ACTFLEX BIOSET.



Technical Data Sheet | **Polymer-Modified Cementitious Tile Adhesive — C2TE S1** | **Issue date: 11 November 2026**

Description

ACTFLEX BIOSET is a premium-grade, polymer-modified cementitious tile adhesive, designated C2TE S1 in accordance with AS ISO 13007, for high-performance fixing of ceramic, porcelain, vitrified tiles and most natural stone in internal and external applications. It is the tested, approved direct-stick adhesive for the FORSPEC liquid membrane range — the only adhesive with accredited membrane-to-tile system testing over both ACTFLEX 989 CWP and ACTFLEX 906 WPU under AS ISO 13007.5, fixing tile straight to the cured membrane with no primer and no slip layer. Its improved cementitious bond, reduced slip on vertical work, extended open time and S1 deformability accommodate normal building movement while delivering strong mechanical keying and long-term durability. Supplied in 20 kg bags and mixed only with clean water.

Advantages

- C2TE S1 designation under AS ISO 13007 — improved cementitious bond certified at more than double the C2 threshold.
- System-tested over BOTH FORSPEC membranes — accredited AS ISO 13007.5 membrane-to-tile testing bonded to ACTFLEX 989 CWP and ACTFLEX 906 WPU.
- Direct-stick to cured FORSPEC membranes — no primer, no slip layer.
- S1 deformable — certified transverse deformation accommodating minor substrate movement.
- Extended open time and 5–15 minute adjustment window for accurate placement.
- Reduced slip for vertical applications.
- Internal and external; walls and floors; ceramic, porcelain, vitrified tile and most natural stone.
- Single powder — mixes with clean water only.
- Grout from 24 hours; full service from 72 hours.

Uses

- Direct-stick tiling to cured FORSPEC liquid-applied under-tile membranes — ACTFLEX 989 CWP, ACTFLEX 988 CWP and ACTFLEX 906 WPU systems, per each membrane TDS.
- Internal and external floors and walls over prepared concrete, cement renders and screeds.
- Ceramic, porcelain and vitrified tiles, and most natural stone (stability-tested where moisture-sensitive).
- Plasterboard, fibre-cement and compressed fibre-cement substrates prepared per AS 3958:2023.
- Wet areas and external installations at 100% adhesive coverage with mandatory back-buttering rules.
- Swimming pools, spas and water features — immersed tiling over a cured ACTFLEX 989 CWP or ACTFLEX 988 CWP membrane system.

Compliance Status

ITEM	STATUS	REFERENCE
AS ISO 13007.2 — adhesion (C2)	Certified — initial 2.194, water immersion 1.453, heat ageing 1.771, freeze-thaw 1.449 N/mm² (requirement ≥1.0)	XTecGen Report 571-2
AS ISO 13007.2 — deformability (S1)	Certified — transverse deformation 3.270 mm (S1: 2.5–5 mm)	XTecGen Report 571-2
AS ISO 13007.2 — open time (20 minutes)	Certified — 0.856 N/mm² after 20 minutes (requirement ≥ 0.5)	XTecGen Report 571-2

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Compliance Status (continued)

ITEM	STATUS	REFERENCE
T (reduced slip) and E (extended open time)	FORSPEC R&D results to AS ISO 13007.2 methods - slip ≤ 0.5 mm; tensile adhesion ≥ 0.5 N/mm² after 30 minutes	FORSPEC R&D *
AS ISO 13007.5 — system over ACTFLEX 989 CWP	All fundamental requirements passed — adhesion 0.82, heat-aged 0.86, lime water 0.63 N/mm²; impermeability pass; crack bridging 0.89 mm	XTecGen Report 568-2
AS ISO 13007.5 — system over ACTFLEX 906 WPU	Passed — initial adhesion 1.128, heat-aged 1.293 N/mm²; impermeability pass	XTecGen Report 569-2
Hazard classification	Hazardous chemical (non-dangerous goods) — signal word DANGER; contains crystalline silica	SDS Chemwatch 9010-40

Technical Data

PROPERTY	VALUE	BASIS
Product type	Polymer-modified cementitious tile adhesive (powder)	—
Designation	C2TE S1 (AS ISO 13007) - C2 and S1 certified; T and E FORSPEC R&D results	Report 571-2 / FORSPEC R&D
Colour	Grey	—
Packaging	20 kg multi-wall paper bag with moisture-resistant inner lining	—
Initial tensile adhesion	2.194 N/mm²	Report 571-2
Adhesion after water immersion	1.453 N/mm²	Report 571-2
Adhesion after heat ageing	1.771 N/mm²	Report 571-2
Adhesion after freeze-thaw cycling	1.449 N/mm²	Report 571-2
Open-time adhesion	0.856 N/mm² (requirement ≥0.5)	Report 571-2
Transverse deformation	3.270 mm — S1 (2.5–5 mm)	Report 571-2
Slip	≤ 0.5 mm	FORSPEC R&D *
Water addition	5.0–5.5 L per 20 kg bag (25–27.5% by weight of powder)	—
Mixed yield	Approx. 15 L per 20 kg bag	* worked below
Pot life	Up to 3 hours (as tested at 23°C, 50% RH)	*
Open time	≥ 30 minutes	FORSPEC R&D *
Adjustment time	5–15 minutes	*
Grouting (at 25°C, 50% RH)	From 24 hours	—
Light foot traffic (at 25°C, 50% RH)	From 24 hours	—
Full service (at 25°C, 50% RH)	From 72 hours	—
Working temperature	+5°C to +35°C	—
Shelf life	9 months, unopened, stored dry off the ground	—

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Technical Data (continued)

Values citing Report 571-2 are certified results from NATA-accredited testing. T (reduced slip) and E (extended open time) are FORSPEC R&D results to AS ISO 13007.2 test methods. * Typical FORSPEC R&D values, not to be relied upon for engineering design without written confirmation from FORSPEC Technical Services.

Coverage and Yield

Mixed yield: 20 kg powder + approx. 5.25 L water = 25.25 kg of mixed adhesive at a typical wet density of approx. 1.68 kg/L ≈ 15 L per bag.* Consumption follows the effective adhesive bed: notched ribs combed at 45° collapse to roughly half the notch depth when the tile is bedded, so powder consumption ≈ effective bed (mm) × wet density × powder fraction (79%). Typical coverage per 20 kg bag:*

NOTCHED TROWEL	TYPICAL APPLICATION	APPROX. POWDER CONSUMPTION	APPROX. COVERAGE PER 20 KG BAG
6 mm notch	Small-format wall and floor tiles on flat substrates	2.9–3.3 kg/m²	6–7 m²
10 mm notch	Standard floor tiles; textured substrates	4.4–5.0 kg/m²	4–4.5 m²
12 mm notch	Large tiles; uneven beds	5.7–6.7 kg/m²	3–3.5 m²
Large format (>600 mm), back-buttered	Mandatory back-buttering — large format, external, wet areas	6.7–8.0 kg/m²	2.5–3 m²

* Worked typical values — actual consumption varies with substrate flatness, tile back profile, trowel wear and technique, and coverage is always governed by the AS 3958:2023 coverage requirements verified by periodic lift checks, never by theoretical yield. Trowel selection per AS 3958:2023 Table 5.6.2.2.

Limitations

- Swimming pools, spas and water features: suitable for immersed tiling over a cured ACTFLEX 989 CWP or 988 CWP system at 100% adhesive coverage. Adhesion after water immersion 1.453 N/mm² (AS ISO 13007.2, Report 571-2). Fill no earlier than the membrane TDS allows (10 days after the final membrane coat) and once the grout has cured.
- Not for metal substrates.
- Not for floors with deflection greater than span ÷ 500 — joist construction per AS 1684 and AS 3958:2023 clause 4.3.2.6.
- Not for substrates subject to ongoing shrinkage or movement (e.g. timber floors), unstable substrates, or high structural movement.
- Never apply below +5°C or above +35°C.
- Never fix into skinned adhesive — remove it and apply fresh material.
- Moisture-sensitive or dimensionally unstable natural stone requires thermal and moisture stability testing before installation — consult the tile supplier or FORSPEC Technical Services.
- Never use the adhesive to level or correct significant substrate irregularities.
- Movement joints are never filled with adhesive or grout.

Substrate Preparation

All substrates must be structurally sound, rigid and dimensionally stable, with deflection complying with AS 3958:2023, and clean, dry or appropriately conditioned — free from dust, oil, grease, wax, curing compounds, paint, laitance, sealers and loose or friable material. Mechanically remove weak surface layers; abrade smooth or non-porous surfaces to a mechanical key; repair cracks, voids and defects before tiling; surface regularity per AS 3958:2023. Substrates subject to rising damp or continuous moisture are treated with an approved FORSPEC moisture-barrier system first.

- CONCRETE — minimum 7 days cured (28 days preferred for structural slabs); laitance removed by grinding or shot blasting; open, porous, dimensionally stable, cracks repaired; prime if excessively porous or dusty.
- CEMENT RENDERS — minimum 7 days cure, fully bonded, weak layers removed, checked for cracking and debonding.
- CEMENT SCREEDS — minimum 7 days cure (longer for thick screeds); shrinkage cracks stabilised; dry, firm, laitance removed; deflection per AS 3958:2023.
- PLASTERBOARD — securely fixed, no movement or flex, joints finished flush; prime where jointing compound has been used.
- FIBRE-CEMENT SHEETING (walls) — securely fixed, joints treated per the manufacturer, clean and dust-free; priming recommended.

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Substrate Preparation (continued)

- COMPRESSED FIBRE-CEMENT SHEET (floors) — joints treated; internal and external tiling per the sheet manufacturer's TDS; floor rigidity per AS 3958:2023.
- EXTERNAL FIBRE-CEMENT SHEET — rated for external tiling, installed per the manufacturer; waterproofing where specified; priming recommended.
- FORSPEC LIQUID-APPLIED UNDER-TILE MEMBRANES — membrane fully cured per its TDS; clean and contamination-free; light abrasion may be required; system compatibility per the accredited AS ISO 13007.5 testing.

Mixing — Worked

- Water addition: 5.0–5.5 L of clean water per 20 kg bag — 25–27.5% by weight of powder (mid-point 5.25 L = 26%).
- Measure the water accurately into a clean mixing vessel FIRST, then gradually add the powder while mixing.
- Mix with a low-speed electric mixer (≤600 rpm) for a minimum of 3 minutes to a smooth, lump-free consistency.
- Allow to stand (slake) for 5–10 minutes, then re-mix for 1 minute WITHOUT adding water.
- Never overwater, never add water after slaking, and discard material once the pot life is exceeded — up to 3 hours at 23°C, 50% RH; higher temperatures reduce working time.

Application and Fixing

Key the adhesive firmly into the prepared substrate with the flat side of the trowel — essential for mechanical bond and eliminating air pockets — then immediately comb with the correctly sized notched trowel held at approximately 45° to produce uniform ridges. Spread only the area that can be tiled within the open time; heat, wind and substrate porosity shorten it. Place each tile with a sliding, pressing motion, tap with a rubber mallet to collapse the ridges, and lift tiles periodically to verify coverage: 100% adhesive coverage in internal dry areas AND in external and wet areas, per AS 3958:2023 Table 5.6.5.2. Back-buttering is MANDATORY for large-format tiles (over 600 mm), external installations and wet areas. Never fix into adhesive that has skinned or lost tack — remove and re-apply fresh. Maintain consistent bed thickness and avoid voids beneath tiles.

Movement Joints

Install movement joints in accordance with AS 3958:2023: honour all structural joints through the tile bed and finish, provide perimeter joints, and provide joints at every change of substrate. Movement joints are never filled with adhesive or grout — seal with the appropriate FORSPEC joint sealant, such as ACTFLEX MS PRO or ACTFLEX 75FC, per the sealant TDS.

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 — initial	Minimum 3 minutes at 600 rpm or less
Slake (stand)	5–10 minutes
Re-mix	1 minute — no further water
Pot life	Up to 3 hours (as tested at 23°C, 50% RH)
Open time	30 minutes minimum *
Adjustment time	5–15 minutes *
Grouting	From 24 hours
Light foot traffic	From 24 hours
Full service	From 72 hours

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

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Grouting and Return to Service

Grout after a minimum of 24 hours at 25°C, 50% RH — longer in cold or humid conditions — using an appropriate cementitious or epoxy grout. Light foot traffic from 24 hours; full service from 72 hours.

Clean Up

Clean tools and equipment with water immediately after use, before the adhesive sets — cured material can only be removed mechanically. Do not discharge adhesive or wash water into drains, soil or waterways.

Container and Waste Disposal

Allow residues to fully harden before disposal in accordance with State and local requirements; route unused powder to an authorised waste collection point per the SDS, Section 13. Empty bags are disposed of as construction waste — never reused for food or water.

Quality Records

Record the batch numbers of all bags used, substrate preparation and priming decisions, membrane cure confirmation where tiling over FORSPEC membranes, trowel sizes and back-buttering, periodic lift-check results against the coverage requirements, grouting timing, and ambient conditions, as part of the project quality assurance records.

Storage

Store in original, unopened bags in a cool, dry environment, off the ground on pallets and protected from moisture — the bags carry a moisture-resistant inner lining but are not weatherproof. Do not use damaged or moisture-affected bags. Shelf life: 9 months from the date of manufacture when stored as specified.

Safety Precautions and First Aid

ACTFLEX BIOSET is classified as a HAZARDOUS CHEMICAL (non-dangerous goods), signal word DANGER, under its current Safety Data Sheet (Chemwatch 9010-40): causes skin irritation; may cause an allergic skin reaction; CAUSES SERIOUS EYE DAMAGE; may cause respiratory irritation; suspected of causing genetic defects; may cause damage to organs through prolonged or repeated exposure. The powder contains CRYSTALLINE SILICA (quartz) and portland cement — avoid ALL dust generation and inhalation: never dry-sweep spilt powder, add powder to water gently, ensure ventilation, and wear respiratory protection during handling and mixing along with protective gloves, protective clothing, and eye and face protection. Wet adhesive is strongly alkaline — avoid skin contact and do not allow clothing wet with material to stay against the skin. Contaminated work clothing must not leave the workplace. Do not eat, drink or smoke when handling; wash hands before breaks and after work.

First aid — Eyes: immediately hold eyelids apart and flush continuously with clean water for at least 15 minutes; seek medical attention without delay. Skin: remove contaminated clothing and wash thoroughly with soap and water; seek medical advice if irritation or rash occurs. Inhaled: remove to fresh air and keep comfortable. Swallowed: do NOT induce vomiting; rinse mouth and seek medical attention immediately. 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 ACTFLEX BIOSET 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.

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Warranty (continued)

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 11/11/2026 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.

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