CHEMFIT STRUCTBOND 30

Solvent-Free, Thixotropic, Two Part Structural Adhesive – For Bonding Structural Reinforcement, Particularly in Structural Strengthening Works

PRODUCT DESCRIPTION

ChemFit StructBond 30 is a high-performance, solvent-free, thixotropic, two-part structural adhesive based on advanced epoxy resin technology. It is specifically formulated for bonding structural reinforcement, particularly in structural strengthening works. The 100% solids, solvent-free formulation has zero VOC, making it safe for indoor use and for bonding structural reinforcement such as steel plates and FRP laminates to concrete in confined spaces. The thixotropic, non-sag consistency allows easy application on vertical and overhead surfaces without dripping. It cures at room temperature to form a high-strength, moisture-resistant structural bond that meets the demands of civil engineering strengthening codes. This product is ideal for use as an adhesive for externally bonded reinforcement (FRP, steel plates), as a bonding agent for concrete-to-concrete repairs, and for injecting into cracks to restore structural integrity.

PRIMARY APPICATIONS

ChemFit StructBond 30 is recommended for use in conditions such as:

- Structural strengthening of concrete and steel structures using externally bonded reinforcement (CFRP, steel plates, FRP)
- Adhesive for bonding FRP laminates, fabrics, and plates to concrete
- Bonding steel plates to concrete (e.g., in bridge strengthening)
- Concrete-to-concrete bonding for structural repairs
- Crack injection and structural repair in concrete elements
- Fixing anchors, rebars, and bolts in structural work
- Bonding structural elements in precast construction
- Repair of infrastructure, bridges, buildings, and industrial floors

KEY FEATURES AND BENEFITS

- **Solvent-free and 100% solids** – Zero VOC emissions, safe for confined spaces, no odor
- **Thixotropic** – Non-sag application on vertical and overhead surfaces
- **High mechanical strength** – Excellent compressive, tensile, and bond strength
- **Moisture-tolerant** – Cures in damp conditions but not standing water
- **High modulus** – Suitable for load-bearing applications requiring minimal deformation
- **Good chemical resistance** – Resists oils, fuels, dilute acids, alkalis, and salts
- **Easy to use** – Simple mixing with low-speed drill, applied by trowel or spatula

PHYSICAL AND CHEMICAL PROPERTIES

Property	Specification
Appearance	Two components: resin (paste), hardener (paste)
Mixed color	Light gray
Basis	High-strength epoxy resin
Solvent content	Nil (100% solids)
VOC	Zero
Viscosity (mixed)	Thixotropic paste
Density (mixed)	1.6 – 1.8 kg/L
Pot life (at 25°C)	30 – 60 minutes (for a 100 g mix)
Tack-free time (at 25°C)	4 – 8 hours
Full cure (structural load)	7 days at 25°C
Application temperature	+10°C to +35°C
Service temperature range	-40°C to +60°C
Glass transition temperature (Tg)	50 – 60°C

MECHANICAL PROPERTIES

Property	Value (typical at 7 days / 25°C)
Compressive strength (ASTM D695)	70 – 90 MPa (10,150 – 13,050 psi)
Tensile strength (ASTM C307)	12 – 20 MPa (1,740 – 2,900 psi)
Flexural strength (ASTM C580)	30 – 45 MPa (4,350 – 6,500 psi)
Bond strength – concrete shear (ASTM C882)	> 15 MPa (concrete substrate failure)
Tensile elastic modulus (ASTM D638)	4,000 – 6,000 MPa
Elongation at break (ASTM D638)	1 – 3%

PACKAGING AND STORAGE

Packaging:

- 6 kg pack (pre-weighed resin + hardener)

Storage:

- Store in original sealed containers at +10°C to +30°C
- Protect from direct sunlight, moisture, and freezing
- Keep containers tightly closed when not in use

Shelf life: 24 months from date of manufacture when stored properly

DOSAGE AND COVERAGE RATES

Coverage: Approximately 1.9 kg per square metre per millimetre of thickness.

Thickness (mm)	Coverage per 6 kg pack (m^2)
1 mm	3.15
2 mm	1.58
3 mm	1.05
5 mm	0.63
10 mm	0.315

For FRP bonding: Typically 1 – 2 kg/m^2 depending on fabric type and substrate texture.

NOTE: Coverage is approximate; varies with substrate porosity, surface texture, and application method.

APPLICATION GUIDLINES

Surface Preparation:

- Substrate must be clean, dry (or damp, but no standing water), sound, and free from dust, oil, grease, laitance, curing compounds, loose particles, and any contaminants
- Concrete: mechanically abrade (grinding, shot blasting, scabbling) to achieve open, exposed aggregate texture (minimum 4 mm profile depth)
- Steel: remove rust, scale, and oil by sandblasting to near-white metal finish (Sa 2½)
- For FRP/CFRP: ensure surface is clean, dry, and free of dust (do not over-profile)

Mixing:

- Pre-mix the resin component individually before combining
- Combine resin and hardener according to the ratio specified on the product label
- Mix with a low-speed drill (400-600 rpm) and mixing paddle for 2-3 minutes until a uniform, lump-free color is achieved
- Scrape the sides and bottom of the container during mixing; avoid introducing air
- Use the entire batch within the pot life (30-60 minutes at 25°C)

Application:

- Apply the mixed adhesive by trowel, spatula, or notched trowel
- For bonding steel plates: apply a uniform, thin coat (1-2 mm) to both substrates and press together
- For FRP laminates: apply to the concrete substrate according to the manufacturer's instructions for the FRP system
- For crack injection: inject using a suitable pressure injection system; fill crack completely

- For vertical/overhead applications, the thixotropic nature prevents sagging; apply in layers if thickness exceeds 10-15 mm

Curing:

- Allow the bond to cure undisturbed for at least 24 hours before light loading; allow 7 days for full structural load
- Protect from water and chemicals during the first 24 hours of cure
- Lower temperatures slow curing; higher temperatures accelerate curing
- Do not apply below +10°C or when temperatures are expected to drop below +5°C within 24 hours

HEALTH AND SAFETY

Epoxy resins and hardeners may cause skin and eye sensitisation and irritation. If eye contact occurs, rinse with water for 15 minutes and seek medical attention. For skin contact, wash immediately with soap and water; remove contaminated clothing. If swallowed, seek medical attention immediately – do not induce vomiting. Use gloves (nitrile), safety glasses, and protective clothing during handling. Ensure adequate ventilation – use respiratory protection if ventilation is poor. Refer to the Safety Data Sheet for detailed information.

CLEAING OF TOOLS

Clean all mixing equipment, trowels, and spillages with acetone, xylene, or epoxy thinner immediately after use. Dried epoxy requires mechanical removal. Dispose of cleaning materials in accordance with local regulations.

APPROVALS AND STANDARDS

ChemFit StructBond 30 conforms to the following standards:

- **ASTM C881 / C881M** – Type I, II, IV, Grade 3, Class B & C (structural epoxy bonding systems for concrete)
- **AASHTO M235** – American Association of State Highway and Transportation Officials standard for epoxy adhesives
- **ISO 834** – Fire resistance testing (component of larger system approvals)
- **ETAG 001** – European Technical Approval for anchoring (where applicable; for rebar and anchor bonding)
- **EN 1504-4** – Products and systems for the protection and repair of concrete structures – Structural bonding
- Solvent-free, thixotropic, two-part epoxy structural adhesive
- Suitable for bonding structural reinforcement in civil engineering strengthening works (steel plates, CFRP, FRP)

LEGAL NOTES

All technical data provided in this Product Data Sheet is based on laboratory testing under controlled conditions. Actual field performance may vary due to differences in substrates, application methods, site conditions, and environmental factors. ChemFit makes no warranty of merchantability or fitness for a particular purpose. Users shall conduct their own trials to validate product suitability for the intended application. ChemFit reserves the right to modify product specifications without prior notice. For the most current documentation, request the latest Product Data Sheet and Safety Data Sheet from ChemFit.

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