# CHEMFIT BONDEPOXY 9100

**Solvent Free, Two Component Bonding Agent Based on Epoxy Resin – To Bond New Concrete to Old Concrete, Mortar, Steel & Iron**

## PRODUCT DESCRIPTION

**ChemFit BondEpoxy 9100** is a high-performance, solvent free, two component bonding agent based on epoxy resin, specifically formulated for bonding new concrete to old concrete, mortar, steel, and iron. This advanced epoxy bonding system provides exceptional adhesion strength, chemical resistance, and durability for concrete repair and rehabilitation applications. The solvent-free formulation ensures zero VOC emissions and minimal shrinkage during cure, creating a permanent, high-strength bond between dissimilar materials. This product is designed for structural and non-structural bonding applications where superior adhesion, water resistance, and long-term durability are required.

## PRIMARY APPICATIONS

**ChemFit BondEpoxy 9100** is recommended for use in conditions such as:

- Bond new concrete to existing old concrete (overlays, repairs, patches)
- Bond new mortar to old concrete or masonry
- Bond concrete to steel substrates (columns, beams, embedded plates)
- Bond concrete to iron and cast iron elements
- Concrete repair and rehabilitation projects
- Bridge deck overlays and concrete pavement repairs
- Precast concrete connection bonding
- Anchor bolt and rebar bonding into existing concrete
- Crack injection and structural repair
- Industrial floor repairs and resurfacing
- Marine structure concrete repairs
- Horizontal and vertical concrete bonding applications

## KEY FEATURES AND BENEFITS

- **Solvent free** – Zero VOC; safe for indoor and confined space use; no shrinkage
- **Two component** – Simple mix ratio; consistent, reliable performance
- **High bond strength** – Excellent adhesion to concrete, steel, iron, and mortar
- **Water resistant** – Suitable for damp and wet conditions (no standing water)
- **Chemical resistant** – Resists oils, fuels, dilute acids, and alkalis
- **High temperature resistant** – Suitable for heated environments

- **Flexible** – Accommodates minor substrate movement and thermal expansion
- **Easy to apply** – Brush, roller, or spray application
- **Long pot life** – Adequate working time for large areas
- **Compatible with all concrete** – Works with all cement types
- **Suitable for vertical and overhead** – Thixotropic properties prevent sagging

## PHYSICAL AND CHEMICAL PROPERTIES

| Property | Specification |
|---|---|
| Appearance | Two component: Part A (Resin), Part B (Hardener) |
| Color | Part A: Clear/Amber; Part B: Amber; Mixed: Clear/Amber |
| Form | Low viscosity liquid after mixing |
| Basis | Epoxy resin |
| Solvent Content | Nil (solvent free) |
| Mix Ratio | Refer to product label (typically 2:1 or 1:1 by volume) |
| Specific Gravity (mixed) | 1.05 – 1.15 at 25°C |
| Pot Life (at 25°C) | 30 – 60 minutes |
| Tack Free Time | 4 – 8 hours |
| Full Cure (at 25°C) | 7 days |
| Application Temperature | +5°C to +35°C |
| Service Temperature | -20°C to +80°C |

## MECHANICAL PROPERTIES

| Property | Value (typical at 7 days / 25°C) |
|---|---|
| Tensile Bond Strength (to concrete) | > Concrete substrate failure |
| Shear Strength | 10 – 15 MPa (1,450 – 2,180 psi) |
| Compressive Strength | 50 – 70 MPa (7,250 – 10,150 psi) |
| Tensile Strength | 15 – 25 MPa (2,180 – 3,600 psi) |

**NOTE**: **Performance depends on concrete quality, dosage, application method, and exposure conditions.**

## PACKAGING AND STORAGE

**Packaging:**

- 5 kg unit (pre-weighed components – Part A + Part B)

**Storage:**

- Store in original sealed containers at +10°C to +30°C
- Protect from direct sunlight, extreme heat, 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

The coverage of **ChemFit BondEpoxy 9100** is 0.3 to 0.8 kg per square meter, depending on substrate porosity and application method.

| Application | Coverage Rate |
|---|---|
| Smooth, non-porous substrate (steel, dense concrete) | 0.3 – 0.4 kg/m² |
| Normal concrete surface | 0.4 – 0.6 kg/m² |
| Rough, porous, or profiled surface | 0.6 – 0.8 kg/m² |
| As a primer before repair mortar | 0.3 – 0.5 kg/m² |
| As a bonding slurry (with sand) | 0.6 – 0.8 kg/m² |

Coverage per 5 kg unit:

- **At 0.4 kg/m²:** Covers approximately 12.5 m²
- **At 0.6 kg/m²:** Covers approximately 8.3 m²
- **At 0.8 kg/m²:** Covers approximately 6.3 m²

**NOTE: Coverage rates are approximate and vary based on substrate porosity, surface texture, application method, and absorption. For rough or profiled surfaces, higher application rates are required.**

## APPLICATION GUIDLINES

**Surface Preparation:**

- Substrate must be clean, 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
- Steel/iron: remove rust, scale, and oil by sandblasting or wire brushing to achieve near-white metal finish
- Surface should be dry or slightly damp (no standing water)
- For vertical and overhead surfaces, ensure substrate is sound and free from loose material

**Mixing:**

- Pre-mix Part A (Resin) individually before combining
- Add Part B (Hardener) to Part A according to mix ratio on product label
- Mix with low-speed drill and mixing paddle (400-600 rpm) for 2-3 minutes until uniform, lump-free consistency
- Scrape sides and bottom during mixing
- Do not add solvents or diluents
- Use entire batch within pot life (30-60 minutes at 25°C)

**Application:**

- Apply mixed bonding agent by brush, roller, or low-pressure spray
- For concrete-to-concrete bonding, apply a thin, uniform coat to both surfaces (if possible)
- For bonding new concrete overlay, apply to prepared old concrete surface
- Allow to become tacky before placing new concrete (typically 30-60 minutes at 25°C)
- For bonding mortar or repair material, apply and place material while still wet (wet-on-wet)
- Do not allow to fully cure before placing new concrete or mortar
- For vertical applications, apply in thin coats to prevent sagging
- For bonding slurry (with clean sharp sand), mix with 1-2 parts sand by weight before application

**Curing:**

- Allow bond to cure undisturbed for minimum 24 hours before loading
- Full bond strength achieved at 7 days
- Protect from water, moisture, and chemicals during initial 24 hour cure
- Lower temperatures slow curing; higher temperatures accelerate curing
- Do not apply below +5°C or when temperatures expected to drop below +5°C within 24 hour

## HEALTH AND SAFETY

Epoxy resins and hardeners may cause skin and eye sensitization 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 and 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, brushes, rollers, and spillages with solvent (acetone, xylene, or epoxy thinner) immediately after use. Dried epoxy requires mechanical removal. Dispose of cleaning materials in accordance with local regulations. Do not discharge into drains or watercourses.

## APPROVALS AND STANDARDS

**ChemFit BondEpoxy 9100** conforms to the following standards:

- **ASTM C881 / C881M** – Standard Specification for Epoxy-Resin-Bonding Systems for Concrete (Type I, Grade 1, Class B & C)
- **ASTM D4541** – Standard Test Method for Pull-Off Strength of Coatings Using Portable Adhesion Testers
- Solvent free, two component bonding agent based on epoxy resin
- Suitable for bonding new concrete to old concrete, mortar, steel, and iron
- Provides high strength, durable bond for structural and non-structural applications

## 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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