SILCOR® 560 HB

Class III high-build polyurethane waterproofing membrane

Product Description

An economical, one-part, liquid applied, high solids polyurethane waterproofing membrane.
SILCOR® 560 HB is a "Class III – High Extensibility" membrane for use in internal and external applications. Formulated for simple application to horizontal or vertical substrates, the product cures through reaction with humidity and forms a robust, flexible membrane.

Product Uses

SILCOR 560 HB is intended for installation as a non-exposed Class III External Above Ground membrane or Class III Internal Wet Area floor membrane.
SILCOR 560 HB may be used in non-exposed, fully covered applications. It is unsuitable for exposed trafficable or non-trafficable applications.

Typical applications include external, non-exposed areas, such as:

- Balconies, roof tops and decks (under screed & bedded pavers or screed & tiles)
- Balconies, roof tops and decks (under drainage cell, insulation and / or ballast)
- Balconies, roof tops and decks (under pods & pavers with top coat protection)
- Planter boxes, green roofs, and landscaped decks (with root barrier protection over membrane where certified root resistance is required)
- Retaining walls and lift pit walls

and internal wet area floors under or over screeds in:

- Bathrooms and toilets
- Showers and shower rooms
- Laundries
- Kitchens

Advantages & Features

- Certified Class III – compliant to AS 4654.1-2012 for use in external, non-exposed waterproofing, installed to AS 4654.2-2012 requirements
- Certified Class III – compliant with AS/NZS 4858-2004 for use as internal wet area waterproofing installed to AS 3740-2021 requirements
- Low VOC – <110 g/L
- Good physical properties; >700% elongation and >3MPa tensile strength
- Seamless – liquid applied and monolithic, eliminating vulnerable joins, seams, and laps
- High build – suitable for vertical and horizontal applications

- Fully Bonded – no water tracking between membrane and substrate
- Simple Application – one-part, applied by roller or brush
- Cold Applied – no flame or heat required for application
- Accommodates typical structural movements encountered in well-designed construction
- Free from bitumen or tar – will not bleed or stain

Product Properties

PROPERTY	TYPICAL VALUE	TEST METHOD
Liquid Membrane Properties		
Membrane Chemistry	High solids, moisture curing polyurethane	
Appearance	Charcoal grey viscous liquid	
Specific Gravity[1] (g/ml)	1.48	
Brookfield Viscosity (mPa.s)	60,000	
Solids Content (%w/w)	91	
VOC (g/L)	<110	ASTM D3960
Min. Recoat Time[1] (hours)	12	
Max. Recoat Time[1] (hours)	48	
Min. Through Cure Time[1] (hours)	48	
Min. Cure Time[1] (hours) Rain resistant	2	
Min. Cure Time[1] (hours) Ready for flood testing, topping or backfilling	48	
Fully Cured Membrane Properties		
Shore A Hardness (°A)	> 55	ASTM D2240
Tensile Strength (MPa)	> 5.0 / >3.0	AS 4858 / AS 4654.1
Elongation (%)	> 1400 / > 700	AS 4858 / AS 4654.1
Classification	Class III High Extensibility – AS 4858-2004 Class III High Extensibility – AS 4654.1-2012	AS 4858 / AS 4654.1
Resistance to Cyclic Movement	Pass / Pass – No fatigue cracking exhibited	AS 4858 / AS 4654.1
Water Vapour Transmission Rate (g/m²/24h)	4.36 / 4.36	AS 4858 / AS 4654.1
Resistance to Water Immersion	Pass / Pass	AS 4858 / AS 4654.1
Resistance to Bleach Immersion	Pass	AS 4858
Resistance to Detergent Immersion	Pass / Pass	AS 4858 / AS 4654.1

Resistance to Heat Ageing	Pass / Pass	AS 4858 / AS 4654.1

The above values and properties do not constitute a specification.
1 – Tested at 23°C / 60% RH. Values will vary dependent on temperature and/or humidity at time of use.

Design

- All horizontal substrates to have a minimum 1:100 fall to drainage and/or not retain water other than residual due to substrate surface tension. Falls to drainage in shower areas to be minimum 1:80.
- Drainage outlets / puddle flanges must be at low point of falls, installed flush or recessed to surrounding substrate.
- Drainage outlets must allow correct drainage both below and above screeds. Consult your GCP representative for specific requirements on your project.
- All membrane under pods & pavers, regardless of paver gap width and turn-ups above or below finished paver surface must receive SILCOR® Top Coat 75 or other membrane UV protection.
- Where bonded screeds, renders, bedded pavers or direct stick tiles are to be installed to SILCOR 560 HB membrane, a tie coat must be installed to the cured membrane prior, consisting of an additional layer of SILCOR® 575 HB membrane, coarse aggregate blinded to refusal. See details below for further information

Safety and Handling

- Installers must read and understand the product label and Safety Data Sheet (SDS) for each product.
- All users should acquaint themselves with this information prior to working with the products and follow the precautionary statements.
- SDSs can be obtained by contacting your local GCP representative or office.

Storage & Shelf Life

- Store in original packaging between 15° and 25°C, under cover and protected from all sources of heat, ignition, moisture, frost and direct sunlight.
- Shelf life is nine (9) months from date of manufacture when stored at these conditions in original, unopened packaging.

Limitations of Use

- Minimum applied membrane thickness required is specified by GCP and is dependent on intended areas of use and Product Warranty period desired. Consult your local GCP representative for further information
- Not recommended for exposed non-trafficable or trafficable areas, with or without protective top coat over
- Not to be installed as a negative pressure membrane
- Not to be installed to damp, wet or contaminated substrates
- Not recommended for internal lining of water tanks
- Must not be applied if it is raining or rain is imminent
- Not to be installed when ambient humidity is below 35% or above 85%

- Cure rate, drying time, recoat time etc are affected by temperature and humidity:
  -High temperatures and/or high humidity will accelerate surface skinning and cure time
  -Low temperatures and/or low humidity will extend cure time
- Information in this document does not cover all possible application scenarios, limitations, or imply product suitability for an application. Please contact your local GCP representative for further information and to discuss your requirements prior to proceeding with installation
- This PDS does not constitute a GCP Product Specification, Work Method Statement or Scope of Works. Please contact your local GCP representative for project specific installation information

System Components

PRODUCT	DESCRIPTION	PACKAGE SIZE
SILCOR® 560 HB	1-part, high solids, polyurethane waterproofing membrane	22 kg pail
SILCOR® Primer BS	1-part, penetrating solvent-based acrylic primer for dry concrete, masonry, CFC sheet, CCS, many metals, PVC and ABS plastics	17 kg pail
EPOCOTE™ F100W	2-part, water-based epoxy primer for dry, green or damp concrete, masonry, CFC sheet, water resistant plasterboard, many metals, PVC and ABS plastics	20 L kit
SILCOR® LM PU Sealant	1-part, low modulus polyurethane sealant for detailing	600 ml foil sausage
SILCOR® Top Coat 75	2-part, membrane protective, aliphatic polyurethane top coat	18 kg kit
PROTECTOBOARD™	High crush strength, fluted polypropylene, membrane protection board	1830 x 1220 x 3mm sheet
RAPID-DRAIN™	High crush strength, fluted polypropylene, membrane protection board	15240 x 1220 x 10mm roll

Estimating

Please contact your local GCP representative for information specific to your project estimating needs.
General Guidance:

MINIMUM TOTAL DFT (MM)	MINIMUM TOTAL WFT (MM)	NUMBER OF COATS	MINIMUM DFT / COAT (MM)	MINIMUM WFT / COAT (MM)	KG/M² PER COAT	LITRES/M² PER COAT	MAXIMUM COVERAGE PER 15 L PAIL (M²)
1.50	1.68	2	0.75	0.84	1.24	0.84	8.9
1.75	1.96	2	0.88	0.98	1.45	0.98	7.6
2.00	2.23	2	1.00	1.12	1.65	1.12	6.7

Suitable Substrates

SILCOR 560 HB may be applied to the following dry, cured, stable, prepared & primed substrates:

- Concrete or reinforced and core filled blockwork with compressive strength ≥20 MPa
- Cementitious screed, render or toppings with compressive strength ≥20 MPa
- Engineered screeds with compressive strength ≥25 MPa
- Compressed Fibre Cement sheet (CFC), Cement Composite Sheet (CCS)
- Water resistant plasterboard, water resistant plywood or water-resistant structural timber
- Many types of metals, PVC, and ABS plastics
- High strength rendered, aerated autoclaved concrete (AAC)

Substrate Quality

Substrates must be structurally sound, smooth, clean and dry.

Concrete

- Well compacted, moisture cured as required by AS 3600
- Minimum concrete age = 14-28 days, dependent on concrete thickness, moisture content and primer
- Compressive strength - minimum strength grade 20 MPa
- Concrete surface pull-off strength - minimum 0.6 MPa for internal wet area applications; minimum 1.0 MPa for external surfaces
- Concrete finish – only steel trowel, light power float or off-form, well compacted (not burnished), free of honeycombing, voids or excessive porosity
- Curing compounds - only non-permanent, degrading acrylic types. Must be removed by water blasting or grinding prior to priming

Concrete Block Masonry

- Sound, flush pointed mortar joints with no gaps or voids, reinforced and fully core filled. Excessively porous block work may require sealing with high strength (minimum 20 MPa) fairing compound prior to primer and membrane application

Screeds, Toppings and Renders

- Structurally sound, fit for purpose, minimum 20 MPa compressive strength grade and reinforced or resistant to fracture or break-up in use. Formulated, mixed and installed to provide a smooth surface without voids or excessive porosity. Minimum 3 days cure dependent on formulation, moisture content and GCP primer being used

Compressed Fibre Cement (CFC) Cement Composite Sheet (CCS) & W/R Plasterboard

- Installed to stable, structural framing. Installed and finished in accordance with manufacturer's directions. Free of all surface sealers, coatings, and primers

Metals

- Free of corrosion, gaps, holes and defect

Substrate Preparation

Concrete, Masonry, Screeds and Renders

- Remove all dirt, dust, concrete spillage, weak material, laitance, oil, grease, coatings, curing compounds, form release agents, rubber tyre marks, rain damage, corrosion marks and other contaminants / defects by an appropriate method, including brooming, vacuuming, scraping, water blasting (4000 psi with RotorJet head), captive shot blasting or grinding
- Remove ridges, sharp edges, deep broom finishes and chamfer external corners 12mm
- Repair concrete masonry defects including bug holes, honeycombing and gross pin holing using a low shrinkage PMC repair mortar, fairing compound or epoxy repair mortar, having equivalent compressive strength as the substrate. Allow all repairs to cure fully and dry to a moisture content below the maximum allowable for the GCP primer being used (see relevant primer PDS)
- Chase construction joints minimum 10mm x 10mm (square cut only). Chase static shrinkage cracks greater than 1.0mm width a minimum 6mm x 6mm (square cut recommended). All structural and dynamic cracks must be repaired by suitable means prior to chasing

Note - Outgassing occurs naturally in concrete and masonry surfaces as daily temperature increases and can lead to pin hole formation in applied primers, membranes, and coatings. Rectification of rain damaged or burnished concrete by grinding or sand blasting can expose high porosity concrete, leading to increased outgassing. The applicator must assess the prepared substrate for porosity and adjust repair and priming methods accordingly to minimise the effects of outgassing and pin hole formation in primers and membranes.

Detailing

Internal Wet Areas

- Detail according to NCC and AS 3740-2021 requirements, by installing minimum 12mm x 12mm bond breaker fillets of SILCOR® LM PU Sealant or neutral cure low modulus silicone sealant to all internal corners. Detail and seal penetrations, drainage outlets etc.
- Allow sealant to cure a minimum 12 hours

External Above Ground Areas

- Detail according to NCC and AS 4654.2-2012 requirements, by installing minimum 15mm x 15mm bond breaker fillets of SILCOR LM PU Sealant low modulus polyurethane sealant to all internal corners and around penetrations. Detail and seal drainage outlets etc.
- Allow sealant to cure a minimum 12 hours

Expansion Joints

- Consult your local GCP representative for further information

Chased Non-Moving Construction Joints & Shrinkage Cracks

- Install bond breaker tape to base of primed square cut chases. Gun SILCOR LM PU Sealant or neutral cure low modulus silicone sealant to chase and tool to a smooth concave finish
- Allow sealant to cure a minimum 12 hours

CFC & Cement Composite Sheet Joints

- Ensure sheet joints are detailed per the manufacturer's directions

Priming

General

- Prime all substrates with an appropriate GCP primer prior to applying SILCOR 560 HB membrane
- Application to porous substrates while substrate temperature is increasing may result in substrate outgassing and pin-hole formation in primer, leading to pin-hole formation in the membrane. This can be reduced or prevented by priming substrates when the substrate temperature is stable or falling
- The applicator must ensure primed substrate is pin-hole free prior to membrane application
- Adjust application procedures and schedule to suit local conditions
- Membranes must be applied to the primed surface within the primer recoat window. Consult the relevant primer PDS for further details

Primer Selection – Below 5.0% Moisture Content

- Prime substrates using SILCOR® Primer BS or EPOCOTE™ F100W Clear
- For highly porous, damaged or old concrete and masonry, prime with EPOCOTE F100W Grey
- For greatest penetration and adhesion to CCS flooring substrates (Scyon Secura, CSR Cemintel etc), SILCOR Primer BS is recommended
- For metals, PVC, ABS and other non-porous substrates, use EPOCOTE F100W Clear or SILCOR Primer BS
- Coverage rate is dependent on surface porosity and may require two or more applications
- Consult the relevant primer PDS for further application information and application rates
- For difficult to bond metals such as stainless steel, copper, and aluminium, prepare, clean, then wipe on Dow Chemical DOWSIL 1200 OS Primer per the manufacturer's directions, then apply membrane directly

Primer Selection – 5.0% to 6.9% Moisture Content

- Prime prepared concrete and masonry substrates using only EPOCOTE F100W Clear or allow substrates to dry <5.0%. Note 6.9% is the upper limit for testing surface moisture content using commercially available test equipment calibrated for concrete testing.

Membrane Application

General

Ensure the following parameters are met before and during membrane application and cure:

PARAMETER	LIMITS
Substrate Temperature	+5°C to +35°C (temperature stable or falling is recommended)
Ambient Temperature	+5°C to +35°C
Relative Humidity	35% to 85%
Dew Point	Minimum 3°C below substrate temperature
Condition	Clean, dry and free from condensation, contaminants, debris etc.

Application Equipment

Generally, apply in two or more cross directional coats by 10-14mm nap, non-shedding roller, or brush.

Mixing

Mix material thoroughly before use using a minimum 650W, variable speed drill (maximum 600 RPM) fitted with a clean paddle or "Jiffy" type mixer. Avoid mixing air into the product during mixing.

Applied Membrane Thickness Control

Apply membrane at or above the minimum required Dry Film Thickness (DFT), as detailed in the GCP Project Specification. Consult your GCP Specification for the project or contact your representative for further details. To ensure correct DFT is installed, test applied thickness during application of each coat using a Wet Film Thickness (WFT) gauge and adjust applied thickness of liquid membrane accordingly.

Horizontal, Vertical or Sloping Application

SILCOR 560 HB is suitable for horizontal, vertical, and sloping applications. It is not self-levelling. Two or more coats are typically required to achieve the required DFT. One coat application may be employed, however full through cure time will be extended.

Applied Membrane Appearance

Application by roller or brush typically produces a textured surface finish.

Movement Areas

- At potential movement areas such as chased, detailed and sealed expansion joints, construction joints and active cracks, install a bond breaker tape to the primed surface centred over the joint or crack.
- Bond breaker tape should be a minimum 72mm wide for expansion joints, minimum 45mm wide for construction joints and minimum 20mm wide for moving cracks.
- Bond breaker tape must be flexible, polyethylene faced, single sided adhesive and resistant to primer, membrane, xylene and heat (90 °C or greater). Tape must be less than 0.4mm thickness. Adhesive must be natural rubber or butyl rubber based.
- Only use bond breaker tape of the required width. Use of two narrow tapes to make up the required tape width must not be employed.
- Expansion joints showing greater than 15mm total movement (±7.5mm) must be waterproofed using an alternative method. Consult your local GCP representative for further information and to discuss your requirements prior to proceeding with installation
- Suitable tapes are 3M 8979 or Tesa 58663. Install tape free of wrinkles, bubbles or curled edges.

Reinforcing

Full reinforcing of SILCOR 560 HB with reinforcing scrim is not typically required when the membrane is applied to the minimum specified WFT/DFT. Where high movement is expected at junctions and joints, and use of a bond breaker tape over movement areas is not possible, GCP's Reinforcing PE Fabric may be used by embedding and fully wetting through the fabric between two heavy wet coats of membrane. Do not use fibreglass chopped strand mat or other reinforcing materials.

Membrane Detailing

- To SILCOR LM PU Sealant detailed internal corners, penetrations, drainage outlets, cracks, to chamfered external corners and to bond breaker taped construction joints and cracks, apply SILCOR 560 HB as a minimum 150mm wide application centred over the sealant fillet/corner/bond breaker tape. Apply to provide a minimum 1.0mm DFT (1.1mm WFT) and allow to cure to minimum recoat time.
- To the SILCOR LM PU Sealant detailed expansion joints, apply SILCOR 560 HB as a minimum 200mm wide application centred over the joint bond breaker tape. Apply to provide a minimum 1.0mm DFT (1.1mm WFT) and allow to cure to minimum recoat time.

Application of Continuous Membrane

- Within the recoat window of the primer used, apply SILCOR 560 HB membrane to detailed and primed areas, at or above the required minimum thickness in two (or more) cross directional coats
- Required minimum thickness is dependent on installation area, type of use of the area, membrane surfacing being employed, and product warranty period required and will be specified in the GCP Waterproofing Specification. Contact your local representative to obtain a GCP Waterproofing Specification for your project
- Ensure good airflow in the application area for fastest membrane drying time
- Test WFT during application and adjust applied thickness of the wet membrane accordingly
- Continue membrane to turn-ups by a minimum 100mm above finished surface level, or as detailed in the project specification or AS 4654.2-2012 (External Above Ground Areas), whichever is the greater

Typical Membrane Cure & Recoat Times

AMBIENT OR SUBSTRATE TEMPERATURE (°C)	TACK FREE TIME (HRS)	MINIMUM RECOAT TIME (HRS)	MAXIMUM RECOAT TIME (HRS)	READY FOR FLOOD TESTING OR TILING (HRS)
35	3	8	36	36
30	3.5	10	40	40
23	4	12	48	48
15	8	16	60	60
10	15	22	80	80
5	24	30	100	100

Note – Above times are based on 60% RH (Relative Humidity) during application and cure. Times will increase at lower RH; times may decrease with higher RH.

Clean-up

Clean equipment immediately using xylene solvent. Cured product must be removed mechanically.

Protection and Surfacing

SILCOR 560 HB must be permanently protected from damage, abuse, and wear by one of the following:

Top Coat to Exposed Membrane Turn-Ups

- Mix and apply SILCOR Top Coat 75 to all exposed membrane as a minimum two cross-directional coats and a minimum rate of 0.15kg/m²/coat. SILCOR Top Coat 75 contains an in-built slip resistance aggregate, making accurate measurement of applied film DFT or WFT difficult. Application rate of 0.15kg/m²/coat is approximately equal to a DFT of 83 micron/coat (165 micron for two coats) and a WFT of 135 micron/coat (270 micron for two coats)
- Consult the PDS for SILCOR Top Coat 75 for installation information

Unbonded Screeds and Topping Slabs

- Install PROTECTOBOARD™ or two layers of minimum 250 micron builder's plastic to the cured membrane as a slip sheet prior to installing screed or topping slab. Ensure all protection board/sheet laps are taped to seal

Bonded Screeds, Tile Beds, Toppings or Direct Stick Tiles

Installed membrane must receive a tie coat to facilitate adhesion with bonded screeds, tile/paver beds, topping slabs or direct stick tile cementitious adhesives:

- Within the recoat window of SILCOR 560 HB membrane, lightly solvent wipe the membrane with isopropanol solvent and allow to dry
- Apply SILCOR 575 HB membrane to a WFT of 0.6mm (0.7kg/m²). While wet, broadcast to refusal with clean, kiln dried sharps quartz aggregate or aluminium oxide, sized 0.5 to 1.0mm diameter. No membrane shall be visible through the aggregate broadcasting
- Allow to cure a minimum 24 hours. Remove excess aggregate by vacuuming
- All screeds, beds, toppings, and tile adhesives used must be approved by the manufacturer as fit for purpose in the area concerned
- Do not use SILCOR 560 HB as the tie coat membrane as its soft, highly flexible nature will not allow high strength binding of aggregate broadcast
- Aggregate broadcasting of the installed SILCOR 560 HB membrane, without use of a tie coat, is unacceptable

Backfill

- Install PROTECTOBOARD or RAPID-DRAIN membrane protection prior to backfilling with graded fill

Landscaping and Planter Boxes

- Install PROTECTOBOARD or RAPID-DRAIN membrane protection prior to backfilling with soil / planting media
- Where certified root resistance is specified, install a certified, 3rd party root barrier prior to backfilling with soil / planting media

Pavers on Pods

- SILCOR 560 HB is compatible with pavers on pods/adjustable jacks
- Pods / jacks used should have a minimum footprint size of 150mm diameter to prevent point load damage to membrane
- Where paver gaps will be 5mm or less in width, application of SILCOR Top Coat 75 protective top coat is not required, except where membrane remains fully exposed above the paver surface
- Regardless of paver gap width, all membrane (above and below pavers) must be protected by two cross-directional coats of SILCOR Top Coat 75 applied at minimum 0.15kg/m²/coat or a UV light blocking layer such as heavy geotextile, PROTECTOBOARD etc.

Pebble Ballast

- Install RAPID-DRAIN drainage cell to membrane to ensure free drainage to falls prior to loading of pebble ballast.
- Ballast must be hand loaded with care to prevent damage to drainage cell or membrane

Insulation and Ballast

- Install RAPID-DRAIN drainage cell to membrane to ensure free drainage to falls prior to installation of sheet insulation.
- Cover insulation with geotextile prior to loading of ballast
- Load ballast per the insulation manufacturer's directions

Maintenance

- Not typically required for non-exposed, covered membrane.
- For exposed membrane, regular cleaning and inspection maintenance is required per the relevant GCP Operation and Maintenance manual for water-based membranes.

Product Warranties

- GCP and contractors recognised by GCP as experienced in the application of GCP products will provide warranties for qualified individual projects.
- Warranty periods offered and GCP required minimum applied DFT are dependent on project details and complexity. Contact your local GCP representative for further details.

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