SILCOR® 140 FB

Class III, water-based polyurethane waterproofing membrane for internal and external wet areas

Product Description

A one-part, liquid applied, fibre reinforced, water-based polyurethane modified acrylic waterproofing membrane. SILCOR® 140 FB is a "Class III – High Extensibility" membrane for use in internal and external applications. Formulated with low odour and low VOC, for simple application to horizontal or vertical substrates. The product forms a flexible membrane compatible with quality screeds, topping slabs and ceramic tile adhesive overlays.

Product Uses

SILCOR 140 FB is intended for installation as a Class III Internal Wet Area membrane or Class III External Above Ground membrane in non-exposed or UV exposed (occasional light maintenance foot traffic only) applications. Typical applications include internal wet area walls, floors under or over screeds, or under tile adhesives and vinyl floor / wall surfacing in:

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

and to external, above ground, UV exposed and non-exposed areas, such as:

- Balconies, roof tops and decks (under pods & pavers, screed & bedded pavers or screed & tiles)
- Balconies, roof tops and decks (UV exposed with occasional light maintenance foot traffic only)

Advantages & Features

- Certified Class III – compliant with AS/NZS 4858-2004 for use as internal wet area waterproofing installed to AS 3740-2021 requirements
- Certified Class III – compliant to AS 4654.1-2012 for use in external, UV exposed or non-exposed waterproofing, installed to AS 4654.2-2012 requirements
- Compatible with high quality, polymer modified screeds and tile adhesives
- Will not re-emulsify when allowed to cure fully
- UV resistant. Colour may change slightly over time with long term UV exposure
- 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
- Very low VOC – 30 g/L - Low odour, isocyanate and solvent free – reduced EH&S issues on site

- Accommodates typical structural movements encountered in well-designed construction
- Integral fibre reinforcing for increased strength
- Free from bitumen or tar – will not bleed or stain

Product Properties

PROPERTY	TYPICAL VALUE	TEST METHOD
Liquid Membrane Properties		
Membrane Chemistry	Water based, polyurethane modified acrylic	
Appearance	Grey viscous liquid	
Specific Gravity[1] (g/ml)	1.26	
Solids Content (%w/w)	62	
VOC (g/L)	30	ASTM D3960
Min. Recoat Time[1] (hours)	12	
Max. Recoat Time[1] (hours)	No maximum, provided previous coat is clean and dry	
Min. Through Cure Time[1] (hours)	24	
Min. Cure Time[1] Ready for flood testing or tiling (hours)	48	
Fully Cured Membrane Properties		
Shore A Hardness (°A)	> 75	ASTM D2240
Tensile Strength (MPa)	> 5.0 / >3.0	AS 4858 / AS 4654.1
Elongation (%)	> 400 / > 300	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)	3.2 / 2.2	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
Resistance to UV	Pass	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.
- Where used on external areas under pavers on pods or timber decking, top coat protection of the membrane is not required.

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.

Packaging

SILCOR® 140 FB is supplied in 15L pail.

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 twelve (12) 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
- Only for non-trafficable or occasional light maintenance foot traffic use. Not suitable as a foot or vehicle trafficable membrane
- Not to be installed as a negative pressure membrane
- Not to be installed to damp, wet or contaminated substrates
- Must not be applied if it is raining or rain is imminent

- Cure rate, drying time, recoat time etc are affected by temperature, humidity and air circulation:
  - High temperatures and/or low humidity and/or good air flow will accelerate surface skinning and cure time
  - Low temperatures and/or high humidity and/or poor air flow will extend cure time
- Information in this document does not cover all possible application scenarios 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® 140 FB	1-part polyurethane modified acrylic waterproofing membrane	15 L 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® Primer WA	1-part, water-based acrylic primer for dry concrete and masonry	15 L pail
SILCOR® Primer SA	1-part, water-based acrylic primer for non-porous substrates such as many metals, PVC and ABS plastics	15 L pail
NEWFLEX® Primer S	1-part, solvent based penetrating acrylic primer for CCS (Scyon Secura etc), dry concrete, masonry, CFC sheet and water-resistant plasterboard, PVC and ABS	20 kg pail
SILCOR® LM PU Sealant	1-part, low modulus polyurethane sealant for detailing	600 ml foil sausage

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)	MAXIMUM TOTAL APPLICATION RATE (KG/M²)	MAXIMUM TOTAL APPLICATION RATE (M²/LITRE)	NUMBER OF COATS	MINIMUM DFT PER COAT (MM)	MINIMUM WFT PER COAT (MM)	APPLICATION RATE PER COAT (KG/M²)	APPLICATION RATE PER COAT (M²/LITRE)	MAXIMUM COVERAGE PER PAIL (M²)
External Above Ground Areas – AS 4654.1									

1.05	1.70	2.14	0.59	2	0.53	0.85	1.07	1.18	8.8
1.10	1.77	2.24	0.56	2	0.55	0.88	1.12	1.13	8.4
1.50	2.42	3.05	0.41	3	0.50	0.81	1.02	1.24	6.2
Internal Wet Areas – AS 4858									
0.75	1.21	1.52	0.83	2	0.38	0.61	0.76	1.65	12.4
0.80	1.30	1.63	0.78	2	0.40	0.65	0.81	1.55	11.6
1.20	1.94	2.44	0.52	3	0.40	0.65	0.81	1.55	7.7
Note – The above values do not include wastage.									

Suitable Substrates

SILCOR 140 FB 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 defects

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 or neutral cure low modulus silicone 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 140 FB 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
- All installed and cured polyurethane sealants must be overcoated with EPOCOTE F100W Clear prior to membrane application

Primer Selection – Below 5.0% Moisture Content

- Prime substrates using EPOCOTE™ F100W Clear, SILCOR® Primer WA, NEWFLEX™ Primer S or SILCOR® Primer SA
- For highest performance on concrete, masonry or CFC sheet and long warranty requirements, use only EPOCOTE F100W Clear
- For lower cost and short warranty requirements, SILCOR Primer WA may be used
- For greatest penetration and adhesion to CCS flooring substrates (Scyon Secura, CSR Cemintel etc), NEWFLEX Primer S is recommended
- For metals, PVC, ABS and other non-porous substrates, use EPOCOTE F100W Clear or SILCOR Primer SA
- 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

Primer Selection – 5.0% to 6.9% Moisture Content

- Prime prepared 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	+10°C to +35°C (temperature stable or falling)
Ambient Temperature	+10°C to +35°C
Relative Humidity	20% to 85%
Dew Point	Minimum 3°C below substrate temperature
Condition	Clean, dry and free from condensation, contaminants, debris etc.

Application Equipment

Apply in two 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 140 FB 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.

Reinforcing

Full reinforcing of SILCOR 140 FB 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, 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.

Application of Continuous Membrane

- Within the recoat window of the primer used, apply SILCOR 140 FB 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, to accelerate water evaporation from the membrane, 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 3740-2021 (Internal Wet Areas) 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	1.5	2	N/A	18
30	2	3	N/A	24

23	3	10	N/A	48
15	6	16	N/A	55
10	10	22	N/A	72

Note – Above times may be extended if air flow in the application area is poor and / or RH (Relative Humidity) is greater than 70%

Clean-up

Clean equipment immediately using clean water. Cured product must be removed mechanically.

Protection and Surfacing

SILCOR 140 FB must be permanently protected from damage, abuse, and all traffic except occasional maintenance foot traffic.

Direct Stick Pavers, Tiles, Bonded Screed or Bonded Topping Slab

- SILCOR 140 FB is compatible with most high quality, polymer modified cementitious screeds, beds or toppings and polymer modified cementitious tile adhesives, which may be directly installed to the cured membrane.
- All screeds, beds, toppings, and tile adhesives used must be approved by the manufacturer as fit for purpose in the area concerned.

Semi-Exposed Membrane Under Pavers on Pods or Timber Decking

- Pods / jacks used should have a flat base with minimum footprint size of 150mm diameter to prevent point load damage to membrane.
- Where membrane will be covered by pavers on adjustable supports (pods) or by timber decking on framework, no top coat protection of the membrane is required.

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 will provide to the purchaser a product warranty for qualified individual projects on request.
- Contractors recognised by GCP as trained and experienced in the application of GCP products will provide installation warranties for equivalent time periods.
- GCP Product Warranty periods offered and minimum applied DFT required for that warranty period are dependent on project details and complexity. Contact your local GCP representative for specific requirements and a GCP Specification, before commencing waterproofing installation on your project.

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gcpat.com.au/solutions/products/silcor-liquid-waterproofing/silcor-140-fb