FLEXITUFF® PU-2

100% Solids 2:1 Polyurethane Hybrid Coating — PC 396

FEATURES
- EXCELLENT DIRECT TO METAL AND CONCRETE ADHESION
- VERY HIGH TENSILE AND TEAR STRENGTH
- SUITABLE FOR IMMERSION SERVICE With SPECIFIC CHEMICALS
- POTABLE WATER COMPLIANT

USES
FLEXITUFF® PU-2 is a 100% solid, two-component 2:1 spray hybrid polyurethane that can be used to create a seamless secondary containment coating system. The combination of resistance properties coupled with its durability also makes FLEXITUFF® PU-2 a versatile lining option.

FLEXITUFF® PU-2 applications include use as an abrasion-resistant lining in mining and processing applications such as belting, hopper cars, and slurry tanks for mining and protective membranes in buildings. It can be an alternative to polyurea coatings where application versatility and longer open time is required.

SPECIFICATIONS
AS/NZS 4020:2018 - compliant for use in potable water when used in conjunction with a certified coating system. Refer to a Dulux Protective Coatings Consultant for details of the system.

RESISTANCE GUIDE

WEATHERABILITY	Will discolour and chalk when exposed to sunlight. Colour change will not detract from the protective properties of the coating	**SOLVENTS**	Refer to Chemical Resistance Guide
HEAT RESISTANCE	Up to 120°C dry heat	**WATER**	Excellent resistance to immersion in fresh and saltwater
SALTS	Refer to Chemical Resistance Guide	**ALKALIS**	Refer to the Chemical Resistance Guide
ACIDS	Refer to Chemical Resistance Guide	**ABRASION**	Very good abrasion resistance when fully cured.

TYPICAL PROPERTIES AND APPLICATION DATA

CLASSIFICATION	Hybrid polyurethane elastomer coating
FINISH	Semi-Gloss
COLOUR	Cream (MTO only)
COMPONENTS	Two
VOLUME SOLIDS	100%
VOC LEVEL	<10% g/L
FLASH POINT	>115°C
POT LIFE	Plural Component Only
MIXING RATIO V/V	Part A : 1 (ISOCYNATE) Part B : 2 (POLY-)
THINNER	Do not thin
PRODUCT CODE	499-H0238 FLEXITUFF® PU-2 Part A (MTO) 976-H0242 FLEXITUFF® PU-2 Part B (MTO)

APPLICATION CONDITIONS

	Min	Max
Air Temp.	10°C	40°C
Substrate Temp.	10°C	40°C
Relative Humidity		85%
Concrete Moisture		<6%

COATING THICKNESS (MICRONS)

	Min	Max*	Recommended
Wet film per coat (µm)	1,000	>2,500	2,000
Dry film per coat (µm)	1,000	>2,500	2,000

**Maximum film thickness when the material temperature is at 25°C. The temperature of the material will affect sag resistance.*

SUITABLE SUBSTRATES	Suitably prepared substrates including blast-cleaned steel and mechanically prepared concrete as stated in the "Surface Preparation" section of this document.
PRIMERS	Not required or specified Dulux® Protective Coatings range of primers including Durepon® 66, Durebild® STE, Duremax® GPE.
TOPCOATS	N/A
APPLICATION METHODS	Plural component airless spray only

DRYING CHARACTERISTICS AT 2,000 µm DRY FILM THICKNESS

					RECOAT	
Temperature	**Humidity**	**Touch**	**Handle**	**Cure***	**Min**	**Max**
25° C	50%	1 Hour	2 Hours	48 Hours	See RECOATING section	

These figures are a guide only, as ventilation, film thickness, humidity, thinning and other factors will influence the drying rate.

* **Abrasive or Chemical Environment Services:** Minimum cure time is 7 days at 25°C average substrate temperature. Allow more time for cooler temperatures and variable environmental conditions. Once Dulux® Flexituff® PU-2 achieves acceptable inspection parameters the coating system can be placed into the intended service.

SPREADING RATE
ASSUMING NO LOSSES

0.5 square metres per litre equals 2,000 µm dry film thickness.
NOTE: Practical spreading rates will vary depending on factors such as application method, ambient conditions, surface porosity and roughness.

FLEXITUFF® PU-2

TYPICAL SYSTEMS

This is a guide only and is not to be used as a specification. Your specific project needs must be discussed with a Dulux® Protective Coatings Consultant.

SURFACE	ENVIRONMENT	PREPARATION GUIDE	SYSTEM		DFT (µm)
STEEL	Immersion or Chemical	Abrasive blast clean AS1627.4 Class 3.0	1st Coat	Flexituff® PU-2	>2000 µm
STEEL	Abrasion	Abrasive blast clean AS1627.4 Class 2.5	1st Coat 2nd Coat	Durepon® 66 Flexituff® PU-2	25 µm >2,500 µm
STEEL	Abrasion	Abrasive blast clean AS1627.4 Class 2.5	1st Coat 2nd Coat	Duremax® GPE Flexituff® PU-2	125 µm >2,500 µm
CONCRETE	Chemical	Refer to the recommendations under “Surface Preparation” below.	1st Coat	Flexituff® PU-2	>2000 µm
CONCRETE	Abrasion	Refer to the recommendations under “Surface Preparation” below.	1st Coat 2nd Coat	Durebild® STE Flexituff® PU-2	150 µm >2,500 µm

SURFACE PREPARATION

Steel: Round off all rough welds, sharp edges and remove weld spatter. Degrease per AS1627.1. Abrasive blast clean to a minimum of AS1627.4 Class 2.5 or a higher class creating an angular anchor profile range of 75 to 100 microns if going direct to steel with this product. Otherwise, follow the surface preparation requirements of the approved prime coat.

Concrete: Concrete must be at least 28 days old before coating. Remove all laitance, form release agents, curing compounds, oil, grease and other surface contaminants. Prepare concrete surfaces per NACE No. 6/SSPC-SP13 Joint Surface Preparation Standards and ICRI Technical Guidelines. Abrasive blast, shot-blast, water jet or mechanically abrade concrete surfaces to remove laitance, curing compounds, hardeners, sealers and other contaminants and to provide a minimum ICRI-CSP 5 surface profile. Cracks, voids and other surface imperfections should be filled with a recommended filler or surfacer such as Fosroc Nitomortar AP or Nitomortar 903. Fill all cracks, bug holes and/or voids using Dulux Luxepoxy® Filler as appropriate.

*Allow new concrete to cure a minimum of 28 days at 24°C. To minimise the risk of moisture interference, Dulux recommends the following two tests be performed before coating – ASTM F2659 – 10 “Standard Guide for Preliminary Evaluation of Comparative Moisture Condition of Concrete, Gypsum Cement and Other Floor Slabs and Screeds Using a Non-Destructive Electronic Moisture Meter” (moisture content not to exceed 6%) and 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 vapour transmission should not exceed 1.4 kilograms (3 pounds) per 93 square metres (1,000 square feet) in 24 hours), 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 an under-slab moisture vapour barrier cannot be confirmed or concrete contamination from oils, chemical spills, unreacted silicates, chlorides or Alkali-Silica Reaction (ASR) is suspected.

APPLICATION

Plural component airless equipment only.
Please refer to the Flexituff® PU-2 Application Guide for recommendations. For any questions after reviewing the guide, please contact Dulux® Protective Coatings Technical Service.

PRECAUTIONS

Flexituff® PU-2 is an industrial product designed for use by experienced protective coatings applicators. Where conditions may require variation from the recommendations on this Product Data Sheet contact your nearest Dulux® Protective Coatings Consultant for advice before painting. Do not apply in conditions outside the parameters stated in this document without the written consent of Dulux® Protective Coatings Australia. The rate of cure is dependent upon temperature. Do not apply at temperatures below 1°C. Do not apply at relative humidity above 85% or when the surface is less than 3°C above the dewpoint. The coating MUST be fully cured before being placed under immersion conditions.
DO NOT THIN Flexituff® PU-2. Flush out all conditioning plasticizers (such as Mesamoll) used when storing the application equipment utilizing Dulux CR Reducer out to waste within a properly grounded waste container. Once the system is free of conditioning plasticizers, push all solvent and contaminated material used during coating introduction into the equipment out to waste. The system must be free of moisture-containing solutions/solvents to avoid any potential foaming.
The resin has a nominal storage life of 12 months at a recommended temperature of 20-25°C. 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 about 50°C are not recommended since they can accelerate the formation of insoluble solids and increase the viscosity on extended storage.
Under the recommended storage conditions and in properly sealed containers, the isocyanate has a nominal storage life of 12 months. If either component is opened and partially used, it should be purged with nitrogen or desiccated air and resealed or refilled into smaller containers to their maximum volume.

SAFETY PRECAUTIONS

Read the Technical Data Sheet, SAFETY DATA SHEET, Application Guide and any precautions on container labels. SAFETY DATA SHEET is available from Customer Service (13 23 77) or www.duluxprotectivecoatings.com.au

STORAGE

Store in a well-ventilated bunded area undercover and away from sources of heat. Keep containers always closed.

HANDLING

As with any chemical, ingestion, inhalation and prolonged or repeated skin contact should be avoided by good occupational work practice. Eye protection approved to AS1337 should be worn where there is a risk of splashes entering the eyes. Always wash hands before smoking, eating, drinking or using the toilet.

USING

Use with good ventilation and avoid inhalation of spray mists and fumes. When spraying, wear a positive-pressure, air-supplied respirator. Users must comply with the provisions of the respective State Spray Painting Regulations.

FLAMMABILITY

This product is not flammable. On burning will emit toxic fumes.

WELDING

Avoid inhalation of fumes if welding surfaces are coated with this paint. Grind off the coating before welding.

FLEXITUFF® PU-2

PHYSICAL RESISTANCE

TEST	TEST METHOD	RESULT
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)

CHEMICAL RESISTANCE

The resistance table below is a guide to the performance of fully cured Flexituff® PU-2 when applied according to specifications.

	INTENDED USE (Maximum Cargo Temperature 38°C Unless Otherwise Stated)				
CHEMICAL	OCCASIONAL CONTACT	FREQUENT CONTACT	SECONDARY CONTAINMENT	CARGO IMMERSION	IMMERSION SERVICE
Acetic Acid 10%	R	R	R	R	NR
Ammonia 10%	R	PC	PC	NR	NR
Ammonia 21%	R	PC	PC	NR	NR
Ammonium Nitrate 30%	R	R	R	R	NR
Butyl Acetate	NR	NR	NR	NR	NR
Citric Acid 50%	R	R	R	R	R
Diesel	R, 50°C	R, 50°C	R, 50°C	R, 50°C	R, 50°C
Ethanol (200 Proof)	R	PC	PC	NR	NR
Ethylene Glycol	R	R	R	R	R
Glycerin	R	R	R	R	R
Hydrochloric Acid 10%	R	R	R	R	NR
Kerosene	R, 50°C	R, 50°C	R, 50°C	R, 50°C	R, 50°C
MEK	NR	NR	NR	NR	NR
MIBK	NR	NR	NR	NR	NR
Nitric Acid 10%	R	R	R	PC	NR
Phosphoric Acid 5%	R	R	R	R	R
Unleaded Gasoline	R	NR	NR	NR	NR
Skydrol 500B	R	PC	NR	NR	NR
Skydrol LD-4	R	R	PC	NR	NR
Sodium Hydroxide 5%	R	R	R	NR	NR
Sodium Hydroxide 20%	R	R	R	R	R
Sodium Hydroxide 50%	R	R	R	NR	NR
Sodium Hypochlorite 5%	R	R	R	R	R
Sodium Hypochlorite 12%	R	R	R	NR	NR
Sulfuric Acid 10%	R	R	R	R	R
30% Sulfuric Acid	R	R	R	R	R
Sulfuric Acid 50%	R	R	R	NR	NR
Sulfuric Acid 98%	NR	NR	NR	NR	NR
Water (Deionized)	R, 60°C	R, 60°C	R, 60°C	R, 60°C	NR
Xylene	R	NR	NR	NR	NR

IMMERSION SERVICE (Most Severe)
Suitable for continuous contact with chemical exposure up to specified temperature.

CARGO IMMERSION
Suitable for continuous contact with chemical exposure up to specified temperature. The coating will show no effect except slight softening or colour change after 2 months or less continuous immersion (may also be used in transport and hauling situations).

SECONDARY CONTAINMENT
Suitable for continuous contact with a chemical for up to 72 hours. EPA regulations require removal within 48 hours or in as timely a manner as possible. Softening or discolouration may occur during the exposure.

FREQUENT CONTACT
Suitable for frequent splash or up to 72 hours of exposure to concentrated vapour. The coating will show no effects except a slight softening or colour change after eight hours of continuous immersion in the liquid chemical or 72 hours of exposure to vapour.

OCCASIONAL CONTACT (Least Severe)
Suitable for occasional splash and spillage or occasional exposure to concentrated vapour. The coating shows no effects, except slight softening colour changes, following short exposure to splash or spillage which evaporates, is hosed off, or dried overnight or, 24 hours exposure to vapour.

PC - Contact Dulux Protective Coatings
NR - NOT RECOMMENDED
R – RECOMMENDED

COMPANY INFORMATION

Dulux Protective Coatings is a division of:

DuluxGroup (Australia) Pty Ltd
1956 Dandenong Road, Clayton 3168
A.B.N. 67 000 049 427

DuluxGroup (New Zealand) Pty Ltd
150 Hutt Park Road, Lower Hutt, NZ
A.B.N. 55 133 404 118

PACKAGING, TRANSPORT AND STORAGE

PACKAGING	Available in 674kg/600L kits
TRANSPORTATION WEIGHT	1.21 kg/litre (Average of components)
DANGEROUS GOODS	Part A: Non-Dangerous Good Part B: Class 9 UN 3082