent Safety Data Sheet (SDS) containing physical, ecological, toxicological and other safety-related data.

## 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 India Pvt. Ltd.

620, Diamond Harbour Road  
Commercial Complex II  
Kolkata - 700 034  
Tel : +91 33 24472448  
Fax : +91 33 23978688  
Mail : info.india@in.sika.com



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