

**HYCRETE POLYURETHANE CEMENT
SMOOTH & NON-SLIP FLOORS**

GENERAL SPECIFICATION

PRODUCT DESCRIPTION:	High performance smooth & non-slip floors.
AREAS OF USE:	Food and Beverage Kitchens Bakeries Commercial floors
ENVIRONMENT:	Smooth: dry areas with powders. Non-slip: wet floors with fats & oils and CIP cleaning products.
SUBSTRATE:	Previously coated and new concrete floors.

<p>SURFACE PREPARATION: For new concrete floors, the recommended surface preparation is vacuum shotblasting, diamond grinding or captive shotblasting.</p> <p>For existing coated floors, remove the existing coating system by diamond grinding or shot blasting. The surface preparation is to remove the contaminated, aged, existing coating to provide a clean profiled, physically sound substrate. It may be necessary to demolish part of the concrete floor and reinstate prior to application of flooring system.</p> <p>Concrete must be prepared to at least CSP3. All concrete saw-cuts and expansion joints must be re-cut with diamond or masonry disc in order to clean them out of contaminants, dirt, etc. and to provide properly prepared joint surface and edges. The preparation of the joints must be done before coating commences. (During application of the floor topping system, the concrete saw-cuts and expansion joints are protected and upon completion of the floor topping system, re-cut and sealed).</p> <p>Cut anchoring grooves at a minimum of 10mm wide and 10mm deep just inside the perimeter (eg 50-70mm) of the area to be topped as well as around drains and at the base of floor to wall coves.</p> <p>For all terminating flooring edges, install double anchor grooves. Cut the termination groove (10mm wide and 10mm deep) 50-70mm from where the floor finishes and then break out a keyway transitioning up to 16-21mm deep and 35-40mm in length.</p> <p>Terminate any coving typically 75mm from the wall. Epoxy coves terminate on top of the floor but Hycrete PU coves must be terminated using a termination groove into the floor.</p> <p>Double diamond blade saw cuts 6mm x 6mm must be placed over the entire floor at maximum distance of 4 metre intervals. This will lock in the flooring system to the floor, around penetrations and the expected terminations of the topping.</p> <p>All cracks must be addressed. Static cracks: must be saw cut to a depth of 5-6mm wide and 5-6mm deep and filled with Floorscreed epoxy prior to the surface grinding/shotblasting. Reinforce the crack with 100-150mm wide 450gm fibreglass tape with epoxy. Moving cracks: isolate any moving cracks or open control joints from the Hycrete floor installation and address after installation of the Hycrete flooring system. (Clean out joint with grinder. Insert backing rod to concrete depth and install nails (markers) at either end of the joint. After laying the floor, recut the joint and then treat with backing rod and sealant.)</p> <p>All expansion and control joints must be reflected through the Hycrete system. Treat and fill the expansion joints by inserting a closed cell PE backing rod and filling with a high modulus, chemically resistant sealant. Hyflex NS is suitable for use in joints with an expected movement of maximum +/-5%.</p> <p>Vacuum thoroughly to remove dust. Ensure the surfaces are clean and dry and free from contamination and preparation debris.</p>
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The applicator must ensure floor flatness is achieved and adequate falls to drains set prior to the installation of the Hycrete system. See the maximum fall permitted in each Hycrete system below:

- Hycrete Thermoshield cannot be laid to falls exceeding 1:50;
- Hycrete Universal cannot be laid to falls exceeding 1:75;
- Hycrete Roll Coats cannot be laid to falls exceeding 1:20.

The substrate must have a moisture content below 8%.

The substrate must have a surface tensile strength of a minimum of 1.5mPa. This can be checked using a destructive pull off test.

The substrate must be hard, free from laitance, a minimum of 7 days old and have a compressive strength of a minimum of 25mPa. This can be checked using the mohs hardness test kit to ensure a result above 6. Results below 6 will need consultation from Polymer Group before proceeding.

Floorscreed Epoxy Coving:

APPLICATION SPECIFICATION:										
	Product	Film Thickness (µm)				Recoat times @ 20°C			Thinners	Application Method
		Theoretical Coverage (m ² /kit)	Wet Film Thickness (nominal)	Dry Film Thickness	Mix Ratio by Volume	Minimum (hours)	Maximum (hours)			
1	Endurabond FloorScreed Coving Trowelled Base - 2 component kit plus aggregates				Complete kits	N/A	8-10	N/A	Coving tool	

Coving should be applied to all floor and wall junctions to ensure a seamless and impervious flooring solution.

Floors subject to high thermal stress or large radius coves above 100mm should use Hycrete VC as the coving mortar.

Hycrete Universal Smooth 4mm (Self levelling 4mm topping)

APPLICATION SPECIFICATION:										
	Product	Film Thickness (µm)				Recoat times @ 20°C			Thinners	Application Method
		Theoretical Coverage (m ² /kit)	Wet Film Thickness (nominal)	Dry Film Thickness	Mix Ratio by Volume	Minimum (hours)	Maximum (hours)			
1	Hycrete PU-TC Priming Optional Base topping - 3 component kit	3.25	0.7mm	0.7mm	Complete kits	½	12	N/A	Trowel & roller	
2	Hycrete PU-SL(m) Base topping - 3 component kit	2.8	3.7 mm	3.7 mm	Complete kits	12	24	N/A	Pin rake or notched trowel & spike roller	
3	Hycrete PU-TC Seal topcoat - 3 component kit *UV stable topcoat available	12**	200	200	Complete kits	1	12	N/A	Brush & roller	

Nominal Thickness: 4mm

Apply the mixed product over the prepared surface using either pin rake or notched trowel set at the correct thickness (3-4mm). The topping is then rolled with a spiked roller to remove entrained and entrapped air.

Hycrete Universal 6mm (Anti-slip 6mm topping)

APPLICATION SPECIFICATION:										
	Product	Film Thickness (µm)				Recoat times @ 20°C			Thinners	Application Method
		Theoretical Coverage (m ² /kit)	Wet Film Thickness (nominal)	Dry Film Thickness	Mix Ratio by Volume	Minimum (hours)	Maximum (hours)			
1	Hycrete PU-TC Priming Optional Base topping - 3 component kit	3.25	0.7mm	0.7mm	Complete kits	½	12	N/A	Trowel & roller	
2	Hycrete PU-SL(m) Base topping - 3 component kit	2.6	4 mm	4 mm	Complete kits	12	24	N/A	Pin rake or notched trowel & spike roller	
3	Broadcast Aggregate Q1 20kg bag per Hycrete PU-SL kit	4Kg/m ²	N/A	N/A	N/A	N/A	N/A	N/A	Blower and/or by hand broadcast	
4	Hycrete PU-TC Seal topcoat - 3 component kit *UV stable topcoat available	3.25**	700	700	Complete kits	1	12	N/A	Brush & roller	

Nominal Thickness: 6mm

Where a 6 mm anti-slip topping is required, it is necessary to broadcast the applied 4 mm Self levelling topping with the chosen aggregate to a beach finish and allowed to cure. Once cured the excess aggregate is swept and vacuumed away. The surface is now ready for sealing with Hycrete PU-TC(m). The non-slip texture of the system will be determined by the size of the aggregate used.

Hycrete Thermo Shield 9mm (High temperature resistance anti-slip 9mm topping)

APPLICATION SPECIFICATION:			Film Thickness (µm)			Recoat times @ 20°C			Thinners	Application Method
	Product	Theoretical Coverage (m ² /kit)	Wet Film Thickness (nominal)	Dry Film Thickness	Mix Ratio by Volume	Minimum (hours)	Maximum (hours)			
1	Hycrete PU-TC Priming Optional Base topping - 3 component kit	3.25	0.7mm	0.7mm	Complete kits	½	12	N/A	Trowel & roller	
2	Hycrete PU-SL(m) Base topping - 3 component kit	1.2	7 mm	7 mm	Complete kits	12	24	N/A	Pin rake or notched trowel & spike roller	
3	Broadcast Aggregate Q1 20kg bag per Hycrete PU-SL kit	4Kg/m ²	N/A	N/A	N/A	N/A	N/A	N/A	Blower and/or by hand broadcast	
4	Hycrete PU-TC Seal topcoat - 3 component kit *UV stable topcoat available	3.25**	700	700	Complete kits	1	12	N/A	Brush & roller	

Nominal Thickness: 9mm

Apply the Hycrete PU-SL(m) broadcast system in one to two layers to achieve a final film thickness of 9 mm using the Hycrete PU-TC(m) as a final seal coat.

Hycrete Thermo Shield 12mm (Extreme temperature resistance anti-slip 12mm topping)

APPLICATION SPECIFICATION:			Film Thickness (µm)			Recoat times @ 20°C			Thinners	Application Method
	Product	Theoretical Coverage (m ² /kit)	Wet Film Thickness (nominal)	Dry Film Thickness	Mix Ratio by Volume	Minimum (hours)	Maximum (hours)			
1	Hycrete PU-TC Priming Optional Base topping - 3 component kit	3.25	0.7mm	0.7mm	Complete kits	½	12	N/A	Trowel & roller	
2	Hycrete PU-SL(m) Base topping - 3 component kit	0.85	10 mm	10 mm	Complete kits	12	24	N/A	Pin rake or notched trowel & spike roller	
3	Broadcast Aggregate Q1 20kg bag per Hycrete PU-SL kit	4Kg/m ²	N/A	N/A	N/A	N/A	N/A	N/A	Blower and/or by hand broadcast	
4	Hycrete PU-TC Seal topcoat - 3 component kit *UV stable topcoat available	3.25**	700	700	Complete kits	1	12	N/A	Brush & roller	

Nominal Thickness: 12mm

Apply the Hycrete PU-SL(m) broadcast system in two layers to achieve a final film thickness of 9 mm using the Hycrete PU-TC(m) as a final seal coat.

* Hycrete PU-TC(m) topcoat is an industrial flooring finish which may discolour on exposure to UV light from the sun or an artificial source. Any such discolouration has no effect on the performance of the topcoat. Hycrete PU Solar UV stable topcoat is available when required.

** Please see under NOTES Hycrete Top Coat coverage rates over smooth, small and large aggregates.

APPLICATION INSTRUCTIONS:

Before starting the application of Hycrete, ensure the material temperature is within 5°C to the site ambient temperature. Do not apply in ambient or substrate temperatures above 30°C or below 0°C. If applying in temperatures below 0°C, consult Polymer Group to discuss AC15, AC20 or AC25 accelerator options.

During application and curing of the Hycrete the relative humidity should not exceed 75%. Adequate fresh air ventilation must be provided to remove the excess moisture from the curing product.

The substrate and uncured floor must be at least 3°C above dew point to reduce the risk of condensation or blooming on the floor finish.

Priming (PU Cement):

Porous concrete may require priming to prevent outgassing from the concrete and to prevent resins from being absorbed prematurely by substrate, if unsure then onsite tests must be carried out. Apply a scratch coat of Hycrete PU-TC to the prepared surface. (A primer coat is also required if laying a smooth, self-level floor finish).

Install Coving (Epoxy based):

Prime the area to be covered with the FloorScreed/Thickening agent mix – refer to FloorScreed TDS. Mix FloorScreed resin and hardener in a barrel, concrete or screed & mortar mixer and then add the recommended FloorScreed aggregate mix including any colour pack to the mixer and continue mixing.

APPLICATION INSTRUCTIONS continued:

Install using a coving trowel. When the epoxy coving has cured, run a grinding disc (C Crop disc) over the coving surface to remove any nibs etc in preparation for eventual top coating.

Install the Polyurethane Cement Floor:

Mix complete Hycrete PU-SL(m) kits (3 components plus colour pack) and pour out onto the floor, move around using a notched trowel, or gauge rake to achieve the correct spread rate per kit. Immediately spike roll to release any trapped air. Broadcast the chosen aggregate to excess into the wet basecoat to achieve an even finish. Next day remove the excess aggregate.

Broadcast window for Hycrete SL-PU(m):
(from start of mixing)

Temperature	Time (up to)
27°C - 32°C	20 minutes
21°C - 27°C	30 minutes
15°C - 20°C	40 minutes

Catalyst Addition Rates:

Catalyst Addition by weight	Temperature	Pot Life
0	25°C	23 minutes
30-40mL		13 minutes

Broadcast too early and the surface may become uneven. Broadcast too late and the aggregate may not penetrate into the matrix surface. Remove excess aggregate next day by brush.

Aggregates

The hardness of the broadcasting aggregate will impact on the durability and lifespan of the applied flooring system. The harder the aggregate, the better the long-term performance. The following list shows a comparative hardness of some commonly available aggregates.

Quartz	Sand Hard
Bauxite	Harder
Aluminium Oxide	Hardest

For heavy duty environments where exposure to regular hard wheeled traffic or constant mechanical abrasion is common, Polymer Group Ltd strongly recommend consideration be given to choosing either Bauxite or Aluminium Oxide as the broadcasting aggregate.

Different aggregates sizes can be used to produce different slip test results. See below table to help with slip resistance selection:

Slip resistance	Bauxite	Alumina Oxide	Quartz Silica
R9 / smooth			
R10	80#	80#	50n
R11	60#	60#	30/60
R12	16/30#	30#	18/40
R13	8/16#	20#	16/30

This slip resistance can be affected by the thickness and applied coverage rates of the top coats.

Apply Topcoat (PU Cement):

Mix complete Hycrete PU-TC (3 component plus colour pack) kits and apply by squeegee and back roll over the floor to achieve the required coverage rate.

Hycrete Top Coat application rates:

Kg/sqm	Coverage Rate
Over smooth substrate	12m ² per kit (0.27kg/sqm)
<0.8mm size aggregate	3.8m ² per kit (0.85kg/sqm)
>0.8mm size aggregate	3.2m ² per kit (1.0kg/sqm)

NOTES:

Refer to the Hychem specification & installation guide.

- Individual liquid components must be pre-mixed (shaken) prior to power-stir mixing to obtain a homogenous consistency.
- Recommended mixing process is add the pigment pack to the component A and then low speed mix prior to the addition of the component B. Add the component B and mix until uniform typically 30 seconds. Gradually add the component C powder and mix until uniform typically two minutes. Upon completion of mixing immediately pour out of the mixing vessel and spread onto the floor area (reducing exotherm build up and prolonging working time).
Note that for Hycrete Thermo Shield system, 16kg aggregate is added to the Hycrete PU-SL(m) base mix.
- Do not “hand-stir”. Recommended application equipment includes Collomatic XM2 650 mixer or similar and slow speed (350RPM) mixer with cork screw paddle or similar.
- Typical working times @ 20°C:
 - Hycrete PU-SL(m) base topping up to 23 minutes;
 - Hycrete PU-TC(m) topcoat up to 23 minutes.
- Prime all areas to receive cove mix prior to installing screeded coving.
- Use appropriate equipment to apply the Hycrete PU-SL(m) slurry over the floor to the specified spread rate. Hycrete PU-SL(m) is applied by “Pin Rake” or ½” V-notched trowel or cam rake or “trowel method”, and is typically applied at a thickness of 4.00mm. With broadcast aggregate and topcoat, Hycrete PU-SL(m) system has a finished nominal system thickness of 6mm.
- Spike roll to release any air from the wet topping
- Broadcast the chosen aggregate to excess into the Hycrete PU-SL(m) slurry after laying and spike rolling. Broadcast aggregate up allowing the aggregate to fall into the base topping. Continue broadcasting aggregate until there are no wet areas of base coat visible. *Note: Omit aggregate broadcast if laying a smooth, self-level floor finish.* Applicator must maintain a wet edge throughout application.
- Next day sweep up any excess aggregate and apply the Hycrete PU-TC(m) topcoat at the specified spread rate by squeegee and roller.
- Polymer Group strongly recommends a representative sample is provided and signed off on by all stakeholders and the client. This is critical to ensure all parties understand and agree on the slip resistance, the finish that will be provided and cleaning regime.
- When the floor area being applied in one day is too large to complete in a day, a “day joint” (the day’s finished edge) anchor groove should be applied to terminate to or a control joint must be created.
- All cold rooms and freezers should be isolated from all surrounding floors with an expansion joint.
- There is a 24 hour recoat window between all products to ensure a chemical bond. Exceeding this window will require a light grind to achieve a minimum CSP2 mechanical bond between layers. If a layer with exposed aggregate is left for beyond 24 hours, a sufficient mechanical bond remains, which means a grind may not be necessary **if the aggregate remains clean and dry.**
- Some concrete substrates may require priming with Hycrete PU-TC prior to application of the Hycrete PU-SL(m) base coat
 - 7-28 day old concrete (to prevent outgassing from the substrate);
 - When wanting to obtain a smooth finish with little or no broadcast aggregate (to break any air bubbles from outgassing from the substrate).
- Mixing in lower temperatures will increase the product viscosity and “thicken” the product making mixing more difficult. Mixing in higher temperatures will reduce the product viscosity making the mixing feel “thinner” however the exothermic reaction and curing time will be quicker.
- Exposure to ultraviolet light will change the colour of Hycrete PU-TC(m). Sunlight and metal halide lighting will cause yellowing without affecting the performance. As an alternative, use Hycrete PU-TC Solar2.
- Many acids will cause a bleaching of pigment without affecting performance of floor system.
- Wear gloves, eye protection masks and overalls during mixing and application.
- Material Safety Data Sheets are available on request.
- **Applicator must supply quality assurance on the PGL supplied QA document where a product warranty is required.**
- Do not proceed with application when surface temperature is less than 0°C or above 30°C; if less than 3°C above dew point; when the relative humidity of the atmosphere exceeds 75%; or when such conditions are expected within 4 hours of completion of the work.
- Apply products as soon as possible after the preparation and before any contamination of the surface occurs.
- Practical coverage of products is project dependent.

This specification must be read in conjunction with the relevant technical data sheets.

Epoxy Coving Materials Required:

Primer:	Endurabond Floorscreed Resin + Hardener + Thickening Agent
Coving:	Endurabond Floorscreed Resin + Hardener plus aggregates

Hycrete Materials Required:

Primer: <i>(if required)</i>	Hycrete PU-TC Resin + Hardener + Cement Component + Pigment
Base Coat	Hycrete PU-SL(m)
Topping:	Resin + Hardener + Cement Component + Pigment
Aggregate:	Optional broadcast aggregate Quartz Sand, Bauxite or Aluminium Oxide
Topcoat:	Hycrete PU-TC Resin + Hardener + Cement Component + Pigment

QUALITY ASSURANCE

All quality assurance during the project must be recorded on document Doc164 including but not limited to:

- Client & project details
- Surface preparation
- Substrate & environmental testing
- Lineal metres of cracks
- Product & batch numbers
- Amount of product required, used and purchased

WARRANTY

Depending on the use, the choice of the Hycrete system installation below will influence the expected floor coating service life.

- Hycrete Universal Smooth;
- Hycrete Universal;
- Hycrete Thermo Shield.

When the substrate is correctly prepared and products are installed as per the supplier's instructions (refer to technical documents), the Hycrete Universal and Hycrete Thermo Shield systems will perform and provide a suitable working service life of at least 10 years. Damage to the Hycrete floor must be repaired immediately to maintain any Warranty. Correct and regular cleaning of the floors will maximise the service life. Hycrete Universal Smooth, having little or no added aggregate will have a reduced service life.

Warranty does not cover cracks reflecting through when floor toppings are laid over floor cracks.
Warranty does not cover moving joints. Typically moving joints last 1-4 years. Repairs to be made as programmed maintenance.
Warranty does not cover chemical staining.

Please refer to the Applicator warranty. The Applicator guarantees and is responsible for surface preparation, application of products and environmental application conditions. Polymer Group Ltd & Hychem Pty Ltd guarantee that the products are fit for purpose but are responsible for surface preparation, application of products and environmental application conditions.

Consult your Polymer Group representative to request a draft warranty.

ADDITIONAL DOCUMENTATION:

- Product technical data sheets
- Product safety data sheets
- Product application bulletins
- Product drawings
- Product colour chart
- Surface preparation bulletin
- Cleaning recommendations

REPRESENTATIVE:	Philip Back Polyurethanes Product Manager
REVIEWED:	Andrew Taylor General Manager

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