FORSPEC PROTECTIVE COATINGS



ACTFLEX PU500.

Technical Data Sheet | **One-Component Hydrophilic Polyurethane Injection Resin** | **Issue date: 12 November 2026**

Description

ACTFLEX PU500 is a one-component, hydrophilic polyurethane injection resin for sealing water leaks in expansion joints, construction joints and cracks subject to movement and vibration. On injection it reacts with water to form a flexible, open-cell polyurethane foam or an elastic gel depending on the volume of water contacted: at high water contact it forms a uniform elastic gel, while at lower water contact it expands to a resilient, flexible foam. The cured material remains highly elastic, accommodating joint movement while blocking water ingress, and is best suited to permanently damp or regularly wetted environments. For hydrophobic sealing of static cracks, use ACTFLEX PU200 or ACTFLEX PU300.

Advantages

- One-component — applied with single-component injection equipment; no on-site mixing ratios.
- High elasticity — maintains a flexible seal in dynamic joints and vibrating structures.
- Hydrophilic reaction — expands on contact with water and performs across varying moisture levels.
- Water-responsive cure — elastic gel at high water contact; resilient open-cell foam at lower water contact (foaming magnification 6–12 times).
- Dimensionally stable in service in damp conditions (refer to Limitations regarding wet/dry cycling).
- Rapid reaction — seals active leaks in minutes.
- Excellent adhesion to concrete, masonry and porous substrates — bond strength greater than 1.18 MPa.
- Durable and resistant to common contaminants found in water-infiltrated environments.

Uses

- Sealing water leaks in expansion and construction joints, and dynamic cracks subject to movement and vibration.
- Underground structures — tunnels, basements, retaining walls, diaphragm walls and segmental tunnel linings.
- Flexible injection sealing of water-retaining structures — reservoirs, wastewater structures and dams.
- Waterproofing precast concrete elements and construction joints exposed to fluctuating moisture conditions.
- Void filling in permeable substrates where flexibility is required, subject to geotechnical assessment and trial injection.

ACTFLEX PU500 is a flexible water-sealing injection resin. For structural crack bonding and load-transferring repairs, use the FORSPEC epoxy injection range (PROBOND 1100, CRACK PRO 1200PS, CRACKLOCK E400L) per their TDS. For static, dry cracks, ACTFLEX PU200 or ACTFLEX PU300 are the better selection.

Compliance Status

No Australian Standard specifically governs polyurethane injection resins for water-stopping. The performance values in this document are Forspec R&D characteristic values determined on standard production material. Certified third-party test reports, where available, can be requested from Forspec Protective Coatings. Not for potable water — do not use in drinking-water tanks or in potable water storage or supply structures.

FORSPEC PROTECTIVE COATINGS

contact.

(02) 8021 3517 info@forspec.com.au 22/872 Canterbury Road, Roselands 2196 NSW (Head Office) www.forspec.com.au

Technical Data

PROPERTY	VALUE	BASIS
Composition	One-component hydrophilic polyurethane resin	—
Cured structure	Open-cell flexible foam / elastic gel (water-dependent)	—
Colour / form	Light brown, low-viscosity liquid	—
Density at 25°C	1.06–1.10 g/cm³	FORSPEC R&D to ASTM D1475 *
Viscosity at 25°C	500–600 mPa·s	FORSPEC R&D to ASTM D2196 *
Foaming magnification	6–12 times (water-contact dependent)	FORSPEC R&D to EN 1504-5 / ASTM D7487 *
Foaming time (at 25°C, 50% RH)	Approx. 120–300 seconds	FORSPEC R&D to ASTM D7487 *
Bond strength to concrete	Greater than 1.18 MPa	FORSPEC R&D to EN 12618-2 *
Elongation — thick sections	Greater than 130%	FORSPEC R&D to ASTM D3574 *
Elongation — thin sections	Greater than 110%	FORSPEC R&D to ASTM D3574 *
Application temperature	Greater than 10°C (substrate and material)	—
Packaging	20 kg pail	—
Shelf life	12 months, unopened, 5–30°C, protected from moisture	—

* Typical characteristic values determined by Forspec R&D on standard production material; not subject to third-party certification. Values will vary with temperature and the volume of water contacted.

Reaction Data

The cured form depends on the volume of water contacted. Indicative behaviour at 25°C (FORSPEC R&D, foam cup test to ASTM D7487):

WATER : RESIN RATIO	CURED FORM / MAGNIFICATION	REACTION TIME AT 25°C
5 : 1	Elastic gel	20–60 seconds
10 : 1	Foam, 6–12 times	Approx. 120–300 seconds
15 : 1	Foam, 6–12 times	Approx. 120–300 seconds
20 : 1	Foam, 6–12 times	Approx. 120–300 seconds

Sufficient water in the substrate is necessary for the resin to react. In dry joints and cracks, introduce water through the packers before injection. In areas of very low water content and low counter-pressure the resin will expand as a foam.

Limitations

- Best suited to permanently damp or regularly wetted environments — hydrophilic open-cell foams may shrink under prolonged wet/dry cycling; assess the service moisture conditions before product selection.
- Requires water to react — dry joints and cracks must be pre-wetted through the packers before injection.
- Flexible water-sealing product only — not a structural repair; use the FORSPEC epoxy injection range for load-transferring crack repair.
- Do not apply below 10°C substrate or material temperature; cold conditions slow the reaction and reduce expansion.
- Not for potable water — do not use in drinking-water tanks or in potable water storage or supply structures.

contact.

(02) 8021 3517 info@forspec.com.au 22/872 Canterbury Road, Roselands 2196 NSW (Head Office) www.forspec.com.au

Limitations (continued)

- Moisture-sensitive — the resin reacts with atmospheric humidity; keep containers sealed, and keep equipment and lines dry.
- Not UV stable — for buried and internal concealed applications; not for exposed finishes.
- Large movement joints require a purpose-designed movement joint system; ACTFLEX PU500 accommodates joint movement but is not a substitute for an engineered movement joint.
- Injection into voids of unknown volume can consume large resin quantities — probe and assess before injecting.

Injection Equipment

Apply with single-component, high-pressure polyurethane injection equipment. Required: single-component injection pump rated for polyurethane resins; 10 mm mechanical injection packers with non-return valves; 10 mm drill bit; T-handle wrench (10 mm); urethane thinner and pump cleaning oil. Do not use equipment or lines containing residual water — flush with thinner before charging with resin.

Application Procedure

1. Drilling. Drill 10 mm holes at maximum 200 mm intervals along the crack, offset from the crack line and angled at 45° to intersect the crack at a depth of 60–100 mm. Alternate sides of the crack where access allows.
2. Installing packers. Blow or vacuum all dust from the drilled holes. Insert 10 mm packers, leaving approximately 20 mm of the packer proud of the surface for connection and removal. Tighten each packer firmly with the T-handle wrench to seal against injection pressure.
3. Pre-wetting (dry cracks). Where the crack is dry or water content is low, inject clean water through the packers before resin injection to activate the reaction.
4. Injection. ACTFLEX PU500 is injected neat from the pail — no mixing is required. Charge the pump — fill approximately two-thirds of the pump reservoir before sealing the lid. Begin injection at low pressure and increase gradually. Vertical cracks: inject from the bottom packer upward. Horizontal cracks: inject from the ends toward the centre. Continue at each packer until resin extrudes from the crack approximately 100 mm either side of the packer, then move to the next packer. Do not over-inject.
5. Packer removal and finishing. The non-return packers retain the resin under pressure while it cures. After the resin has fully reacted, remove the packers, and patch the drill holes flush with a FORSPEC repair mortar (FORBUILD 100 or FORCRETE 100 per its TDS).
6. Equipment cleaning. Flush the pump and lines with urethane thinner immediately after use. For short-term reuse within a few days, clean with pump cleaning oil only. For long-term storage, flush with thinner followed by cleaning oil, and leave approximately one-third of the pump charged with cleaning oil (or engine oil as an alternative) to prevent moisture ingress and clogging. If resin has stood in the machine for longer than 20–30 minutes at 25°C and 50% humidity, flush with cleaning alcohol before restarting injection.

Coverage and Yield

Consumption depends on crack width, depth and the volume of voids encountered, and cannot be stated as a fixed rate per metre. As a guide, estimate from the crack volume plus an allowance for porous zones and expansion, and confirm by trial injection on the first section. Record actual consumption per packer as part of the project quality records.

Drying, Curing and Testing Times

All times below are measured at 25°C and 50% RH. Low temperature, high humidity, poor ventilation and increased thickness extend every stage — verify on site before proceeding.

STAGE (AT 25°C, 50% RH)	TIME
Reaction start after water contact	Refer to the reaction data table *
Reaction time	Refer to the reaction data table — water ratio dependent

contact.

(02) 8021 3517 info@forspec.com.au 22/872 Canterbury Road, Roselands 2196 NSW (Head Office) www.forspec.com.au

Drying, Curing and Testing Times (continued)

STAGE (AT 25°C, 50% RH)	TIME
Re-injection window at the same port	After the previous injection has fully reacted *
Cured gel — trim and dress	Once the gel is firm and no longer expanding *
Full reaction and stable seal	24 hours *
Packer removal and hole reinstatement	After full reaction — reinstate with a FORSPEC repair mortar *

ACTFLEX PU500 is hydrophilic — the cured gel depends on retained moisture and will shrink under sustained wet/dry cycling. * Typical R&D characteristic values, not for engineering design without written FORSPEC confirmation.

Clean Up

Clean equipment immediately after use as described in the application procedure, handling urethane thinner and cleaning oils in accordance with the Work Health and Safety Regulations and the relevant SDS. Cured foam can only be removed mechanically. Resin, thinners and washings must not be discharged to sewers, stormwater systems or waterways; manage and dispose of all washings in accordance with the relevant State or Territory environment protection legislation and local council requirements.

Container and Waste Disposal

Dispose of product and containers in accordance with the WHS Regulations, the relevant State or Territory EPA requirements and local council regulations. Uncured (liquid) resin is classified waste — do not dispose of to landfill, sewers, stormwater or waterways; deliver to an authorised hazardous or special waste collection point in accordance with local regulation. Small residual quantities may be reacted with water in a ventilated area away from ignition sources and, once fully cured, disposed of as solid waste where permitted by local regulation. Fully drained, dry, empty containers may be recycled through approved container recycling programs — do not reuse containers, and do not burn containers or residue. Refer to Section 13 of the SDS for detailed disposal requirements.

Quality Records

Record the batch numbers of all FORSPEC products used, together with injection dates, packer locations and spacing, injection pressures, resin consumption per packer and post-injection leak observations, as part of the project quality assurance records. Batch numbers are printed on the container and provide full manufacturing traceability.

Storage

Store at 5–30°C in original unopened containers, in a cool, dry place away from direct sunlight and all sources of moisture — the resin reacts with water, including atmospheric humidity. The uncured product is combustible: keep away from ignition sources and do not store in pits, depressions, basements or unventilated spaces where vapours can accumulate. Shelf life is 12 months from the date of manufacture when stored as above, unopened. Use opened containers promptly and do not reseal for extended storage.

Safety Precautions and First Aid

ACTFLEX PU500 is classified as hazardous. Handle with chemical-resistant gloves, safety eyewear, protective clothing and, in areas with limited ventilation, suitable respiratory protection. Ensure adequate ventilation during injection works, particularly in confined below-grade spaces — confined space entry requirements under the WHS Regulations apply where relevant. Change contaminated clothing immediately and wash hands before breaks and after work.

First aid — Skin: wash immediately with soap and water; avoid prolonged exposure. Eyes: rinse thoroughly with clean water for at least 15 minutes and seek medical attention. Inhalation: move to fresh air; seek medical attention if breathing difficulty occurs. Spills: contain and absorb with inert material such as sand; prevent entry to drains and waterways. The uncured product is combustible — keep away from ignition sources and vapours. POISONS INFORMATION CENTRE: 13 11 26 (Australia-wide, 24 hours). In an emergency, dial 000. KEEP OUT OF REACH OF CHILDREN. Read the Safety Data Sheet (SDS) before use — available at www.forspec.com.au.

contact.

(02) 8021 3517 info@forspec.com.au 22/872 Canterbury Road, Roselands 2196 NSW (Head Office) www.forspec.com.au

Warranty

Standard Product and Performance Warranty: Forspec Protective Coatings Pty Ltd as Trustee for Forspec Protective Coatings (ABN 11 204 033 631) warrants that ACTFLEX PU500 will be free from manufacturing defects and will not fail under normal usage for a period of ten (10) years from the date of purchase, when installed and used strictly in accordance with this Technical Data Sheet and Forspec's written instructions. This warranty covers the supply of the product only; it does not cover installation, application or workmanship. Remedies are limited, at Forspec's discretion, to replacement of the defective product (or defective portion) or a refund of the purchase price. The full terms, conditions and exclusions are set out in the Forspec Standard Product and Performance Warranty, available at www.forspec.com.au — key conditions include application by a suitably qualified and, where required by law, licensed applicator; use within shelf life; and installation as part of a Forspec approved system without non-approved third-party products.

Project and system warranties: extended project-specific warranties are available at the request of the applicator and must be applied for using the Forspec Warranty Request Form prior to commencement of works. Issue is subject to Forspec approval and is conditional on the use of the complete specified FORSPEC system, application in strict accordance with the current TDS by suitably qualified applicators, and completion of the project quality records described above. The warranty period and terms are as stated in the issued warranty certificate.

Claims: notify Forspec in writing within thirty (30) days of discovery of the alleged defect and within the warranty period, by post to 22/872 Canterbury Road, Roselands NSW 2196 or by email to info@forspec.com.au, including proof of purchase, installation details (date, location, installer), a description of the defect with supporting evidence, and your contact details. Forspec may inspect the site, perform testing and collect samples before determining a claim.

Our goods come with guarantees that cannot be excluded under the Australian Consumer Law. You are entitled to a replacement or refund for a major failure and compensation for any other reasonably foreseeable loss or damage. You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure.

Data Sheet Currency

This Technical Data Sheet (TDS) and the corresponding Safety Data Sheet (SDS) are subject to revision as necessary to ensure compliance with relevant Australian Standards and to incorporate technological advancement. Read the most current versions before use, as application and performance data may be updated. For the latest technical information, contact Forspec Protective Coatings on (02) 8021 3517 or info@forspec.com.au. The information provided is representative and does not serve as a comprehensive specification. For specific projects, consult directly with Forspec Protective Coatings for tailored specifications. This data sheet was issued on 12/11/2026 and is valid for three years from the date of issue unless superseded by a later revision — always confirm the current version at www.forspec.com.au before use.

Conditions of Use, Product Disclaimer, and Statement of Responsibility

1. Accuracy of information. The information in this document is provided in good faith by Forspec Protective Coatings Pty Ltd as Trustee for Forspec Protective Coatings (ABN 11 204 033 631) ('Forspec Protective Coatings') and is, to the best of its knowledge, true and accurate at the date of issue. Forspec Protective Coatings reserves the right to amend this document without notice as part of its continuous product development.

2. Suitability and user responsibility. Substrates, site conditions, workmanship and conditions of use are beyond Forspec Protective Coatings' control. No representation or warranty is made as to the suitability of the product for any particular application. The user must determine the suitability of the product for the intended use by their own assessment and, where appropriate, testing prior to application.

3. Currency of document. It is the responsibility of the customer and the applicator to confirm that this document and the corresponding Safety Data Sheet are the current versions, available at www.forspec.com.au. This document supersedes all previous versions.

4. Compliant use and application. The product must be used strictly in accordance with this document, the relevant Australian Standards, the National Construction Code and all applicable laws and regulations, and must be applied by suitably qualified personnel.

5. Statutory guarantees. Nothing in this document excludes, restricts or modifies any consumer guarantee, right or remedy conferred by the Australian Consumer Law (Schedule 2 of the Competition and Consumer Act 2010 (Cth), ss 64 and 64A) or any other statutory right that cannot lawfully be excluded.

6. Limitation of liability. To the fullest extent permitted by law: (a) all other warranties, conditions and representations, express or implied, are excluded; (b) the total liability of Forspec Protective Coatings for any claim arising out of or in connection with the supply or use of the product is limited, at its election, to the replacement of the product, the supply of an equivalent product, or the refund of the purchase price paid; and (c) Forspec Protective Coatings will not be liable for any indirect, special or consequential loss, including loss of profits, arising from the use of, or inability to use, the product.

7. Advice and recommendations. Any advice, recommendation, information or assistance provided by Forspec Protective Coatings, whether verbal or written, is given in good faith but without liability beyond that stated in clause 6.

contact.

(02) 8021 3517 info@forspec.com.au 22/872 Canterbury Road, Roselands 2196 NSW (Head Office) www.forspec.com.au

Conditions of Use, Product Disclaimer, and Statement of Responsibility (continued)

8. Governing law. This document, and any claim arising out of or in connection with the supply or use of the product, is governed by and interpreted in accordance with the laws of New South Wales, Australia. Any disputes arising from or relating to this document or the product are subject to the exclusive jurisdiction of the Courts of New South Wales, consistent with the Forspec Standard Product and Performance Warranty.



Your Trusted Partner.



contact.

FORSPEC PROTECTIVE COATINGS

(02) 8021 3517 info@forspec.com.au 22/872 Canterbury Road, Roselands 2196 NSW (Head Office) www.forspec.com.au