

CHEMFIT GROUT HIGH STRENGTH 275

Cementitious, Very High Strength, Non-Shrink Precision Grout that Expands in Two Stages – For Columns in Precast Construction, Concrete Anchors, Base Plates, Structural Repairs & Machine Foundations

PRODUCT DESCRIPTION

ChemFit Grout High Strength 275 is a premium, cementitious, very high strength, non-shrink precision grout formulated to provide exceptional load-bearing capacity and dimensional stability. This advanced grout features a unique two-stage expansion system that compensates for shrinkage during both the plastic and hardened phases, ensuring complete contact with the substrate and eliminating voids over the long term. The very high strength characteristics make it ideal for demanding applications requiring superior structural performance. The free-flowing consistency allows for easy placement into tight cavities and under base plates without mechanical vibration.

This product conforms to ASTM C1107 requirements for non-shrink grout and is specifically designed for critical applications where very high strength and long-term dimensional stability are essential.

PRIMARY APPLICATIONS

ChemFit Grout High Strength 275 is recommended for use in conditions such as:

- Columns in precast construction (precast column bases and connections)
- Concrete anchors and anchor bolt fixing
- Base plates for heavy equipment and structural steel
- Structural repairs requiring very high strength
- Machine foundations and heavy industrial equipment
- Bridge bearing pads and support points
- Crane rails and heavy-duty runway beams
- Compressor, generator, and turbine foundations
- Tower and wind turbine foundations
- Precast concrete panel connections
- Column base plates and leveling applications
- High-load transfer points and bearing areas
- Repair and rehabilitation of critical grouted connections

KEY FEATURES AND BENEFITS

- **Two-stage expansion** – Expands in both plastic and hardened states for long-term non-shrink performance
- **Very high strength** – Achieves exceptionally high compressive strength for heavy load applications
- **Non-shrink precision** – Maintains dimensional stability under extreme loads
- **Free flowing** – Self-leveling consistency fills voids completely without mechanical vibration
- **Precision grouting** – Provides accurate load transfer and uniform support for critical connections
- **High early strength** – Rapid strength gain for quick equipment installation and formwork removal
- **Excellent bond strength** – Superior adhesion to concrete and steel substrates
- **Corrosion resistant** – Protects anchors and embedded steel from corrosion
- **Chloride-free** – Safe for use with embedded steel and prestressed elements
- **Good yield** – 12 liters per 25 kg bag
- **Easy to mix and place** – Just add water and mix; pour into place
- **Ready to use** – Pre-blended formulation requires only water on site
- **Resistant to oil and chemicals** – Suitable for industrial environments

PHYSICAL AND CHEMICAL PROPERTIES

Property	Specification
Appearance	Fine, free-flowing powder
Color	Gray
Form	Powder (pre-blended)
Basis	Cementitious with two-stage expansion system
Maximum Aggregate Size	< 2 mm (fine grout)
Flow Consistency	Free flowing / self-leveling
Expansion Type	Two-stage (plastic + hardened)
Chloride Content	Nil ($\leq 0.05\%$) – Non-corrosive
Mixing Water Requirement	Approximately 3.2 – 3.6 L per 25 kg bag
Yield per 25 kg bag	12 liters (wet)
Pot Life (at 25°C)	15 – 25 minutes
Initial Set (at 25°C)	3 – 4 hours
Final Set (at 25°C)	5 – 6 hours
Application Temperature	+5°C to +35°C

COMPRESSIVE STRENGTH

Age	Compressive Strength (typical)
6 hours	20 – 25 MPa (2,900 – 3,600 psi)
1 day	40 – 50 MPa (5,800 – 7,250 psi)
3 days	55 – 65 MPa (8,000 – 9,400 psi)
7 days	70 – 80 MPa (10,150 – 11,600 psi)
28 days	85 – 100+ MPa (12,300 – 14,500+ psi)
56 days	95 – 110+ MPa (13,800 – 16,000+ psi)

NOTE: Strength development depends on temperature, mixing water content, and curing conditions. Higher temperatures accelerate strength gain; lower temperatures slow strength gain. Typical very high strength grouts achieve 70-100 MPa at 28 days. Adjust based on actual product specifications.

PACKAGING AND STORAGE

Packaging:

- 25 kg multi-layer bags with moisture barrier

Storage:

- Store in original sealed bags in a cool, dry location
- Protect from moisture, humidity, and direct sunlight
- Stack pallets off the ground on wooden pallets
- Keep bags intact and sealed until ready for use
- Do not store in areas with high humidity or risk of water damage

Shelf life: 12 months from date of manufacture when stored properly in unopened bags

DOSAGE AND COVERAGE RATES

The yield of **ChemFit Grout High Strength 275** is 12 liters of mixed grout per 25 kg bag.

Yield per 25 kg bag: 12 liters (wet grout volume)

Coverage per 25 kg bag (area x depth):

- At 10 mm thickness: Approximately 1.20 m² per bag
- At 25 mm thickness: Approximately 0.48 m² per bag
- At 50 mm thickness: Approximately 0.24 m² per bag
- At 100 mm thickness: Approximately 0.12 m² per bag

Example coverage for typical applications:

Application	Grout Depth	Area per 25 kg bag	Bags required per m ³
Base plate grouting	25 mm	0.48 m ²	~83 bags/m ³
Column base grouting	50 mm	0.24 m ²	~83 bags/m ³
Precast column connection	75 mm	0.16 m ²	~83 bags/m ³
Cavity filling	100 mm	0.12 m ²	~83 bags/m ³
Anchor bolt fixing	Variable	Variable	~83 bags/m ³

NOTE: Coverage calculations assume proper mixing and placement without waste. For field applications, add 5-10% extra for waste, spillage, and surface irregularities. One cubic meter (m³) of mixed grout requires approximately 83 bags (2,075 kg) of powder.

APPLICATION GUIDELINES

Surface Preparation:

The substrate must be clean, sound, and free from oil, grease, dust, loose particles, curing compounds, laitance, and any other contaminants. For concrete substrates, mechanically abrade (wire brushing, sandblasting, or scabbling) to achieve an exposed aggregate surface. For steel substrates, remove rust, scale, and oil using wire brushing or sandblasting. Pre-soak the substrate with clean water to achieve saturated surface dry (SSD) condition. Remove any standing water before grout placement. For machine foundations and base plates, ensure proper alignment and leveling before grouting. Use formwork or containment as needed to confine the grout.

Mixing:

Add approximately 3.2 – 3.6 liters of clean, potable water to a clean mixing container (use the lower water content for higher strength, higher water content for increased flow). Slowly add the entire 25 kg bag of **ChemFit Grout High Strength 275** to the water while mixing continuously. Mix with a low-speed electric

drill and mixing paddle (400-600 rpm) for 3-5 minutes until a smooth, lump-free, free-flowing consistency is achieved. Do not add excess water beyond the recommended range as this will reduce strength and increase shrinkage. Allow the mixed grout to stand for 2-3 minutes to allow any entrapped air to escape, then remix briefly for 30 seconds before placement. Do not remix after the grout has begun to set.

Placement:

Pour the mixed grout continuously from one side or one point to allow air to escape and to avoid trapping air pockets. For deep pours (exceeding 100 mm), place in layers or use a higher consistency mix (less water) to prevent segregation. For base plate grouting, pour from one side until grout emerges from the opposite side, ensuring no air pockets remain under the plate. For column bases and anchors, ensure complete filling around all embedded elements. Do not use mechanical vibration as this may cause segregation and bleeding. The grout will flow and self-level under its own weight. For large pours, use multiple mixers or a continuous mixing system to maintain continuous placement. The pot life is approximately 15-25 minutes at 25°C; mix only as much as can be placed within this time.

Curing:

Protect the freshly placed grout from rapid moisture loss, direct sunlight, wind, and extreme temperatures. Apply curing compound, cover with plastic sheeting, or use wet burlap immediately after the grout has hardened sufficiently (approximately 1-2 hours after placement). Maintain moist curing for a minimum of 3 days (7 days recommended for critical applications, 14 days for very high strength requirements). For hot weather (above 30°C), use cool mixing water (10-20°C), protect from direct sunlight, and apply curing immediately after placement. For cold weather (below 10°C), use warm mixing water (20-30°C), provide insulating covers, and protect from freezing. Do not apply grout when ambient temperature is below 5°C or expected to drop below freezing within 24 hours.

HEALTH AND SAFETY

ChemFit Grout High Strength 275 is alkaline and may cause severe eye and skin irritation. In fresh, wet state, the product is caustic. If eye contact occurs, rinse immediately with plenty of water for 15-20 minutes and seek medical attention immediately. For skin contact, wash immediately with soap and water; remove contaminated clothing. If swallowed, do not induce vomiting; rinse mouth and drink water, then seek medical attention immediately. Use gloves, safety glasses, and protective clothing during handling. Avoid inhalation of dust – use dust mask if ventilation is poor. Refer to the Safety Data Sheet for detailed information.

CLEANG OF TOOLS

Clean all mixing equipment, tools, and spillages with water immediately after use. Dried or cured material may require mechanical removal.

APPROVALS AND STANDARDS

ChemFit Grout High Strength 275 conforms to the following standards:

- ASTM C1107 – Non-Shrink Grout (Plastic and Hardened Expansion)
- Suitable for columns in precast construction, concrete anchors, base plates, structural repairs, and machine foundations

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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