

**Poly-Flex™**  
Polyurea Protective Coating**PRODUCT DESCRIPTION**

Poly-Flex™ is an advanced spray-applied 100% solids pure polyurea with outstanding physical properties. The durable protective coating is the product of choice where ultimate asset protection is required.

**FEATURES**

- Excellent adhesion to well prepared substrates
- Rapid cure – resistant to rain & foot traffic in minutes
- 100% solid – Zero VOC, solvent & catalysts
- Retains physical properties over broad temperature range
- High elongation & flexibility
- Bridges cracks & joints
- Excellent tensile & tear strength
- Permanently elastic – wont peel flake or crack
- High impact, puncture & abrasion resistance
- Excellent corrosion resistance & weatherability
- Seamless and monolithic
- Relatively insensitive to ambient conditions
- Does not support microbial growth
- Conforms to AS4858 & AS4020
- Design life 20-100 years

**APPLICATIONS**

With its unique characteristics, Poly-Flex™ is a versatile elastomeric coating used in a broad range of industries. Some examples include:

- Sewerage and waste water (steel and concrete tank lining)
- Transportation & mining (tip truck, rail carts, chute liners)
- Marine (steel piles, shoring & pier cap coatings)
- Industrial (chemical spill containment, bund lining, lagoons)
- Food & beverages (food safe floor coatings)
- Infrastructure (pipe lines, bridge decks, dam walls, tunnels)
- Commercial (waterproofing flat roofs including asbestos)
- Trafficable areas (car park, lay downs, plant rooms)

**LEADING TECHNOLOGY PROVEN QUALITY**

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# Poly-Flex™ Polyurea Protective Coating

## CHEMICAL PROPERTIES

	COMPONENT A	COMPONENT B
Chemical	Isocyanate ('Hardener')	Polyetheramine ('Resin')
Physical form	Liquid	Liquid
Volatile Organic Compounds (VOC's)	0%	0%
Solids Content	100%	100%
Flash Point	>110°C	>185°C
Viscosity @ 28°	800 cps	800 cps

## PHYSICAL PROPERTIES

Property	Result
Elongation	≈ 403%
Tensile Strength	17.9 MPa
Tear Strength	57 N/mm
Impact Resistance	73 N/mm
Shore Hardness	≈ A83
Abrasion Resistance (mg lost)	0.33
Adhesive Strength to concrete (using primer)	>2.5 MPa (glue failure at dolly)
Fire Resistance	Self-Extinguishing
UV Resistance 35000 hours UVB-313	No degradation (with UV additive)
Colours	Optional (darker pigments offer best aesthetics. Apply Poly-Flex TC if full colour retention required)
Recommended thickness	>1.5mm - waterproofing >3mm - tank lining and corrosive environments >5mm - high abrasion and impact conditions
Theoretical coverage	1 m <sup>2</sup> @ 1mm = 1kg

## CURE PROFILE & RETURN TO SERVICE

- Gel time – 9 seconds
- Tack free – 40 seconds
- Light foot traffic – 5 minutes
- Rain resistant – 10 minutes
- 75% cure – 2 hours
- Full cure – 7 days

All based on 25°C ambient conditions.

## SUBSTRATE PREPARATION

The intended service conditions, age of the asset and substrate condition will determine the exact level of surface preparation. Standard international industry surface preparation levels can be found below:

### Steel

Blast to achieve a surface profile of 2-3 mils (50-75 µm) and free of oil, grease, dust, dirt, mill scale, rust, oxides and any other foreign matter in accordance with Sa. 2.5 / NACE 2 / SSPC-SP10 or greater. Prevent flash rust and prime with approved primer.

### Concrete

Concrete moisture content must be below 75%RH in accordance with ASTM F2170. surface to be free of all contaminants and loose surfaces such as grease, oils, curing compounds, dust, laitance and any other foreign matter. Concrete must be dry and fully cured with a cohesive strength greater than 1.5 MPa (consult us regarding application over green concrete). Fillet internal corners using PU joint sealant or epoxy putty. Radius external corners to form a smooth rounded edge. Repair any blow outs and remediate bug hole using approved methods. Prime with approved primer to cover pinholes.

**For project specific ITP's (inspection and test plans), methodologies and specifications please consult one of our team.**



# Poly-Flex™ Polyurea Protective Coating

## APPLICATION

**Authorised applicators** - Poly-Flex™ polyurea is a specialised technology and must only be applied by skilled and approved applicators certified by Inseal Polymers.

**Safety** - user must always protect themselves and those around them. Read all associated SDS's before use of products. The following items of PPE must be used; half or full-face respirator fitted with appropriate organic filters, chemical resistance gloves, safety goggles, enclosed footwear. Keep all exposed skin covered.

**Ambient conditions** - Poly-Flex™ is relatively insensitive to moisture and temperature. However, to avoid problems with adhesion and pinholes, applicators should observe the following limits;

- Relative humidity <85%
- Substrate temperature >10°C
- Ambient temperature >10°C
- Substrate must be >3°C higher than dew point

**For problematic and specialist applications consult Inseal Polymers.**

**Processing** - it is critical to ensure that the following parameters are adhered to during processing and dispensing Poly-Flex™ polyurea;

- Static Pressure - 2,500 Psi
- Working pressure - >2,000 Psi
- A side temp - 65°C
- B side temp - 65°C
- Hose temp - 65°C (N/A for E-10HP)
- Mix ratio - 1:1 (by volume)
- Spray gun - AP Fusion or similar

**During application the machine should be monitored regularly to ensure operation, particularly pressure balance is even and consistent. Further, applicators should ensure that equipment is fully serviced and maintained to avoid problems.**

## RE-COAT WINDOW

Poly-Flex™ has no minimum re-coat window, the desired film thickness can be achieved in one session by making several passes of the spray gun. For lapping on to edges or topping up thinner areas, this must be done **within 2 hours**. Exceeding this window will require abrading the membrane with a 60-grit disc followed by vacuum to remove debris. If left for more than 24 hours abrade as above, then apply Inseal P1 primer and allow to tack off before spraying.

## EQUIPMENT & SYSTEM REQUIREMENTS

**Reactors** - Poly-Flex™ must only be applied using specialist equipment approved by Inseal Polymers. Electric and hydraulic plural component reactors such as the following are approved machines;

- Graco Reactor E-10HP
- Graco Reactor Series 2 E-XP2
- Graco Reactor Series 1&2 H-XP2 & H-XP3

**Power** - supply and distribution must be sized according to the requirement of the machine and ancillary equipment used. Insufficient power and wide power fluctuations can cause reactors to shut down and display errors codes, or worse damage electronics. Take in to account other power tools being used such as lighting, fans and vacuums in addition to 'peak draw' when items like compressors switch on / off. Operation manuals detail system requirements, however if in doubt contact our team.

## QUALITY ASSURANCE

Poly-Flex™ is a proprietary formula developed for Inseal Polymers by a professor of material science whom held position of director of the International Polyurea Development Association ('PDA') for three terms, holds 18 patents and published more than 160 publications. With a focus on Extensive and continuous R&D, and production in ISO9001 verified facilities, Inseal Polymers strongly believe Poly-Flex™ is of the highest purity pure polyurea on the market. **Inseal Polymers can demonstrate Poly-Flex™ as a true PURE POLYUREA using a PATENTED TEST. Ask us about our POLY-ID TEST KITS available for purchase, a must have tool for QUICKLY IDENTIFYING PURE POLYUREA/HYBRID/ POLYURETHANE COATINGS.** All products are supported by back to back warranties when applied by approved applicators.

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