FORSPEC PROTECTIVE COATINGS

FORBUILD 100.



Technical Data Sheet | **FIBRE-Reinforced, Polymer-Modified Structural Repair Mortar** | **Issue date: 12 August 2026**

Description

FORBUILD 100 is a single-component, cement-based structural repair mortar, fibre-reinforced, microsilica and polymer modified, and formulated with corrosion inhibitors. It is engineered for the repair and reinstatement of reinforced concrete in aggressive environments: it protects embedded steel reinforcement against chloride-driven corrosion and restores an alkaline environment to carbonated concrete. Its thixotropic consistency and long open time allow vertical, horizontal, overhead and ramping repairs — patch repairs, edge rebuilding, falls correction and water-resistant protective layers — placed by hand or wet-spray without formwork. FORBUILD 100 requires only the addition of clean water on site.

Advantages

- Single-component — mixed with clean water only; no site-batched additives, no mixing ratios between components.
- Corrosion inhibitors protect reinforcement against chlorides and aggressive agents, extending structural life.
- High-strength structural repair — compressive strength 56 MPa at 28 days.
- Thixotropic — high build without slump or formwork on vertical and overhead surfaces.
- Long open time — 60-minute pot life at 25°C and 50% RH for efficient repair of large areas.
- Microsilica-modified — high chemical resistance and low permeability in aggressive environments.
- Durable through freeze/thaw cycling, de-icing salt exposure and carbonation.
- Excellent adhesion to correctly prepared concrete and steel reinforcement.
- Applied by hand or wet-spray; odourless and suitable for use in poorly ventilated areas.
- Suitable for water-retaining and water-resistant structures.

Uses

- Structural concrete repairs where reinforcement has been affected by corrosion — marine structures, bridges, harbours, ports, dams, tunnels and retaining walls.
- Repair of carbonated concrete — restoring alkalinity and protecting steel reinforcement.
- Rehabilitation of concrete exposed to de-icing salts, freeze/thaw cycles, chloride attack and mechanical impact.
- Maintenance and restoration of concrete damaged by aggressive environments — acid rain, industrial emissions and atmospheric pollution.
- Vertical, horizontal and overhead repairs — patch repairs, ramping, falls correction, edge rebuilding and protective layers.
- Water-retaining and water-resistant structures — tanks, canals, culverts and treatment plants.
- Preventive maintenance and durability enhancement of new and existing reinforced concrete.

Compliance Status

FORBUILD 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	FORBUILD 100	TEST METHOD BASIS
Compressive strength (at 1 / 7 / 28 days)	25 / 46 / 56 MPa	56 MPa	EN 12190
Adhesive bond to concrete	≥ 2.0 MPa	2.34 MPa	EN 1542

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Compliance Status (continued)

CRITERION	EN 1504-3 CLASS R4 REQUIREMENT	FORBUILD 100	TEST METHOD BASIS
Elastic modulus	≥ 20 GPa	30 GPa	EN 13412
Flexural strength (28 days)	≥ 8 MPa (measured value)	10.3 MPa	EN 1015-11

Full classification testing to EN 1504-3 is available on request from Forspec Protective Coatings. No Australian Standard specifically governs proprietary concrete repair mortars; performance values are Forspec R&D characteristic data unless a test report is cited.

Technical Data

PROPERTY	VALUE	BASIS
Appearance / colour	Grey powder	—
Packaging	20 kg bag	—
Mixing water	16% ± 1% by weight — 3.2–3.4 L per 20 kg bag	—
Apparent density (powder)	1,130 ± 50 kg/m³	—
Apparent density (hardened)	2,140 ± 50 kg/m³	—
Pot life (at 25°C, 50% RH)	60 minutes	—
Setting time (at 25°C, 50% RH)	Initial 75 minutes; final 120 minutes	—
Compressive strength (28 days)	56 MPa	EN 12190 basis *
Flexural strength (at 7 / 28 days)	6.8 MPa / 10.3 MPa	EN 1015-11 basis *
Adhesion to concrete	2.34 MPa	EN 1542 basis *
Dynamic modulus of elasticity	30,000 MPa (30 GPa)	EN 13412 basis *
Capillarity	0.40 g/dm²·min½	—
Build thickness — horizontal	3–100 mm per layer	—
Build thickness — vertical / overhead	3–40 mm per pass, to 100 mm total	—
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. Compressive strength at 1 and 7 days is derived from the verified 28-day result against the standard strength-gain curve for this mortar class and is stated as a typical R&D value.

Consumption

Powder consumption: 1.85 kg of FORBUILD 100 powder per m² per mm of thickness. Worked example: a 10 mm repair over 1 m² requires 1.85 x 10 = 18.5 kg of powder — approximately one 20 kg bag.

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Yield

One 20 kg bag mixed with 3.2–3.4 L of water yields approximately 11 litres of mortar (approximately 0.54 L per kg of powder). Check: 20 kg ÷ 1.85 kg/m²/mm = 10.8 m² at 1 mm ≡ 10.8 L ≈ 11 L — the consumption and yield figures reconcile.

Coverage and Yield

REPAIR THICKNESS	COVERAGE PER 20 KG BAG
3 mm	Approx. 3.6 m²
5 mm	Approx. 2.2 m²
10 mm	Approx. 1.1 m²
20 mm	Approx. 0.55 m²
50 mm	Approx. 0.22 m²
100 mm	Approx. 0.11 m²

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

Limitations

- Do not apply below 5°C or above 35°C (ambient or substrate), or onto frozen or frost-covered substrates.
- Protect fresh applications from rain, frost and rapid drying caused by wind or direct sunlight.
- Build thickness: horizontal 3–100 mm per layer; vertical and overhead 3–40 mm per pass, to 100 mm total. Deeper repairs in multiple layers with curing between coats.
- Do not add cement, lime, gypsum or any other additive.
- Never exceed the mixing water dose (3.2–3.4 L per 20 kg bag) — excess water reduces strength, adhesion and durability.
- Never re-temper or reuse stiffened mortar; if the slurry coat dries, apply a fresh slurry coat before continuing.
- Do not apply curing compounds to repaired surfaces — cure by water misting or protective coverings only.
- Not suitable over bituminous coatings, weak or friable substrates, or substrates with active rising damp without prior treatment.
- Reinforcement must be cleaned to bright metal and covered by a minimum of 10 mm of mortar.
- Setting and curing times are measured at 25°C and 50% RH — higher temperatures shorten and lower temperatures extend them.
- For applications outside this data sheet, contact the Forspec Technical Department.

Surface Preparation

- Remove all damaged, weak and loose concrete from the repair zone. Cut edges square to a minimum depth of 5 mm — do not feather-edge.
- Where reinforcement is corroded, expose the bar and remove surrounding concrete until the steel is free of rust, allowing a minimum 10 mm cover of FORBUILD 100 behind and over the bar.
- Clean reinforcement to a bright metal finish by wire brushing, needle gunning or abrasive blasting.
- Structural cracks: rectify with the FORSPEC epoxy crack repair range — PROBOND 1100, CRACK PRO 1200PS or CRACKLOCK E400L per their TDS. Active leaks: seal with ACTFLEX FLEXIPLUG before mortar application.
- Ramps and horizontal surfaces: mechanically roughen by grinding, bush-hammering or scabbling to a sound, clean substrate with mechanical key; remove all laitance, dust, grease and standing water; cut and level slope corrections so the mortar bonds fully with no thin feather edges.
- Pre-wetting: dampen the substrate to a saturated surface dry (SSD) condition before application — no free water.

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Priming and Bonding Coat

Prime the prepared substrate with ACTFLEX 300 before applying FORBUILD 100, applied evenly by brush or roller; on porous or highly absorbent substrates apply two coats, allowing the first to dry, and place the mortar while the second coat is at a tack stage (approximately 30 minutes — not fully dry). Typical primer dry time is approximately 1 hour at 25°C and 50% RH. For maximum adhesion, apply a slurry bonding coat of 1 part ACTFLEX 300 : 1 part clean water : 3 parts FORBUILD 100 powder, mixed to a brushable consistency, brushed firmly into the substrate and allowed to set for 10 minutes before the main mortar is placed. Mortar must always be placed while the primer or slurry coat is still tacky.

Mixing

- Use clean water free of contaminants.
- Pour the measured water into a clean container first: 3.2–3.4 L per 20 kg bag (16% ± 1% by weight). For spray or pump application, up to 3.6 L may be used for a more workable consistency.
- Slowly add the powder into the water — never add water onto the powder.
- Mix mechanically with a low-speed drill (400–600 RPM) and paddle for 3–4 minutes to a homogeneous, lump-free mortar.
- Scrape the sides and base of the container to incorporate all dry powder.
- Allow the mix to rest for 1–2 minutes, then re-mix briefly before placing.
- Mix only the quantity that can be placed within the 60-minute pot life at 25°C and 50% RH.
- Never re-temper or reuse stiffened mortar.

Application

- **Horizontal surfaces — slabs, ramps, patches**
  Place the mixed mortar directly onto the tacky primer or slurry coat. Spread with a trowel or screed bar, compacting well into the surface, and level ramps and falls with a straightedge. Float with a wooden or steel float as the mortar firms. Where the repair will receive tile adhesive, screed or coatings, lightly broom-finish before final set. Checks: no bleed water or segregation; falls consistent after compaction; no hollow sound when tapped.
- **Vertical and overhead surfaces — walls, beams, soffits**
  Apply by trowel or wet-spray in passes of 5–40 mm, built up to 100 mm total. Compact firmly against the substrate and around exposed reinforcement to eliminate voids. Where a previous layer has fully hardened, roughen and dampen it before the next pass. Support larger overhead sections with trowel pressure initially, then float as the mortar stiffens. Checks: no sag or slump; reinforcement covered by a minimum of 10 mm; surface finishes without dragging or tearing.

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	3–4 minutes at 400–600 rpm, rest 1–2 minutes, re-mix briefly
Pot life	60 minutes
Initial set	75 minutes
Final set	120 minutes
Misting in drying conditions	At least 1 hour immediately after finishing
Light foot traffic	24 hours *
Overcoating with FORSPEC membranes and coatings	Minimum 7 days, moisture verified *
Strength development	56 MPa compressive at 28 days *

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Drying, Curing and Testing Times (continued)

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

Curing

Protect fresh FORBUILD 100 from rapid drying caused by wind, direct sunlight or high temperature. In drying conditions, lightly mist the surface with clean water for at least 1 hour immediately after finishing. When the ambient temperature exceeds 30°C and relative humidity is below 50%, cover repairs with damp hessian or plastic sheeting for the first 24 hours. Maintain curing for a minimum of 48 hours. Do not use curing compounds.

Clean Up

Clean all tools and equipment immediately with water after use. Hardened FORBUILD 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 FORBUILD 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 FORBUILD 100 used, together with mixing water dosages, primer and slurry coat details, application dates, ambient conditions, layer thicknesses and curing methods, 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 pallets, in 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

FORBUILD 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 or with dust extraction. 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 FORBUILD 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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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.

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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.

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