FORSPEC PROTECTIVE COATINGS

FORCRETE 100.



Technical Data Sheet | **High-Build, High-Strength, Shrinkage-Compensated Structural Repair Mortar** | **Issue date: 12 August 2026**

Description

FORCRETE 100 is a structural-grade, high-build, shrinkage-compensated repair mortar engineered with polymer binders and fibre reinforcement for the reinstatement of concrete on columns, beams, walls and soffits — achieving 70 MPa compressive strength at 28 days. Its thixotropic body places from 3 mm up to 100 mm in a single pass — vertical, overhead and horizontal — without formwork. Meeting the EN 1504-3 Class R4 structural repair thresholds, it delivers high bond to concrete and reinforcement with long-term resistance to chloride ingress, carbonation, abrasion and freeze-thaw. Suitable for hand, trowel and wet-spray placement across internal, external and marine structures.

Advantages

- 70 MPa compressive strength at 28 days — structural-grade reinstatement.
- Application range 3–100 mm in a single pass — vertical, overhead and horizontal, without formwork.
- Shrinkage-compensated — crack-resistant through drying and thermal cycles.
- Polymer-modified — enhanced adhesion, density and workability.
- Excellent bond to concrete and steel reinforcement.
- High resistance to carbonation, chloride ingress, abrasion and freeze-thaw (ASTM C666, 300 cycles).
- Hand, trowel and wet-spray application.
- Enhanced mix option with ACTFLEX 300 polymer additive for bonding and moisture tolerance.
- Durable in internal, external and marine service.

Uses

- Repair of damaged or spalled concrete on columns, beams, walls and soffits.
- Patching and reinstatement around corroded reinforcement.
- Bridge decks, tunnels, marine infrastructure and water-exposed structures.
- Precast element defect repair and structural reinstatement.
- Infrastructure exposed to impact, abrasion or environmental deterioration.

Compliance Status

FORCRETE 100 is a structural repair mortar of the type covered by EN 1504-3 (Products and systems for the protection and repair of concrete structures — Part 3: Structural and non-structural repair). Performance against the Class R4 requirements:

CRITERION	EN 1504-3 CLASS R4 REQUIREMENT	FORCRETE 100	TEST METHOD BASIS
Compressive strength (at 28 days)	≥ 45 MPa	~70 MPa	EN 12190
Adhesive bond to concrete	≥ 2.0 MPa	Greater than 2.0 MPa	EN 1542
Elastic modulus	≥ 20 GPa	~26 GPa	EN 13412
Flexural strength (at 28 days)	Measured value	~10 MPa	EN 1015-11
Freeze-thaw durability	Resistance demonstrated	Pass — 300 cycles	ASTM C666

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

Compliance Status (continued)

Values are typical Forspec R&D characteristic data; full classification testing to EN 1504-3 is available on request from Forspec Protective Coatings. No Australian Standard specifically governs proprietary concrete repair mortars.

Technical Data

PROPERTY	VALUE	BASIS
Form / colour	Grey powder, fibre-reinforced	—
Packaging	20 kg moisture-resistant bag; 50-bag pallet (1,000 kg)	—
Mixing water	3.6 L per 20 kg bag	—
Density (wet mix)	2,100 kg/m³	—
Compressive strength (at 1 / 7 / 28 days)	~25 / ~51 / ~70 MPa	EN 12190 basis *
Flexural strength (at 28 days)	~10 MPa	EN 1015-11 basis *
Adhesive bond to concrete	Greater than 2.0 MPa	EN 1542 basis *
Modulus of elasticity	~26 GPa	EN 13412 basis *
Coefficient of thermal expansion	7–10 x 10^{-6} /°C	*
Thermal conductivity	1.4 W/m·K	*
Drying shrinkage (at 7 / 28 / 56 days)	<100 / <350 / <450 με	*
Setting time (at 25°C, 50% RH)	Initial ~1.5 hours; final ~2.5 hours	*
Pot life (at 25°C, 50% RH)	30–40 minutes	*
Application thickness	3–100 mm per pass (vertical, overhead and horizontal)	—
Freeze-thaw resistance	Pass — 300 cycles	ASTM C666 *
Application temperature	5–35°C (ambient and substrate)	—
Shelf life	12 months, unopened bags, stored dry	—

* Typical characteristic values determined by Forspec R&D on standard production material at 25°C and 50% relative humidity. Values are not to be relied upon for engineering design without written confirmation from FORSPEC Technical Services.

Consumption

Powder consumption: approximately 1.8 kg of FORCRETE 100 per m² per mm of thickness. Basis: wet mix density 2,100 kg/m³, of which powder is 20 ÷ 23.6 = 84.7% by weight — 2.1 kg/m²/mm x 0.847 = 1.78 kg/m²/mm. Worked example: a 25 mm repair over 1 m² requires 1.8 x 25 = 45 kg — approximately two and a quarter 20 kg bags.

Yield

One 20 kg bag mixed with 3.6 L of water produces approximately 23.6 kg of wet mortar, which at 2,100 kg/m³ yields approximately 11.2 litres. Check: 20 kg ÷ 1.8 kg/m²/mm = 11.1 m² at 1 mm ≡ 11.1 L — the consumption and yield figures reconcile.

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Coverage and Yield

REPAIR THICKNESS	COVERAGE PER 20 KG BAG
3 mm	Approx. 3.7 m^2
10 mm	Approx. 1.1 m^2
25 mm	Approx. 0.45 m^2
50 mm	Approx. 0.22 m^2
100 mm	Approx. 0.11 m^2

Coverage is theoretical (yield ÷ thickness) and will vary with surface profile, wastage and application method.

Limitations

- Apply between 5–35°C (ambient and substrate); do not apply below 5°C and falling, or onto frozen substrates.
- Never exceed the mixing water dose (3.6 L per 20 kg bag) — overwatering reduces strength and delays setting.
- New concrete must be a minimum of 28 days old.
- Application thickness 3–100 mm per pass; repairs deeper than 100 mm in successive layers.
- Do not apply to unstable or moving substrates — reflective cracking will occur.
- Curing is mandatory: ACTFLEX CURESEAL or damp hessian and plastic sheeting for a minimum of 72 hours; do not allow the surface to dry, or expose it to rain or traffic, in the first 24 hours.
- Use ACTFLEX EP250 as the primer for immersed or wet-exposure conditions.
- Never re-temper or reuse stiffened mortar.
- The wet mix is alkaline — refer to Safety Precautions and the SDS.

Surface Preparation

- Mechanically remove all damaged, spalled and unsound concrete from the repair zone.
- Saw-cut perimeter edges to a minimum depth of 5 mm with square (90°) edges — do not feather-edge.
- Prepare the exposed substrate to a sound, roughened profile of CSP 4–6 (ICRI guideline), free of laitance, dust, oil and contaminants.
- Saturate the substrate with clean water and bring to a saturated surface dry (SSD) condition — no standing water at placement.
- Exposed reinforcement: clean to bright metal (ISO 8501-1 Sa 2½) and prime immediately.
- New concrete: minimum 28 days old before repair.

Priming

- ACTFLEX 300 (general use): apply to all prepared concrete surfaces and place the mortar while the primer is tacky. If the primer dries, re-apply — never place mortar over dry or overly wet primer; both cause bond failure or slumping.
- ACTFLEX EP250 (damp, porous or immersed exposure): apply to SSD porous surfaces and wherever the completed repair will be exposed to moisture or immersion, per its TDS; place the mortar at the tack stage and re-prime if it cures out.
- Zinc-rich steel primer: apply a single-pack zinc-rich primer to cleaned reinforcement immediately after abrasive blasting, coating the steel only — keep it off the surrounding concrete, where it acts as a bond breaker.

Mixing

- Use only mechanical mixing: a high-torque drill with spiral or helical paddle (400–600 RPM) or a forced-action paddle mixer. Never use free-fall drum mixers, rotating barrels or hand mixing — they cannot uniformly blend polymer-modified mortar and cause segregation and strength loss.
- Ensure the vessel is clean and free of hardened residue; pre-wet the vessel when ambient temperature exceeds 30°C.
- Measure exactly 3.6 L of clean potable water per 20 kg bag into the vessel first.

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Mixing (continued)

- Enhanced mix: for improved bonding and moisture tolerance, replace the water with a 2:1 blend of clean water and ACTFLEX 300 (2.4 L water + 1.2 L ACTFLEX 300 per bag).
- With the mixer running at slow speed, add the powder gradually and continuously — never in one dump.
- Mix 3–5 minutes at medium speed to a smooth, lump-free mortar; pause 1 minute for air release; re-mix 30 seconds.
- The finished mix is stiff and thixotropic and holds its shape on the trowel.
- Pot life is 30–40 minutes at 25°C and 50% RH — mix only what can be placed in that window; in warm conditions mix smaller batches or chill the mixing liquid. Never add water to re-temper.

Application

- **Pre-placement checks**
  Confirm the substrate is primed and at the tack stage, reinforcement is zinc-primed, the substrate is SSD with no standing water, and the batch quantity is planned against thickness, area and the 30–40 minute working window.
- **Hand placement**
  Place FORCRETE 100 with a stainless-steel trowel, pointing tool or gloved hand, working from the base of the repair upward. Press the mortar firmly into the substrate and fully around reinforcement bars to eliminate voids and achieve intimate contact. Compact with trowel pressure or light tamping, paying particular attention to edges, bond lines and embedded steel. Checks: no voids behind bars; square edges filled solid; the repair holds without slump.
- **Layering**
  For repairs deeper than 100 mm, build in successive layers: allow each layer to stiffen — not fully cure — then lightly scarify its surface to key the next pass.
- **Overhead placement**
  Apply overhead in controlled passes up to 100 mm, pressing and keying each pass firmly into the substrate. Where additional hold is needed, stiffen the mix marginally by reducing the water within the stated dose — never below workability.
- **Finishing**
  Once the mortar begins to firm at initial set, finish with a steel float for smooth surfaces or a sponge float for texture. Do not wet the surface and do not overwork after initial set.
- **Wet-spray application**
  FORCRETE 100 is compatible with low-pressure wet-spray mortar equipment fitted with a variable-output rotor/stator and a compressor delivering a minimum of 3–5 bar. Use a circular or flat nozzle of 10–14 mm aperture at 30–50 cm from the surface, and trowel-finish each layer immediately after spraying.
- **Curing**
  Cure immediately after finishing: apply ACTFLEX CURESEAL water-based curing compound, or cover with damp hessian and plastic sheeting, maintained for a minimum of 72 hours. In hot, dry or windy conditions begin curing as soon as the surface resists marking. Do not allow the surface to dry, and do not expose it to rainfall, hose water or traffic, during the first 24 hours.
- **Temperature extremes**
  Below 10°C: use warm mixing water to assist strength gain; do not apply below 5°C and falling. Above 30°C: use chilled mixing water, shade materials, and avoid placement in direct sun; do not apply above 35°C.

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
Mixing	3–5 minutes, pause 1 minute, re-mix 30 seconds
Pot life	30–40 minutes *
Initial set	Approx. 1.5 hours *
Final set	Approx. 2.5 hours *
Curing — ACTFLEX CURESEAL or damp hessian and plastic	Minimum 72 hours
Protection from drying, rain and traffic	First 24 hours
Light foot traffic	24 hours *

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Drying, Curing and Testing Times (continued)

STAGE (AT 25°C, 50% RH)	TIME
Overcoating with FORSPEC membranes and coatings	Minimum 7 days, moisture verified *
Strength development	Approx. 25 / 51 / 70 MPa compressive at 1 / 7 / 28 days *

* Typical R&D characteristic values, not for engineering design without written FORSPEC confirmation.

Clean Up

Clean all tools and equipment immediately with water after use. Hardened FORCRETE 100 can only be removed mechanically. Wash water and unhardened slurry must not be discharged to sewers, stormwater systems or waterways — allow washings to settle, decant the water, and dispose of solids in accordance with the relevant State or Territory environment protection legislation and local council requirements.

Container and Waste Disposal

Hardened FORCRETE 100 may be disposed of as inert construction and demolition waste, or recycled where facilities accept it. Unhardened material and slurries are not to enter drains or waterways — allow to harden before disposal. Empty bags are disposed of in accordance with local council requirements; do not reuse bags. Refer to Section 13 of the SDS for detailed disposal requirements.

Quality Records

Record the batch numbers of all FORCRETE 100 and ACTFLEX 300 used, mix type (standard or enhanced), mixing water dosages, primer systems applied, application dates, ambient conditions, layer thicknesses and curing method, as part of the project quality assurance records. Batch numbers are printed on the bag and provide full manufacturing traceability.

Storage

Store in unopened bags, off the ground on a dry pallet, in cool, dry conditions protected from moisture, humidity and weather. Shelf life is 12 months from the date of manufacture when stored as specified. Do not use product from damaged or moisture-affected bags.

Safety Precautions and First Aid

FORCRETE 100 contains portland cement and may contain respirable crystalline silica. The wet mortar is alkaline and can cause burns to skin and eyes; dust from the dry powder is hazardous if inhaled. When handling and mixing, wear a P2 dust respirator, chemical-resistant gloves, protective eyewear and covering clothing, and mix in ventilated conditions. Avoid kneeling in wet mortar. Wash hands before breaks and after work.

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Safety Precautions and First Aid (continued)

First aid — Eyes: rinse immediately with clean water for at least 15 minutes, holding the eyelids open, and seek medical attention. Skin: wash affected areas with water; remove contaminated clothing; seek medical attention for burns. Inhalation of dust: move to fresh air. Swallowed: rinse mouth, drink water, do not induce vomiting; seek medical advice. 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.

Warranty

Standard Product and Performance Warranty: Forspec Protective Coatings Pty Ltd as Trustee for Forspec Protective Coatings (ABN 11 204 033 631) warrants that FORCRETE 100 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 12/08/2026 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.

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