Dulux PROTECTIVE COATINGS

Elastomeric Polyurethane Hybrid Lining

Flexituff® PU-2 Application Guide

Protection you can count on.

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1.0 Introduction

Dulux® Flexituff® PU-2 is a spray-applied, 100% solids, flexible, two-component, 2:1 polyurethane hybrid system, designed to provide a seamless waterproof lining via a plural component equipment. It is ideal for application to steel or concrete in water and wastewater treatment, secondary containment, and tank linings.

Before starting work, read this guide carefully as it contains basic information necessary for the proper application of Flexituff® PU-2. This guide is to be read in conjunction with the Technical Data Sheet as well as project specifications. Inconsistencies must be resolved before starting work. Contact Dulux® Protective Coatings for more information.

1.1 What is Dulux® Flexituff® PU-2

Flexituff® PU-2 is a two-component hybrid polyurethane elastomer.

- Part A – 1 part isocyanate
- Part B – 2 parts polyol

The product is applied via plural component equipment as described within the equipment recommendations stated below.

The aim of this guide is to provide relevant information to the applicator of Dulux® Flexituff® PU-2 to ensure that the completed project is fit for purpose.

Applicators must not deviate from these guidelines without written agreement from Dulux® Protective Coatings.

1.2 Product Quality Assurance

All raw materials are subjected to ISO 9001:2015 registered quality testing systems before being released for manufacture.

1.3 Technical Support

To support our customers in the field we have experienced technical service teams working in conjunction with sales.

Please Note: Dulux® Flexituff® PU-2 is an approved applicator product which training can only be carried out by Dulux® Protective Coatings Technical Services.

2.0 Surface Preparation and Priming

2.1 Steel Surface Preparation

Surface preparation and painting should be carried out in line with best industry practice as indicated in many publications by organisations such as NACE, SSPC, AMPP, ISO, ASTM, AS, etc. The standards of surface preparation contained herein are to be considered minimum requirements. Where other client or project specifications demand a higher level, then the higher level should be adopted. All steel surfaces to be protected by Dulux® Flexituff® PU-2 must be correctly prepared. All steel surfaces must be clean, dry and free from all surface contamination, refer to AS 1627.1 (similar to SSPC - SP1), prior to abrasive blast cleaning per AS 1627.4 to a minimum standard of ISO 8501-1:2007 Sa 2½, (similar to NACE No.2 / SSPC-SP10). When abrasive blasting has been completed, all dust arising must be removed from the cleaned surface by use of a vacuum cleaner, dry, oil, free compressed air or brush. Dulux® Flexituff® PU-2 can be applied directly to blast cleaned steel (where appropriate) with a surface profile of 75 to 100 µm.

2.2 Concrete Surface Preparation

Concrete must be at least 28 days old before coating. Remove all laitance, form release, curing compounds, oil, grease and other surface contaminants. Diamond grind, track blast, light shot-blast or employ other mechanical method recommended within ICRI Guideline No. 310.2R which will provide a suitable profile for intended surface - ICRI CSP 2-3 for secondary containment walls and floors, ICRI CSP 5-6 for primary containment concrete tanks. Remove all dust by vacuum cleaning.

Fill any bugholes, cracks or voids using Luxepoxy® Filler or appropriate Fosroc® Filler/Resurfacer such as Nitomortar AP to create a monolithic surface to coat over. The actual filler(s) will be determined by the specification as set out by Dulux® Protective Coatings.

To minimise the risk of moisture interference, the following qualitative test be performed prior to coating – ASTM D 4263 “Standard Test Method for Indicating Moisture in Concrete by the Plastic Sheet Method” (no visible moisture present). If there is any concern about moisture problems with the concrete slab, or for projects greater than 500m^2, at least one of the following more accurate quantitative test methods should be used - ASTM F 1869 “Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride” (moisture vapor transmission should not exceed 1.4 kilograms or 3 pounds per 93m^2 or 1,000ft^2 in a 24 hour period), ASTM F 2170 “Standard Test Method for Determining Relative Humidity in Concrete using in situ Probes” (as referred to in AS 1884-2012, relative humidity should be less than 75%)

Note: The testing listed above cannot guarantee avoidance of future moisture related problems particularly with existing concrete slabs. This is especially true if the use of an under-slab moisture vapor barrier cannot be confirmed or concrete contamination from oils, chemical spills, unreacted silicates, chlorides or Alkali Silica Reaction (ASR) is suspected.

2.3 Primer

Consult your local Dulux® Protective Coatings Consultant and/or project specification to determine if a primer is required. Primers which have been tested and approve include Durepon® 66, Durebild® STE, and Duremax® GPE.

2.4 Coating over approved primers and/or properly prepared surfaces

Before application of Dulux® Flexituff® PU-2, ensure the primed surfaces to be coated over are dry and free from all traces of surface contaminants, especially grease and soluble salts. Ensure that the overcoating time/temperature intervals are in line with the data sheet of the selected primer.

3.0 Product Storage

The polyol (Part B) has a nominal storage life of 12 months at a recommended storage temperature of 20-25°C. The polyol should be kept properly closed and stored indoors in a well-ventilated area under normal factory conditions. Storage at 20-25°C also provides a convenient viscosity for handling. Storage at low temperatures (below 10°C) is not recommended. Protect this material from frost. Storage temperatures above 30°C are not recommended since they can accelerate the formation of insoluble solids and increase the viscosity of extended storage. Material elevated to a temperature above 30°C will also contribute to lost sag resistance.

Under the recommended storage conditions and in properly sealed containers, the isocyanate (Part A) has a nominal storage life of 12 months. The isocyanate should be kept properly closed and stored indoors in a well-ventilated area under normal factory conditions. Storage at 20-25°C also provides a convenient viscosity for handling. Storage at low temperatures (below 10°C) is not recommended because it may lead to crystallisation; therefore, protect this material from frost. Storage temperatures above 30°C are not recommended since they can accelerate the formation of insoluble solids and increase the viscosity of extended storage.

If either component is opened and partially used, it should be purged with nitrogen to displace moisture.

4.0 Application

4.1 Required Equipment

The proportioning pump shall be capable of delivering a minimum of 4,800 PSI (331 BAR) static material pressure, 4,500 PSI (310 BAR) dynamic pressure. Preferred equipment starting base is a Graco XP-70 plural component pump. Consult Dulux® Protective Coatings Technical Service first for advice on other pieces of equipment or configurations proposed to apply this material.

Modify the Graco XP plural component unit as follows:

DRUM FEED

- 2 x 5:1 feed pumps with regulators and pressure gauges.
- 1 x 1.75 HP agitator with expanding blades for the polyol/resin side.
- 2 x 30 mesh low pressure WYE filters between tanks and pump lowers.
- 2 x ¾ inch ID (19.05mm) fluid lines from the feed pumps to the pump lowers.
- 4 x ½ inch ID (12.7mm) air lines for the feed pumps and agitators.
- Place 30 mesh wye filters inline between the feed pumps and PC pump lowers.

DRUM

- Poly drums to have three openings on the top – one for the drum feed pump, one in the centre for the drum mixer, and one for the desiccant/recirculation kit.
- The isocyanate drum lid will have two openings on the top – one for the drum feed pump and one for the desiccant/recirculation kit.
    - The polyol/resin drum mixer with air regulator inserts into the 2-inch ID (50.8mm) centre bung of the drum. Typical agitation time needed before spraying product is 1 hour. * DO NOT AGITATE the isocyanate/catalyst side *
    - The drum feed pump with air regulator inserts into the 2 inch ID (50.8mm) outside bung of the drum.
    - Desiccant and recirculation kits mount to the ¾ inch ID (19.05mm) outside bung.
    - Consider the use of two (2) drum blanket heaters with thermostats when used in cooler/cold conditions.

- An additional set of drum blanket heaters and drum agitator may be needed for preheating and premixing the next drum set to maintain a desirable rate of production in cooler temperatures.
- Pump Ratio: Dulux® Flexituff® PU-2 has a volume ratio of 1 part Part A isocyanate to 2 parts Part B polyol/resin.
- Primary Heaters (Cool/Cold conditions): Two 4,000-watt fluid heaters with temperature gauges. Use only in cooler conditions as stated further down within these recommendations.
- Solvent Flush Pump: A 30:1 or larger solvent pump with fluid line from the pump to the mix manifold.
- Heated Hose Bundle (Cool/Cold conditions):
    - For up to 30 meters – ¼ inch ID (6.35mm) line for ISO/catalyst, 3/8 inch ID (9.35mm) for polyol/resin X 30 meters in length with (2) ¼ inch ID (6.35mm) recirculation lines from the mix manifold back to the drums.
    - Up to 60 meters – When using more than 30 meters of line, use 3/8 inch (9.35mm) ID heated material hose for the ISO/catalyst and ½ inch ID (12.7mm) heated material hose for the polyol/resin for the first 30 meters. Recirculation lines to be 3/8 inch (9.35mm) ID for lengths longer than 30 meters.
    - Include the following in the heated hose bundle - 1 x 1/4 inch (6.35mm) solvent flush line, and hose heat controller unit with heat trace line and temperature sensor. All is to be wrapped in insulation and covered with an abrasion resistant plastic jacket.

NOTE: Please see "Temperature Requirements" below for when hose heat use is recommended. In many cases the use of heat is not needed to apply the product. The line size & length recommendations within the hose bundle are in effect with or without the use of heat.

- Mix Manifold: Should include valving for material flow, recirculation lines, and solvent flush. Remove any restrictors or filters that may come with the mix manifold. Also remove any filters that may be present on the high-pressure side of the pump.
- Forward of the Mix Manifold: Forward of the mix manifold the static mixers and paint line should be configured in the following order:

2 x 1/4 inch (6.35mm) ID x 12 fold SS static mixers	1 x 15 foot (4.5M) x 1/4 inch (6.35 mm) ID paint line	1 x ¼ inch (6.35mm) ID x 6 fold SS static mixer	1 x 6 foot (2 meter) x ¼ inch ID (6.35mm) whip line	Graco XTR-7 or similar spray gun

NOTE: Having a complete second set of static mixers, material line, whip line and spray gun on hand is recommended to decrease potential downtime on projects.

Spray Tips: The orifice size and fan width will need to be determined based upon material temperature, desired rate of production, and finish desired. Graco HD RAC spray tips at a range of 0.019 – 0.023 inch without diffuser bar should be used for applying this product.

4.2 Application Information

Setting Up to Spray

- For new equipment, individual components should be connected as recommended by the equipment manufacturer and Dulux® Protective Coatings Technical Services. Be sure to lubricate all pumps and follow all the equipment manufacturer's instructions for assembly of equipment.
- Provided used equipment meets Dulux's equipment recommendations and is good working order, there should not be a concern using that equipment. **NOTE:** Do not use equipment where there is a potential of cross contamination between other technologies (such as an epoxy) and a hybrid polyurethane (such as Flexituff® PU-2).

- Check and clean all fluid filters, air traps and filters. Ensure filters are installed on the low-pressure side and removed from the high-pressure side.
- Have a qualified electrician check the electrical system to ensure proper power requirements are satisfied and there is complete continuity in all circuits.
- Identify and mark which side will contain the isocyanate component and which side will contain the polyol. Mark all isocyanate pumps, inlets, outlets, heaters, hose fittings, and gun inlets “A-Side”. Mark all polyol/resin pumps, inlets, outlets, hose fittings, and gun inlets “B side”. Retain this identification and use only as indicated to avoid cross contamination.
- Perform an initial flush of the system with Dulux® CR Reducer, followed by a final purge with Dulux® Urethane Thinner. Ensure that all moisture, oil, grease and debris are removed from filters, hoses, etc.

NOTE: any moisture present in the equipment has the potential to react with the isocyanate causing blockages in valves, filters, hoses and beyond. Perform a pressure check of the system to ensure there are no loose or leaking connection points. Repair any issues found through the test.

Spraying Material

- Once the equipment system is clean and leak free, push all solvent out to waste until a solid flow of Part A and Part B comes out of each recirculation line into individual waste buckets (not inside the equipment tanks). Reinstall recirculation lines back into their individual tanks once this step is complete.
- If recirculation is required to bring material up to temperature, recirculate both sides until the correct temperatures have been reached.
- Once the correct material temperature has been achieved, switch from recirculation mode to spray mode and push out all residual solvent forward of the mix manifold - the integration line, static mixers, and spray gun to a grounded waste container until solid, mixed material is flowing out the spray gun. Once this step has been achieved, install the needed spray tip and increase spray pressure until a proper spray pattern has been achieved.
- Start all spraying off target, moving over the target to avoid spot build up of material on the edges of the spray pattern. Use a 50% overlap to ensure an evenly coated surface. Spray continuously as much as possible and minimise triggering the gun.
- Wherever there is even a small change in pressure, spray pattern, colour or consistency of the material, the applicator should stop coating activity and solvent flush everything forward of the mix manifold the equipment should then be evaluated for the source of the problem and the issue resolved before moving forward. All off-ratio material should be remediated in accordance with Section 5 of this Application Guide.
- Filters and static mixers should be checked periodically for any build-up of material. If build up is found, clean and/or replace to ensure the project is not slowed down.
- If the whip hose is unheated, the material inside the whip will cool down during periods when not spraying and therefore will be below the temperature required to yield a satisfactory spray pattern. Spray into a waste bucket until a satisfactory spray pattern is re-established before spraying on target. The temperature of the material at the gun can be checked using an IR gun pointed at the stream of the material.
- At a minimum, fully flush static mixers, whip lines, spray gun and spray tip every four hours and when completed for the day. Replace and/or disassemble and clean all static mixers as part of the shutdown process for each day. Ideally this is accomplished twice a day if a full day of application occurs.

Overnight Shutdown Procedures/Changeout of Lines Forward of Mix Manifold

- Reduce material pressure and close main air valve to system.
- Engage the spray gun trigger lock, remove the spay tip and soak in solvent.
- Close the material dual shutoff handle.
- Open the solvent flush pump valve and air valve. Slowly turn the solvent pump air regulator clockwise to increase air pressure.
- Disengage the trigger lock and trigger spray gun into grounded pail. It is ideal to use a pail with a pail lid that has a hole in the lid to reduce the possibility of solvent “blowing back” onto the person doing the work.
- Flush out everything forward of the mix manifold through to the spray gun until all material is removed and clean solvent is observed coming out of the spray gun.
- Decrease the pressure on the solvent flush pump air regulator until depressurized and then shut off the fluid valve.
- Breakdown the static mixers, spray gun, and spray tip/spray guard. Clean all items until fully clean of product. Replace static mixers where needed.
- Reassemble all parts back together then flush solvent through all elements forward of the mix manifold to the spray gun until clean solvent is observed. Pressure check the system forward of the mix manifold for leaks and repair as required.
- Depressurize the system for the evening.
- Ensure the equipment is sealed and the material is free of moisture.
- If needed, have the next set of drums for the next day being preconditioned for use and an agitator standing by to begin agitation of the polyol in the morning.

Clean up of Equipment for Long Term Storage

Contact Dulux® Protective Coatings Technical Services for detailed recommendations.

Material Temperature Requirements:

This product has been designed to applied without the need of material heating if the material temperature is 25˚C or higher. Application properties will not be ideal at a material temperature below 25˚C.

At the recommended material temperature range of 25˚C - 30˚C, the following generally holds true. The proportioning pump static pressure will be around 4,800 PSI (331 BAR). The dynamic pressure will be around 4,500 PSI (310 BAR). The material feed pumps pressure range will typically be between 10 to 20 PSI (0.70 to 1.38 BAR).

NOTE: Sag resistance capability will be dependent in large part on the temperature of the material. The warmer the material, the lower the viscosity, the lower the sag resistance.

Conversely, the cooler the material, the higher the viscosity, the higher the potential sag resistance.

- Flexituff® PU-2 sprayed at a material temperature of 28˚C can build up to 3mm or 3,000µm in one coat. Material sprayed at 44˚C can build up to 900µm in one coat.

In Cooler/Cold Conditions, Material Temperature Under 20˚C -

- Material should be preconditioned to 25˚C - 30˚C prior to use. This may mean storing product in a heated trailer in cooler weather.
- Recirculate the material through the primary heaters until the product is between 25˚C and 30˚C prior to being sprayed through the proportioning pump. Material temperature exiting the spray tip should be between 25˚C and 30˚C.
- To maintain the material temperature as it travels from the pump to the mix manifold, the heated hose bundle heat temperature should be set at 45˚C – 50˚C.
- Consider the use of two (2) drum blanket heaters with thermostats when used in cooler/cold conditions.
- An additional set of drum blanket heaters and drum agitator may be needed for preheating and premixing the next drum set to maintain a desirable rate of production in cooler temperatures.

In Warm/Hot Conditions, Material Temperature over 30˚C

- Material should be preconditioned to 25˚C - 30˚C prior to use. This may mean storing product in an air-conditioned trailer in warm/hot weather.
- Keep application equipment in the shade/under cover, and where needed, have the equipment in a conditioned space to keep all surfaces in contact with the material within a temperature range that allows for the product to not be elevated.
- Keep material lines & remote mix manifold out of the sun and off the ground when surface temperatures are above 35˚C.
- Ensure power to primary heaters and heated hose is turned off.

Purge Time (forward of the mix manifold)

- Fully flush and clean everything forward of the mix manifold with Dulux Urethane Thinner if more than 45 to 60 seconds elapse after releasing the spray gun trigger at a material temperature of 25˚C - 30˚C. The purge time is 20 to 30 seconds at a material temperature of 40˚C. Failure to flush/purge within the set time will result in material setting up in the static mixers, paint line, spray gun, and spray tip.
- Material warmer than 25˚C will decrease the purge time, material cooler than 25˚C will slightly increase the purge time. It is a good practice to always purge all material forward of the mix manifold if there is any chance of a delay in spraying the product.

Mixing/Thinning

- No thinning of the product is allowed. Ensure all solvent in the lines and the pump is pushed out to waste, ensuring the system is free of solvent before coating application begins.
- Using the recommended material agitator, premix the Part B (polyol) side for 60 minutes. The Part A (isocyanate) side does not get premixed.
- The product is mixed together through a series of static mixers forward of the mix manifold and the material integration line.
- Mix ratio check procedures will depend on the application equipment involved. It is always a good practice to perform a mix ratio check to ensure the equipment is dispensing the product at the correct ratio.

5.0 Spot Repair, Removal & Reinstall, and Process of Recoating over Itself past Maximum Recoat Window

5.1 Spot Repair (including random blisters)

When removing blisters, cut back to sound underlying coating or substrate. Sound coating is considered to be coating that cannot be removed with a dull putty knife.

If the blister has uncured material, remove all resins by scraping and then wiping fully clean with solvent such as MEK or Xylene and clean rags, to remove all uncured resin and residue.

For Steel:

If the steel substrate is exposed, the surface should be prepared to the original specification, or in the absence of a specification, to SSPC SP10 or ISO Class Sa 2 ½, "Near White Metal" blast cleanliness. Then prime as per the specification. The primer must be applied and cured as per the specific Dulux® Protective Coatings' latest technical datasheet.

For Concrete:

If the concrete substrate is exposed, the surface should be prepared to the original specification, or in the absence of a specification, to SSPC SP13 "Severe Service" and a concrete surface profile of ICRI CSP 5. Fill voids in the concrete with an appropriate Fosroc® filler and/or resurfacer. Then prime with an appropriately specified primer. The primer must be applied and cured as per the specific Dulux® Protective Coatings' latest technical datasheet.

If the prime coat is exposed, but has been determined to be intact and allowed to remain, it will need to be thoroughly and uniformly scarified to receive the subsequent coat of Flexituff® PU-2. Scarify and feather the edges of the existing, and sound Flexituff® PU-2 coating approximately 100-125mm or 4-6 inches out and around the area to be repaired. This may be achieved by using wire cup wheels attached to right angle power drills.

After abrasion is complete, wipe the prepared area to be coated with MEK to remove debris and contaminants and allow it to dry.

To the properly prepared, clean, dry, and contaminant free surface apply Flexituff® PU-2 at the specified thickness, ensuring the application remains confined to the area(s) that have been sacrificed and prepared.

If Flexituff® PU-2 cannot be used for the repair coating, Luxepoxy® Filler may be used when the surface preparation procedures outlined above are followed. **NOTE:** The colour of Luxepoxy® Filler differs from Flexituff® PU-2.

5.2 Complete Removal of Flexituff® PU-2

Completely remove Flexituff® PU-2 by any means feasible and evaluate the condition of the primer. Depending upon condition of primer as well as any applicable regulations (ie. Potable water certifications, DFT constrictions), the primer may need to be removed and reinstalled or scarified sufficiently to receive the subsequent coat of Flexituff® PU-2.

For Steel:

For steel substrates, the surface should be prepared to the original specification, or in the absence of a specification, to SSPC SP10 or ISO Class Sa 2 ½, "Near White Metal" blast cleanliness. Then primed as per the specification. The primer must be applied and cured as per the specific Dulux® Protective Coatings' latest technical datasheet.

For Concrete:

For concrete substrates, the surface should be prepared to the original specification, or in the absence of a specification, to SSPC SP13, "Severe Service" and a surface profile of ICRI CSP 5. Fill voids in the concrete with an appropriate Fosroc filler and/or surfacer. Then prime with the appropriate specified primer. The primer must be applied and cured as per the specific Dulux® Protective Coatings' latest technical datasheet.

To the properly prepared, clean, dry, contaminant free, and primed (when applicable/specified) surface, apply Flexituff® PU-2 at the specified thickness, ensuring the application remains confined to the area(s) that have been scarified and prepared.

Refer to the other sections of the application guide and technical data sheet for other instructions for Flexituff® PU-2.

5.3 Process of Recoating over Flexituff® PU-2 "Drop" past its Maximum Recoat Window

- If the recoat window has elapsed, then thoroughly and uniformly abrade 100-125mm or 4 to 6 inches into the existing, and sound Flexituff® PU-2 coating. This may be achieved by using wire cup wheels attached to right angle power drills.
- After abrasion is complete, wipe the prepared area to be coated with MEK to remove debris and contaminants and allow it to dry.
- To the properly prepared, clean, dry, and contaminant free Flexituff® PU-2 surface apply Flexituff® PU-2 at a minimum DFT 500 microns over the previously coated area, ensuring the application remains confined to the area(s) that have been scarified and prepared. Flowing out from the "drop" connection point, continue to apply Flexituff® PU-2 to the remaining surfaces as specified. Ensure all areas meet the specified minimum requirements.

6.0 Geomembrane Installation

6.1 Storage of Geotextile

The geotextile rolls shall be kept covered and protected from weather until ready for installation. Only geotextile panels for each day's spraying shall be spread. Do not place or roll onto wet substrates at any time. The geotextile must remain dry before and during installation.

6.2 Geotextile Type

Only geotextiles that have been pre-treated on one side to effectively receive and bond to the application of generic coating types like Flexituff® PU-2 shall be used. The fabric material shall be a non-woven, 100% polypropylene fabric and weigh 250-313 g/m² or 8 to 10 oz./yd.².

6.3 Geotextile Use

Geotextile shall fully and uniformly cover all concrete surfaces to be coated, properly transitioning and terminating at other substrates as needed.

6.4 Anchoring of Geotextile

6.4.1 Concrete Areas

- Geotextile shall be mechanically fastened to the concrete substrate using 5mm diameter x 50mm long suitable stainless-steel anchor bolts with 40mm diameter stainless steel washers.
- Option 1: Install stainless steel anchor bolt and washer combo at 1m centres when used with an embedded basecoat of Flexituff® PU-2. See Coating Systems and Surface Preparation 1 below for additional coating system details, which is the preferred system.
- Option 2: Install stainless steel anchor bolt and washer combo at 0.5 m centres when used without a basecoat of Flexituff® PU-2. See Coating Systems and Surface Preparation Option 2 below for additional coating system details.

6.4.2 Incidental Earthen Areas

Any areas where the geotextile panels shall go over earthen areas shall be anchored in place. Anchors should be stainless steel U-shaped, 152mm x 203mm in length and with a width of at least 51mm at 0.5 m centres.

Geotextile extending into an anchoring trench shall be completely coated to the specified dry film thickness (DFT). Contractors shall take precautions to protect the liner during any subsequent backfilling or construction operation. A layer of geotextile may be specified over the membrane for this purpose.

6.5 Coating System and Surface Preparation

6.5.1 Option 1: Preferred Method, Concrete

Surface Preparation

- Concrete surfaces to be coated shall be free of curing compounds and form release agents, laitance and foreign particles that may inhibit bonding.
- Before coating application, pre-clean as required, and inspect the substrate following SSPC-SP13/NACE No. 6, Severe Service.
- Surface preparation procedures shall follow NACE SP0892, SSPC-SP13/NACE No. 6 and ICRI Guideline No. 310.2. Surface preparation shall result in a uniform surface texture resembling CSP 5, concrete surface ICRI-CSP profile.

Coating System

- Prime coat: Apply Durebild® STE at a DFT range of 150-200µm.
- Flexituff® PU-2 as a basecoat: Apply a minimum DFT of 500µm to the suitably prepared and primed concrete surface.
    - Follow technical data sheet recoat windows.
    - Pre-cut geotextile fabric panels shall be firmly pressed and embedded into the Flexituff® PU-2 basecoat while it is in a semi-liquid state. Ensure the pre-treated side of the geotextile, designed to receive Flexituff® PU-2, is face up for spray application over its surface.
    - The fabric shall be evenly pressed with a non-stick roller, squeegee or trowel to ensure it adheres flat against the basecoat in all locations. DO NOT SATURATE THE FABRIC.
    - Over irregular surfaces, fabric shall be pressed by hand (use suitable protective gloves) to maximise contact with the basecoat. Care should be taken to ensure the geotextile is positioned to conform to surface irregularities as much as possible.
    - Air pockets are not acceptable and should be eliminated with a hand tool while the coating is still wet. Areas of incomplete embedment of the geotextile into the coating is not acceptable.
    - Adjacent panels of geotextile shall be overlapped 100-152mm. Coat both sides of the geotextile along the lap joints and seal the lap together while the coating is still wet. The specified thickness shall be applied over the lap.
- Flexituff® PU-2 as a topcoat: Over properly embedded and anchored geotextile, uniformly apply Flexituff® PU-2 directly to the pre-conditioned side of the embedded fabric to a minimum DFT of 2000µm.

Exposed fabric fibres or edges, or any other discontinuities shall not be acceptable. If necessary, the applied film thickness shall be increased as needed (beyond the specified thickness) to produce complete coverage and sealing of the geotextile fabric.

6.5.2 Option 2: Alternative Method, Concrete

Consult your Dulux® Protective Coatings Consultant and obtain a written sign off before using the alternative method.

Surface Preparation

- Remove all surface contamination such as oil, grease, or dirt by washing with an alkali-based detergent such as Gamlen CA 1 in strict accordance with the Manufacturer's written recommendations, then rinse completely with potable water to remove any detergent residue.
- All surfaces shall be dry and cleaned of all foreign objects that may damage the liner. Caution must always be taken to keep geotextile free of debris.
- Layout and anchor the geotextile as described in this document and as stated below-
    - Precut geotextile fabric panels, laying out in a finished manner before beginning.
    - Care should be taken to ensure the geotextile is positioned to conform to surface irregularities as much as possible.

Coating System

- Flexituff® PU-2: Over properly anchored and terminated geotextile, uniformly apply Flexituff® PU-2 directly to the pre-conditioned side of the embedded fabric to a minimum DFT of 2000µm.
    - Exposed fabric fibres or edges, or any other discontinuities shall not be acceptable. If necessary, the applied film thickness shall be increased as needed (beyond specified thickness) to produce complete coverage and sealing of the geotextile fabric.
    - Air pockets are not acceptable and should be eliminated with a hand tool while the coating is still wet.
- Adjacent panels of geotextile shall be overlapped 100mm to 152mm. Coat both sides of the geotextile along the lap joints and seal the lap together while the coating is still wet. The specified thickness shall be applied over the lap.

6.6 Cautionary Statements and Construction Details

The following are appliable to all coating systems and surface preparation outlined within this guide:

- Safety footwear during installation should only be soft rubber-soled shoes.
- All leading edges of the coating shall be properly terminated into properly created keyways.
- Where the geotextile system is used on 100% of the surface, no special treatment of the expansion joints is required.
- Ensure proper transitions are created between different substrates.
- For specific construction details questions, please consult your local Dulux® Protective Coatings and/or Dulux® Technical Services.

6.7 Coating Transitions between Days of Work

- At the end of the workday, approximately 60cm of geotextile shall be left uncoated to form a joint for the following day's work.
- For transitions between coating sections applied on different days, a minimum of 16cm of the Flexituff® PU-2 shall be scarified. This may be achieved with the use of wire cup wheels on right angle power drills. Wipe the area to be coated with MEK to remove debris and contaminants and allow it to dry before coating.
- Fresh coating shall be feathered in at least 10cm, ensuring the application remains confined to the area(s) that have been scarified and prepared. Avoid application to glossy surfaces. Coating applied to improperly prepared surfaces shall be removed immediately.

7.0 Safety

- All necessary measures should be adopted under the requirements of all Health & Safety Acts or other nationally recognised legislation. In particular, lighting, grounding, ventilation, and protective clothing shall be adequate for the safe and proper execution of the work.
- Before work commences, refer to the product specific Technical Data Sheet and Safety Data Sheet.

8.0 Product Packaging & Properties

8.1 Packaging

Kit Size	Part A (Isocyanate)	Part B (Poly-)
674kg kit	1 x 250kg drum	2 x 212kg drum (424kg total)
65kg kit	1 x 25kg drum	2 x 20kg drum (40k total)

8.2 Product Properties

Typical physical properties @ 25°C unless stated otherwise

Volume Solids	**100%**
VOC	**<10% g/L**
Mix ration by volume	**1:2**
Tensile Strength (ASTM D412-92)	**20-25 MPa (Typical Result)**
Elongation @ 24°C (ASTM D412-92)	**<40% (Typical Result)**
Tear Strength (ASTM D624-86)	**50-55 N/mm (Typical Result)**
Hardness (ASTM D2240-91)	**72.5 mg loss N=10 Shore D**
Abrasion (ASTM D4060)	**~120 mg, CS-17 wheel, 1,000 rev, 1,000g load**
Water Absorption (AS 3558.1)	**<1.00% (Typical Result)**
Water Vapour Transmission (ASTM E96-05 (B))	**0.04g/(h.m2) 0.97g/(m2.24h) (Typical Result)**

Refer to Flexituff® PU-2 for more information including film build limits and chemical resistance properties.

Australia
www.duluxprotectivecoatings.com.au
T 13 23 77

New Zealand
www.duluxprotectivecoatings.co.nz
T 0800 800 424

DuluxGroup (Australia) Pty Ltd (ABN 67 000 049 427)
1956 Dandenong Road, Clayton, 3168, Australia
DuluxGroup (New Zealand) Pty Ltd (ABN 55 133 404 118)
150 Hutt Park Road, Lower Hutt, 5010 New Zealand

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PROTECTIVE COATINGS

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