FSE302

MOISTURE-TOLERANT EPOXY PRIMER FOR CARBON FIBRE STRENGTHENING SYSTEMS

50 MPa	≥ 20 MPa	2 : 1	40 min
TENSILE STRENGTH	BOND TO CONCRETE	MIX RATIO (BY WEIGHT)	POT LIFE (23 °C)

DESCRIPTION

FSE302 is a two-component, low-viscosity epoxy primer that penetrates and consolidates concrete and masonry substrates, eliminates surface outgassing, and provides a high-bond adhesion bridge for subsequently applied FIDSTRONG carbon fibre strengthening systems. Its low tensile modulus and high elongation accommodate minor substrate movement without bond failure.

INTENDED USES

- Priming of concrete, masonry, steel, and timber substrates prior to application of FSE322 saturating resin (fabric system) or FSE362 plate bonding adhesive (plate system)
- Sealing of porous or carbonated concrete surfaces to prevent outgassing during adhesive curing
- Consolidation of low-strength or laitance-affected surface layers prior to structural bonding

CHARACTERISTICS

- Low viscosity (≤ 600 mPa·s) — penetrates deep into concrete pores for maximum adhesion
- Moisture tolerant — can be applied to damp (not wet) substrates without bond reduction
- Low tensile modulus, high elongation — flexible interphase that accommodates thermal movement
- Solvent-free, low VOC — suitable for enclosed spaces and occupied buildings
- Simple 2 : 1 mix ratio by weight — fast preparation with colour-coded components

PRODUCT INFORMATION

PROPERTY	VALUE
Appearance	Component A: transparent; Component B: brown; Mixed: yellow
Mix Ratio	A : B = 2 : 1 by weight
Packaging	20 kg (A) + 10 kg (B) per kit, or customised packaging
Storage	Dry, away from direct sunlight, +4 °C to +32 °C
Shelf Life	18 months in original, unopened packaging

TECHNICAL PROPERTIES

MIXED / CURED RESIN — TESTED AT 23 °C / 50 % RH UNLESS STATED

PROPERTY	TEST METHOD	VALUE
HANDLING (MIXED RESIN)		
Viscosity of Mixture	—	≤ 600 mPa·s

PROPERTY	TEST METHOD	VALUE
Pot Life (500 g mass)	—	40 min
Touch-Dry Time	—	2 h
Over-coating Window	—	2–24 h (23 °C)
Service Temperature	—	−5 °C to +40 °C
MECHANICAL (CURED, 7 DAYS)		
Tensile Strength	ASTM D638	**50 MPa**
Shear Strength	ASTM D638	45 MPa
Bond to Concrete (pull-off)	ASTM C882	≥ 20 MPa
Coverage Rate	—	0.3–0.5 kg/m² (one coat)

COMPATIBLE SYSTEM PRODUCTS

CODE	FUNCTION	NOTES
FSE322	Saturating resin	Applied over cured primer in carbon fibre fabric wet lay-up systems
FSE362	Plate bonding adhesive	Applied over cured primer when substrate bond strength is marginal
FSC series	Carbon fibre fabrics	200 / 300 / 600 g/m² unidirectional fabrics for wet lay-up strengthening
FSL series	Pultruded CFRP plates	1.2 mm and 1.4 mm nominal thickness for EB plate strengthening

APPLICATION INSTRUCTIONS

Step 1 — Surface Preparation

- Remove all laitance, dust, oil, grease, paint, and loose material by abrasive blasting, grinding, or high-pressure water jetting. The prepared surface must be sound with a minimum pull-off tensile strength of 1.5 MPa.
- Fill surface voids and irregularities > 1 mm with FSE502 levelling adhesive and allow full cure before priming.

Step 2 — Mixing

- Combine Component A and Component B at 2 : 1 by weight. Mix with a low-speed paddle mixer for 3 min until a uniform yellow colour is achieved. Use within the pot life.

Step 3 — Application

- Apply a single, even coat of mixed primer by brush or short-nap roller at 0.3–0.5 kg/m², ensuring full and uniform coverage into all surface pores. Avoid pooling in depressions.
- For heavily carbonated or porous substrates, a second thin coat may be applied once the first coat is tack-free (approx. 2 h at 23 °C).

Step 4 — Over-coating

- Apply FSE322 or FSE362 once the primer is tack-free but before full cure (over-coating window: 2–24 h at 23 °C). Do not allow the primer to fully cure before applying the structural adhesive layer.

LIMITATIONS

- Application temperature: +5 °C to +35 °C (substrate and ambient). Do not apply to surfaces with standing water.
- Substrate moisture content ≤ 4 % for full-system performance (ASTM D4263); primer only may be applied to damp substrates.
- All structural design must be prepared and certified by a licensed professional engineer.

HEALTH & SAFETY

NOTE

Refer to the current Safety Data Sheet (SDS) for handling, storage, and disposal. Wear chemical-resistant gloves and safety goggles. Avoid skin and eye contact. This TDS does not replace the SDS.

LEGAL NOTES

The information and recommendations in this document are given in good faith based on current knowledge and experience of the products when properly stored, handled, and applied under normal conditions. Differences in materials, substrates, and site conditions mean that no warranty in respect of merchantability or fitness for a particular purpose can be inferred from this information. The information does not relieve the user of the responsibility of testing products for their intended application. All orders are accepted subject to our current terms of sale and delivery. Refer to the most recent TDS at www.fidstrong.com.