SILCOR® 560 HB LVOC

Very low VOC, one-part grey polyurethane waterproofing membrane

(to replace AQUAGARD™ M 40R Low VOC Grey)

Product Description

A one-part, liquid applied, high solids, grey colour polyurethane (PU) waterproofing membrane. It is formulated for simple, high build application to horizontal and vertical substrates. After application, the product cures through reaction with ambient humidity, forming a flexible, elastomeric membrane.
SILCOR® 560 HB LVOC is a certified Class III membrane and is compliant to AS4858:2004: "Wet Area Membranes", when applied in accordance to AS3740:2010 "waterproofing Wet Areas in Residential Buildings". SILCOR 560 HB LVOC is tested to AS4654.1 to ensure compliance with the NCC for external waterproofing in Australia.

Uses

New and remedial waterproofing of:

- External Below Ground (tanking) Lift pit walls, retaining walls, basement walls, non-potable water storage tanks External Above Ground (non-exposed/covered) Balconies, podiums, landscaped decks, planter boxes, roof decks, window & door reveals
- Internal Wet Areas Bathroom floors, shower trays, laundries, toilets, foyers

Advantages

- Seamless – liquid applied and monolithic, eliminating vulnerable joins, seams and laps Fully Bonded – no water tracking between membrane and substrate
- Simple Application – one-part, humidity cured. Applied by roller or brush to horizontal or vertical surfaces Cold Applied – no flame or heat required for application
- Very Low VOC – reduced EH&S issues on site
- Flexible – long life elastomeric membrane. Accommodates normal structural movement and bridges non-structural concrete shrinkage cracks without requiring full membrane reinforcing
- Polyurethane Chemistry – free from bitumen or tar – will not bleed or stain External Above Ground – meet the requirements of Australian Standard AS 4654-2012
- Internal Wet Areas – meet the requirements of Australian Standard AS 3740-2010

System Components

- SILCOR 560 HB LVOC – 1-part PU membrane
- SILCOR Primer BS – 1-part solvent based PU primer for dry cementitious, masonry, metal and timber substrates
- SILCOR Primer BW Clear/EPOCOTE™ F100W Clear – 2-part, water borne epoxy primer for green, damp or dry cementitious, masonry and metal substrates

- SILCOR Primer BW Grey/EPOCOTE F100W Grey – 2-part, water borne, filled epoxy primer for green, damp or dry cementitious, masonry and metal substrates, or poor quality/damaged concrete
- SILCOR Top Coat 75– 2-part, solvent based, UV stable PU, protective top coat. Only used over SILCOR 560 HB LVOC membrane in non-trafficable areas
- SILCOR LM PU Sealant – 1-part polyurethane sealant for detailing and joint sealing
- Reinforcing PE Fabric Strip – Non-woven, needle punched polyester reinforcing fabric. For membrane reinforcement at high movement junctions

Design

Generally, 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.

Compatibility / Adhesion

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

- Concrete, blockwork, brick
- Cementitious screed, render or topping slabs
- Water resistant timber, plywood or particle board
- Metals
- Compressed fibre cement sheet (CFC)
- Cement composite sheet (CCS)
- Glass reinforced concrete (GRC)
- Rendered, aerated autoclaved concrete (AAC)

Substrate Quality

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

New Concrete

Well compacted, moist-cured as required by AS 3600. Minimum age of concrete at time of waterproofing application should be 14-28 days, dependent on concrete thickness and GCP primer being used.

Curing and Form Release Compounds

Only non-permanent, degrading acrylic types may be used. Residues must be removed by water blasting or grinding prior to priming. Wax emulsion, oil, hydrocarbon, hydrocarbon resin, chlorinated rubber, silicon containing or bitumen emulsion types are unacceptable.

Concrete Strength

Compressive strength - minimum strength grade 25 MPa. Surface pull-off strength - minimum 1.0 MPa for non-trafficable and 1.5 MPa for trafficable surfaces.

Concrete Finish

Steel trowel, light power float or off-form, to give a well compacted (not burnished) surface free of honeycombing, voids or excessive porosity. Porous, low surface strength, tamped, bull float or broom finishes are unacceptable. Where non-ponding external surfaces are specified, in accordance with AS 4654.2, concrete provided to the applicator shall be set to falls and free of ponding depressions.

Concrete Block, Brick and Stone Masonry Finish

Sound, flush pointed mortar joints with no gaps or voids.

Screeds and Toppings

Sound, fit for purpose and resistant to fracture or break-up in use.

Substrate Preparation

Concrete and Masonry

Remove all dirt, dust, concrete spillage, weak material, laitance, oil, grease, coatings, curing compounds, form release agents, tyre rubber marks, rain damage and other contaminants/defects by an appropriate method. This may include brooming, vacuuming, scraping, water blasting (4000 psi with RotorJet head), captive sand blasting or grinding.
Chamfer external corners and remove residues from internal corners and expansion joints.
Repair non-structural defects including bug holes, honeycombing, rain damage and gross pin holing using a minimum 25 MPa, low shrinkage PMC or epoxy repair mortar or fairing compound.
Advise main contractor of identified structural cracks and moving construction joints. Rectifications to be arranged by main contractor. Chase shrinkage cracks and construction joints to a minimum size of 6 x 6mm and clean chase.
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).

Note – Outgassing occurs naturally in concrete surfaces 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.

Compressed Fibre Cement Sheet

Ensure sheeting materials used are free of all surface sealers, coatings and acrylic primers. Ensure sheets have been installed to the manufacturer's requirements, and are clean, dry and contaminant free.

Light Weight Cement Composite Sheet

In addition to CFC sheet requirements, due to laminar structure and low internal strength of CCS sheets, they must be prepared and primed carefully using a very low viscosity, high penetration primer such as SILCOR Primer BS.

Metals

Remove all dirt, dust, oil, grease, corrosion and oxides from steel, aluminium, zinc/galvanising, copper, stainless steel etc. and roughen surface by abrasion or garnet blasting to SA 2.5 near white metal. Solvent wipe with clean MULTITEKTM Xylene or methyl ethyl ketone (MEK) on a clean, lint free cloth. Prime surface within 30 minutes to minimise surface oxidation.
Difficult to prime metals such as stainless steel may be primed using a silane coupling agent such as DC1200 OS from Dow Corning. Follow the manufacturer's directions completely and apply membrane within the DC 1200 OS recoat window.

Plastics

Remove all dirt, dust, oil, grease and other contaminants. For PVC, epoxy, polyester and ABS, solvent wipe with MEK solvent immediately prior to priming.
For difficult to bond plastics such as HDPE or PP, consult the GCP Technical Department before proceeding.

Aerated Autoclaved Concrete (AAC)

Surface must be rendered to seal and provide a strong, smooth finish. Allow render to dry to a moisture content below the maximum allowable for the GCP primer being used (see relevant primer PDS).

Application Conditions

The following GCP product application details assume typical conditions of 22 °C and 60% relative humidity. Allowance must be made by the applicator for product application and cure times that vary from these typical conditions.

Detailing

External Above and Below Ground Areas

Detail according to NCC and AS 4654.2 requirements, by installing minimum 15 x 15mm bond breaker fillets of SILCOR LM PU Sealant to all internal corners, penetrations, drainage outlets etc.
Allow sealant to cure a minimum 24 hours.

Internal Wet Areas

Detail according to NCC and AS 3740 requirements, by installing minimum 12 x 12mm bond breaker fillets of SILCOR LM PU Sealant to all internal corners, penetrations, drainage outlets etc.
Allow sealant to cure a minimum 24 hours.

Expansion Joints

Install suitable backer rod to joints. Set depth to achieve correct joint geometry (see SILCOR LM PU Sealant PDS). Gun SILCOR LM PU Sealant to joint recess and tool to a smooth concave finish. Allow sealant to cure a minimum 24 hours.

Chased Non-Moving Construction Joints & Shrinkage Cracks

Prime chases sides using SILCOR Primer BS. Allow to cure tack free. Gun SILCOR®LM PU Sealant to primed chase within 24 hours of priming. Tool to a smooth concave finish. Allow sealant to cure a minimum 24 hours.

CFC & Cement Composite Sheets Joints

Gun SILCOR LM PU Sealant to joint and tool to a smooth concave finish. Allow sealant to cure a minimum 24 hours.

Priming

General

Ensure the following parameters are met prior to and during primer application:

PARAMETER	LIMITS
Substrate Temperature	+5°C to +35°C with temperature stable or falling
Ambient Temperature	+5°C to +35°C
Relative Humidity	30% to 85%
Dew Point	Minimum 3°C below substrate temperature

Application to highly porous substrates while substrate temperature is increasing may result in concrete outgassing and pinhole formation in primer. This can be reduced or prevented by priming substrates in the late afternoon or evening, when concrete temperature is stable or falling.
Adjust applicator procedures and schedule to suit local conditions.

Concrete, Masonry, Screeds and CFC Sheet

- Below 5.0% Moisture Content

Prime prepared substrates using SILCOR Primer BS, SILCOR Primer BW Clear/EPOCOTE F100W Clear or SILCOR Primer BW Grey/EPOCOTE F100W Grey at a minimum rate of 0.3kg/m², by roller. Consult the relevant primer PDS for further information.
Coverage rate is dependent on surface porosity and may require two or more applications.
Prime low porosity surfaces or compressed fibre cement / composite cement sheet, using SILCOR Primer BS for highest penetration and adhesion.
Apply primer to give full coverage without ponding or pin holing, producing a low gloss surface finish. Inspect the primed surface for pin holes and re-prime to seal if necessary. Re-priming to seal concrete pin holes is more time and cost effective than later rectifying pin holes in the membrane.
Allow primer to cure tack free. Within 24 hours of priming (@22°C) apply membrane to primed surfaces. Refer to relevant primer PDS for recoat times at other temperatures, and treatment if recoat time of primer is exceeded.
If recoat time of primer is likely to be exceeded, broadcast the freshly applied primer with clean, kiln dried, sharp quartz sand of 0.5 to 1.0mm diameter to 120% coverage (to refusal). Allow primer to cure completely and remove excess loose sand by vacuuming. Membrane may be applied to the sand blinded surface up to 14 days after laying, provided the surface remains clean, dry and free of all contamination.

Concrete, Masonry, Screeds and CFC Sheet

- Below 10% Moisture Content

Prime prepared substrates using SILCOR Primer BW Clear/EPOCOTE F100W Clear at a minimum rate of 0.3kg/m², by roller. Consult the relevant primer PDS for further information.
Coverage rate is dependent on surface porosity and may require two or more applications.
For low porosity cementitious surfaces, dilute mixed primer up to 20% with clean water to aid penetration and flooding of pin holes. Allow to cure tack free. Within 24 hours re-prime with undiluted SILCOR Primer BW Clear/EPOCOTE F100W Clear.
Apply primer to give full coverage without ponding or pin holing, producing a low gloss surface finish.
Allow primer to cure tack free. Within 24 hours of priming (@22°C) apply membrane to primed surfaces. Refer to relevant primer PDS for recoat times at other temperatures, and treatment if recoat time of primer is exceeded.
If recoat time of primer is likely to be exceeded, broadcast the freshly applied undiluted primer with clean, kiln dried, sharp quartz sand of 0.5 to 1.0mm diameter to 120% coverage (to refusal). Allow primer to cure completely, then remove excess loose sand by vacuuming. Membrane may be applied to the sand blinded surface up to 14 days after laying, provided the surface remains clean, dry and free of all contamination.

Light Weight Cement Composite Sheet

Prime using only SILCOR Primer BS, at a minimum 0.3kg/ m². Two or more primer applications will be required, to penetrate and consolidate the sheet substrate.
Inadequate priming can result in delamination within the sheet structure and apparent membrane delamination, particularly in exterior installations.
Allow primer to cure tack free. Within 24 hours of priming (@22°C) apply membrane to primed surfaces.

Membrane Application

General

Ensure the following parameters are met before and during application:

PARAMETER	LIMITS
Substrate Temperature	+5°C to +35°C with temperature stable or falling
Ambient Temperature	+5°C to +35°C
Relative Humidity	30% to 85%
Dew Point	Minimum 3°C below substrate temperature
Condition	Clean, dry and free from condensation, contaminants, stones, leaves etc.

Application Equipment

Apply membrane by brush, medium nap non-shedding roller or straight blade squeegee in two coats.

Mixing

Mix material thoroughly before use using a minimum 650W slow speed drill (maximum 300 RPM) fitted with a clean paddle or "Jiffy" type mixer, avoiding air entrapment.

Applied Membrane Thickness Control

Apply membrane at or above the minimum required thickness, as detailed in this PDS, or in the project specification. Test applied thickness using a clean, accurate Wet Film Thickness (WFT) gauge and adjust applied thickness accordingly.

Horizontal, Vertical or Sloping Application

SILCOR 560 HB LVOC is suitable for horizontal, vertical or sloping applications. Minimum required Dry Film Thickness (DFT) is typically achieved in two applications. Note this product is not designed to self-level.

Movement Areas

At potential high movement areas such as expansion joints, open construction joints and active cracks, install a slip tape centred over the joint or crack. Slip tape should be a minimum 90mm wide for expansion joints, minimum 45mm wide for open construction joints and minimum 20mm wide for moving cracks. Slip tape must be polyethylene faced, single sided adhesive and resistant to primer, membrane, xylene and heat. Suitable tapes are 3M 8979 or Tesa 58663.

Reinforcing

Full reinforcing of SILCOR 560 HB LVOC is not typically recommended, provided the membrane is applied to the minimum specified WFT/DFT. Where high movement is expected at junctions and joints, and use of a slip tape is not possible, a reinforcing strip may be employed, as detailed in Membrane Detailing below.

Membrane Detailing

To the SILCOR LM PU Sealant detailed internal corners, chamfered external corners, construction joints, penetrations, drainage outlets and cracks, apply SILCOR 560 HB LVOC as a minimum 150mm wide application centred over the sealant fillet/corner/slip tape. Apply to provide a minimum 1.0mm DFT and allow to cure to minimum recoat time.
To the SILCOR LM PU Sealant detailed expansion joints, apply SILCOR 560 HB LVOC as a minimum 200mm wide application centred over the joint slip tape. Apply to provide a minimum 1.0mm DFT and allow to cure to minimum recoat time. Where reinforced membrane is required in high movement areas, without slip tape, the following process is recommended to ensure correct membrane function:

i) Apply SILCOR 560 HB LVOC to a minimum 1.0mm DFT as detailed above and allow to cure to minimum recoat time.
ii) Apply a second coat of membrane and lay Reinforcing PE Fabric strip into the wet membrane. Wet fabric through with membrane completely, ensuring no bubbles or wrinkles are present.
iii) While wet, apply additional membrane to fully cover the reinforcing fabric with a minimum 1.0mm of membrane. Allow to cure to minimum recoat time.

Application of Continuous Membrane

Apply SILCOR 560 HB LVOC membrane to primed and previously membrane detailed areas, at or above the minimum required thickness in two coats.
Required minimum thickness is dependent on installation area, type of use of the area, topping or membrane protection being employed and product warranty period required, and will be specified in the GCP project specification or architect's specification. Where not specified, a minimum DFT of 1.5mm must be employed, in two coats.
Allow to dry fully between coats. Test WFT during application using a WFT gauge and adjust applied thickness accordingly.
Continue membrane to turn-ups by a minimum 100mm above finished surface level, or as detailed in project specification.

Typical Membrane Cure & Recoat Times

AMBIENT TEMP. (°C)	TACK FREE TIME (HRS)	MINIMUM RECOAT TIME (HRS)[1]	MAXIMUM RECOAT TIME (HRS)[2]	READY FOR BACKFILLING, TOPPING OR FLOOD TEST (HRS)[3]
35	3	8	36	36
30	3.5	10	40	40
22	4	12	48	48
10	10	18	72	72
5	15	30	132	130

Note – Above times will be extended if RH (Relative Humidity) is less than 60%
1 - Minimum Recoat Time = Light Applicator Foot Traffic Allowed
2 - Maximum Recoat Time = Applicator Foot Traffic Allowed
3 - Ready for Flood Test etc. = Open to Access by Other Trades

Clean-up

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

Maintenance

Typically not required for non-exposed membrane.

Protection and Surfacing

SILCOR 560 HB LVOC must be permanently protected from damage by application of one of the following:

Direct Stick Tiles, Bonded Screed or Topping Slab

Membrane surface should be compatiblised before application of cementitious tile adhesives, bonded screed or topping slab by one of the following methods:

1. Between 12 and 48 hours of final membrane application, solvent wipe the membrane surface using isopropanol. Allow to dry, then apply a coat of SILCOR 575 LB membrane at a rate of 0.4 kg/ m² (0.3 L/m²). Broadcast the freshly applied membrane with clean, kiln dried, sharp quartz sand of 0.6 to 1.2mm diameter to 120% coverage (to refusal). Allow membrane to cure at least 24 hours and remove excess loose sand by vacuuming. Membrane must not be visible through the sand cover.
2. Between 12 and 48 hours after final membrane application, solvent wipe the membrane surface using isopropanol. Allow to dry, then apply SILCOR Primer BW Clear/EPOCOTE F100W Clear at a rate of 0.3 kg/m². Broadcast the freshly applied SILCOR Primer BW Clear/EPOCOTE F100W Clear with clean, kiln dried, sharp quartz sand of 0.6 to 1.2mm diameter to 120% coverage. Allow SILCOR Primer BW Clear/EPOCOTE F100W Clear to cure at least 12 hours and remove excess loose sand by vacuuming.

Tiles may be applied using high quality polymer modified cementitious tile adhesives. Screeds and toppings should be polymer modified, or have a minimum 25 MPa compressive strength, to resist break-up in use.

Unbonded Screed or Topping Slab

Install PROTECTOBOARD™ or a double layer of minimum 250 micron builder's plastic over the cured membrane as a slip sheet, prior to installation of screed or topping slab. Ensure all protection sheet laps are taped to seal.

Backfill

Install PROTECTOBOARD or RAPID-DRAIN to membrane as protection and/or drainage prior to backfilling with graded fill or filling of planters with soil. Where non-graded fill is to be used, install PROTECTOBOARD HS or high compressive strength drainage cell as protection.

Landscaping

Install PROTECTOBOARD, RAPID-DRAIN, heavy duty drainage cell or heavy duty needle punched geotextile (minimum 500gsm) over the cured membrane as protection and/or drainage prior to soil loading.

Pavers

Install pavers on adjustable jack stands positioned directly on the membrane surface. Where gaps between pavers will be present, protect the membrane from direct and indirect UV exposure by applying SILCOR Top Coat 75 or heavy duty (minimum 500gsm) geotextile prior to jack and paver installation.

Insulation and Ballast

Install foam sheet insulation over RAPID-DRAIN to ensure free drainage to falls. Cover insulation with geofabric prior to loading of pebble ballast.

Top Coat to Exposed Non-Traffic Areas

Protect all exposed membrane (turn-ups, planter boxes above soil level etc) by application of SILCOR Top Coat 75 within 72 hours of membrane application. Apply at a minimum rate of 0.3 kg/m² in two coats to give a minimum DFT of 150 micron.

Supply and Packaging

PRODUCT	PACKAGE SIZE
SILCOR 560 HB LVOC	22 kg pail
SILCOR Primer BS	17 kg drum (17.9 L)
SILCOR Primer BW Clear/EPOCOTE F100W Clear – Resin	10 L pail
SILCOR Primer BW Clear/EPOCOTE F100W Clear – Hardener	10 L pail
SILCOR Primer BW Grey/EPOCOTE F100W Grey – Resin	10 L pail
SILCOR Primer BW Grey/EPOCOTE F100W Grey – Hardener	10 L pail
SILCOR LM PU Sealant	600 ml sausage
Reinforcing PE Fabric	100/150/300mm x 50m roll
SILCOR Top Coat 75– Resin	15 kg drum (13.2 L)
SILCOR Top Coat 75 – Hardener	3 kg can (3.0 L)
PROTECTOBOARD	1830 x 1220 x 3mm
PROTECTOBOARD HS	1830 x 1220 x 4mm
RAPID-DRAIN	15240 x 1220 x 10mm

Estimating

Application rates below are typical values for various applications. Required application rates for specific projects may be higher (or lower) than shown, dependent on structural design, area of application, project specification and product warranty period required.
Please contact your local GCP representative or the GCP Technical Department for information specific to your project estimating requirements.

APPLICATION AREA	MINIMUM APPLICATION RATE
External Above Ground	1.5mm DFT 1.75mm WFT; 2.55kg/m²; 1.75 L/m²
External Below Ground	1.5mm DFT 1.75mm WFT; 2.55kg/m²; 1.75 L/m²
Internal Wet Area Floors	1.5mm DFT 1.75mm WFT; 2.55kg/m²; 1.75 L/m²
Internal Wet Area Walls	Generally not used
Water Tanks (Internal Lining)	1.5mm DFT 1.75mm WFT; 2.55kg/m²; 1.75 L/m²

Storage

Product should be stored in original packaging at temperatures between 15° and 25°C, under cover and protected from all sources of heat, ignition, moisture, frost and direct sunlight.

Shelf Life

Nine (9) months from date of manufacture when stored in original, unopened packaging, in accordance with storage conditions detailed above. Once opened, product may solidify within days.

PROPERTY	TYPICAL VALUE
Liquid Membrane Properties	
Membrane Chemistry	High solids polyurethane
Appearance	Grey viscous liquid
Specific Gravity[1] (g/ml)	1.48 ±0.03
Viscosity[1] (mPa.s) Brookfield (LV spindle 4/6 rpm)	60,000 ±10,000
Solids Content (%w/w)	91 ±3
Tack Free Time[1] (hours)	4
Gel Time[1] (hours)	6
Min. Recoat Time[1] (hours)	12
Max. Recoat Time[1] (hours)	48
Min. Cure Time[1] – Ready for flood testing, topping, backfilling (hours)	48
Fully Cured Membrane Properties	

Shore A Hardness (°A)	55 ±5
Tensile Strength (MPa)	> 2.0
Elongation (%)	> 550
Tear Strength (N/mm)	> 13.0
Adhesion to Primed Concrete (MPa)	> 1.5
Cyclic Crack Bridging	Pass – Class III
Root Resistance	Resistant to nonaggressive root systems
Bio Resistance	Resistant to microbial degradation

1 – Tested at 25°C / 60% RH. Values may vary dependent on temperature and/or humidity at time of use
The above values and properties do not constitute a specification.

Health and Safety

Read and understand the product label and Safety Data Sheet (SDS) for each system component. 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.
SILCOR 560 HB LVOC is slippery when uncured. Avoid walking on applied or spilt product.

Limitations

SILCOR 560 HB LVOC is unsuitable for trafficable applications – foot or vehicle.
Unsuitable for exposed applications, is not UV stable and must be protected from direct or indirect UV exposure within 14 days of application.
Minimum applied thickness required is dependent on intended areas of application and warranty period desired. Consult your GCP sales representative or the GCP Technical Department for further information.
Cure rate is affected by temperature and humidity.
High temperatures and/or high humidity will cause rapid surface skinning and cure.
Low temperatures and/or low humidity will significantly extend cure time. Humidity below 25% RH can prevent product cure. Information contained in this document does not cover all possible application scenarios or imply product suitability for an application.

Please contact your local GCP representative or the GCP Technical Department for further information.

Warranties

GCP and contractors recognised by GCP as experienced in the application of GCP products will provide warranties for individual projects. Warranty periods offered are dependent on project details and complexity. Requests for very long warranty periods may necessitate increased membrane thicknesses to ensure longevity.

Contact your local GCP representative for further details.

GCP Applied Technologies Inc., 2325 Lakeview Parkway, Alpharetta, GA 30009, USA

GCP Australia Pty. Ltd., 14 Colebard Street West, Archerfield, Brisbane, Queensland 4108, Australia

Last Updated: 2023-07-06
gcpat.com.au/solutions/products/silcor-liquid-waterproofing/silcor-560-hb-lvoc