

# Silcor® 900HA

Fast-cure, hand-applied liquid waterproofing membrane for roofs, podium decks, terraces etc.

## Description

Silcor® 900HA is two component, hand-applied seamless liquid waterproofing that cures to form a high-strength, flexible, and fully-bonded waterproof membrane. Unlike conventional liquid membranes, Silcor 900HA is extremely durable with excellent wear and chemical resistance and does not normally require additional protection against mechanical damage.

## Principal Applications

New and remedial waterproofing of:

- Roofs
- Podium decks
- Terraces
- Walkways and foot bridges
- Balconies
- Green / Planted roofs
- Water features / Planters

## System Components

- **Silcor® 900HA** – seamless waterproofing membrane.
- **Silcor® Primer EP LT** – three-component epoxy primer fast curing at low temperatures for use 0°C - 20°C.
- **Silcor® Primer EPF** – two-component epoxy primer for concrete substrates.
- **Silcor® Primer MT** – two-component phosphate/epoxy primer for metal substrates.
- **Dry Quartz Silica Sand** – fine dry silica quartz sand for use with primers. Contact GCP for specification.
- **Hydroduct® 200/ 650** (optional) – geocomposite drainage/irrigation sheet.
- **Hydroduct® Root Barrier** (optional)

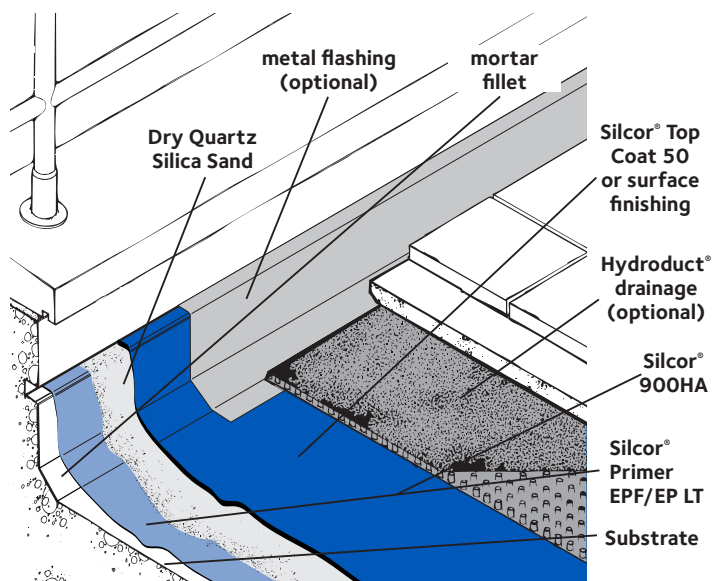
## Advantages

- **Seamless** – continuous waterproofing integrity with easy detailing.
- **Fast application** – single layer application.
- **Fast cure** – quick self-curing system for one day application and return to service.
- **Fully bonded** – eliminates water migration to prevent water tracking between membrane and substrate.
- **Elastomeric** – accommodates movements and bridges concrete shrinkage cracks.
- **Durable** – tough with excellent wear and damage resistance.
- **Chemical Resistance** – excellent fuel and chemical protection.
- **Root Resistance** – tested according to EN 13948.
- **BBA Certificate**
- **European Technical Approval.**



## Design

Silcor 900HA hand-applied roof waterproofing system is satisfactory for use as a fully adhered waterproofing layer on new and existing flat (including those with zero-pitch) and sloping protected roof specifications e.g. inverted roofs, terraces, podium decks and covered walkways for pedestrian traffic.



Details shown are typical illustrations only and not working drawings. For assistance with working drawings and additional technical advice please contact GCP.

## Installation

### 1. Surface Preparation

#### Concrete

All surfaces should be dry, clean and free from loose particles, cement laitance, fungal growth, paint, grease and other contaminants that could affect adhesion. Where necessary, remove laitance mechanically by sand or grit blasting to provide an open pore substrate. Surfaces must be structurally sound and free of sharp protrusions, all defects in the substrate should be repaired with resin-based concrete repair mortars, used in accordance with the suppliers technical recommendations. Do not jet wash, as this will saturate the substrate and necessitate prolonged drying times. Max moisture content of concrete 5%. Concrete compressive strength should be minimum 15 MPa, 28 day cure. Minimum cohesive strength of concrete surface should be 0.8 MPa for limited access roofs and 1.5 MPa for public pedestrian access. All substrate cracks and joints should be raked to remove loose residues then primed with the appropriate Silcor primer. Fill all cracks with MS Fixer sealant.

#### Steel

Steel should be grit blasted to SA 2.5 specification or ground to remove the surface of the steel and any coatings. Solvent wipe the steel with acetone or a similar solvent prior to application of primer.

#### Bitumen Sheets

**Only use Silcor Primer PU 30 on bitumen sheets (mineralised face). For concrete substrates, use Silcor Primer EPF.**

All surfaces must be dry, clean, sound, free of dust, grease and any other contaminants that might affect adhesion.

Bitumen felts should be checked carefully. If the surface defects (cracks, blisters, poorly bonded laps, etc.) are less than 15% of the total surface area then it is feasible to apply Silcor Primer PU 30. All blisters in the bitumen sheets should be star cut and the substrate beneath dried fully with a vac and hot air gun. All cut edges and de-bonded laps should be re-bonded with Adcor® Adhesive MS. Remove all un-bonded mineral stones.

Where bitumen sheet roofs have surface defects in excess of 15% of the total surface area, it is not feasible to apply Silcor Primer PU 30. Remove all bitumen sheets and residues from the substrate to expose the structural deck.

Use Silcor Primer EPF or Silcor Primer EP LT on all concrete substrates where bitumen sheets have been removed.

**The substrate humidity before application of the primer must be less than 5%. The primer surface humidity before application of Silcor liquid membrane must be less than 5%.**

### 2. Priming

Substrate temperature prior to application of both primer and membrane must be minimum 3 °C above dew point. All primers should be applied only between +5°C and +40°C ambient, except Silcor Primer EP LT which should be applied only between 0°C and +20°C.

**Silcor Primer EPF** – 2 component epoxy primer for cementitious and masonry substrates should be applied at a typical consumption rate of 0.35 kg/m<sup>2</sup> (see also separate product data sheet for Silcor Primer EPF). Coverage rates will vary depending on surface irregularity. The primer should be roller applied at a rate to give full substrate coverage but to prevent ponding. Leave the primer to dry and apply the first coat of Silcor 900 HA within 18 hours maximum. If application of Silcor 900 HA is delayed beyond this time, re-prime with a second coat of Silcor Primer EPF.

**Silcor Primer EP LT** – 3 component epoxy primer for cementitious and masonry substrates, fast curing at low temperatures (to be used between 0°C and +20°C). It should be applied at a typical consumption rate of 0.35 kg/m<sup>2</sup> (see also separate product datasheet for Silcor Primer EP LT). Immediately following the application of the primer and while still wet, scatter dry, washed quartz silica sand diameter 0.4 mm – 0.8 mm onto the primer and cover fully. Leave the primer to dry completely then remove all loose sand by thorough brushing/scrubbing.

**Silcor Primer MT** – 2 component phosphate/epoxy primer for metal substrates should be applied within 24 hours (at 60% RH) of completion of surface preparation to prevent 'flash rust'. Typical consumption rate is 0.15 kg/m<sup>2</sup>. Apply Silcor 900HA between 12 and 24 hours after application of Silcor Primer MT (20°C). If application of Silcor 900HA to Silcor Primer MT is delayed beyond this time, re-prime with a second coat of Silcor Primer MT.

**Silcor Primer PU 30** – 1c PU primer for bitumen sheets (with mineralized face) should be applied by brush or roller, at a typical consumption rate of 0.20 – 0.30 kg/m<sup>2</sup>. Coverage rates will vary depending on surface irregularity. The primer should be roller applied at a rate to give full substrate coverage but to prevent ponding. Leave the primer to dry and apply the first coat of Silcor 900HA within 18 hours maximum. If application of Silcor 900HA to primer is delayed beyond this time, re-prime with a second coat of Silcor Primer PU 30.

### 3. Application

Application ambient temperature range 5 °C – 40 °C. Maximum humidity 85%. Substrate temperature should exceed the dew point temperature by a minimum of 3 °C. During summer do not apply during the hottest part of the day.

Silcor 900HA hand applied liquid membrane is supplied in 10 kg units as a two component product. Part A and Part B are supplied in metal containers. Mixing should be with a minimum – 1000 W, variable speed drill and a helical blade mixing paddle, 80–100 mm dia. In winter climates, keep both Parts A & B as warm as possible to help mixing and application to substrate.

Open the Part B container and mix for two minutes until a homogeneous, lump free mix and a uniform colour is obtained. Shake the Part A container well before opening. Add the entire contents of the Part A container to the premixed B component and mix for at least one minute, until a uniform colour is obtained. The mixed product should have a uniform colour, free from streaks. Scrape any material from the side and bottom of the container to ensure thorough mixing.

**Once A and B components are mixed, pour the mixture out of the pail onto the substrate immediately** and spread with a 6 mm saw tooth polyurethane squeegee, 6 mm saw tooth steel trowel or similar. Straight edged squeegees and steel trowels can also be used, if preferred. Do not over-work the liquid as it is self leveling, surface imperfections such as pinholes and bubbles can be removed with a nylon spiked roller, but only within the working time of the liquid membrane.

Minimum recommended application thickness is 2.0 mm. Check thickness with a wet film thickness gauge, in a minimum of two locations every 10 kg of mixed membrane. The theoretical coverage rate (not including waste) at a 2 mm thickness is approx 2.4 kg/m<sup>2</sup>. Coverage rates will be reduced over rough and uneven substrates.

#### CAUTION:

Always apply the entire contents of the container as soon as possible after mixing. The reaction that occurs between Part A and Part B is exothermic (gives off heat) and accelerates the curing of the membrane. Do not replace pail lid after mixing.

Silcor 900HA is recommended for horizontal applications and can also be used on vertical surfaces up to 1.0 m high. Plan the application sequence so that there is no need to walk on the freshly applied liquid membrane.

Silcor 900HA cures typically within 30 – 60 minutes of application at 20 °C and can hence take foot traffic as soon as it is tack free.

### 4. Laps

To achieve the best lap adhesion, fresh Silcor 900HA should be lapped onto dry, clean, previously applied Silcor 900HA membrane within 24 hours. Where previously applied Silcor is more than 24 hours old, lightly abrade all laps with a coarse sanding disc, glass paper or similar and remove all dust by thorough sweeping or vacuum cleaning. Solvent wipe with MEK or acetone. The minimum lap width is 100 mm.

### 5. UV Protection

Silcor 900HA does not need additional protection from UV radiation to maintain long term waterproofing integrity. Over time Silcor 900HA will show matt and dark green and some chalking. Where colour stability or a non-chalking finishing is required, use Silcor Top Coat 50 applied in 2 coats. For further information on Silcor Top Coat 50 contact GCP.

### 6. Detailing

Silcor 900HA is formulated to be self-leveling and is not thixotropic. Hence for detailing of pipe entries and other penetrations through the liquid waterproofing, use Bituthene LM (see separate product data sheet).

### 7. Cleaning Tools

Clean tools with MEK or acetone. Observe all health and safety advice for these products.

### 8. Anti Slip Finishes

Where an anti-slip finish is required apply a third coat of Silcor 500 EM at a minimum rate of 0.9 kg/m<sup>2</sup>, and broadcast at a 50% coverage rate with silica quartz aggregate, 0.8 – 1.2 mm dia, applied whilst the membrane is still wet. Remove all unbonded quartz aggregate and, if required for colour stability, apply Silcor Top Coat 50 in one or two coats.

## NBS Specification Clause

Refer to Clause J31/130.

## Chemical Resistance

Silcor 900HA is resistant to a wide range of chemicals. Contact GCP for specific details and recommendations.

## Root Resistance

Silcor 900HA is resistant to root penetration and can be used for green roofs/decks without any additional root barrier.

## Health and Safety

For Silcor 900HA, Silcor Primer EPF, Silcor Primer EP LT and Silcor Primer MT read the product label and Safety Data Sheet (SDS) before use. Users must comply with all risk and safety phrases. SDS's can be obtained from [gcpat.com](http://gcpat.com).

## Warranties

GCP and trained contractors will provide warranties for individual projects. Contact GCP for further details.

## Supply

	Unit of Sale
<b>Silcor 900HA (Resin)</b>	1.01 kg
<b>Silcor 900HA (Iso)</b>	8.99 kg
Silcor Primer EPF (Part A)	3.20 kg
Silcor Primer EPF (Part B)	1.80 kg
Silcor Primer EP LT (Part A)	3.16 kg
Silcor Primer EP LT (Part B)	0.72 kg
Silcor Primer EP LT (Part C)	1.12 kg
Silcor Primer MT (Part A)	6.2 kg
Silcor Primer MT (Part B)	0.9 kg
Storage	Store between 5 °C & 25 °C.
Shelf life	12 months
<b>Ancillary Products</b>	
Silcor® Top Coat 50	Optional UV protective coating
Hydroduct 200 / 650	Optional drainage geocomposite sheets

## Liquid properties

	Typical Value	Test Method
Solids Content	100 %	ASTM D1644
Specific gravity (Resin, Iso) <sup>1</sup>	1.2 g/cm <sup>3</sup> , 1.2 g/cm <sup>3</sup>	
Coverage Rate (2 mm thickness)	2.4 kg/m <sup>2</sup>	Internal
Pot Life	up to 8 minutes (note 1)	Internal
Working Time	up to 15 minutes (note 1)	Internal
Tack-Free Time	30 minutes (note 1)	Internal

### Footnotes:

1. At 23°C.

All declared values shown in this data sheet are based on test results determined under laboratory conditions and with the product sample taken directly from stock in its original packing without any alteration or modification of its component parts.


## Physical properties

	Typical Value	Test Method
Resistance to hydrostatic head over 3.2 mm post formed crack	> 70 m	ASTM D5385
Tensile Strength	10 MPa	ASTM D412
Elongation	450 %	ASTM D412
Tear Strength	> 40 kN/m	ASTM D624
Adhesion to concrete	Concrete failure <sup>1</sup> (note 1)	ASTM D4541
Adhesion to steel	> 4.0 MPa	ASTM D4541
Shore Hardness	75 A	ASTM D2240

### Footnotes:

1. Tested on prepared, primed, and sand cast concrete.

## European Technical Approval ETAG005 Levels of performance

	Characteristic	Level of Performance
 <b>0836</b> ETA-13/ 0522	Minimum thickness	2.0 mm
	Water vapour resistance factor (μ)	2151
	Resistance to wind loads	>50 kPa
	External fire performance	NPD <sup>(1)</sup>
	Reaction to fire	Euroclass E
	Categorisation by working life	W2
	Categorisation by climatic zones	S
	Categorisation by imposed loads	P3 at TH4 P4 at TH3
	Categorisation by roof slope	S1
	Categorisation by surface temperature - lowest	TL3
	- highest	TH4
	Slipperiness [Slope (°)/friction coefficient]	NPD

(1) External fire performance is dependent on the protection layer used in the roof specification. Deemed-to-satisfy inorganic coverings are listed in the Annex of Commission Decision 2000/553/EC.

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