

# CHEMFIT ANTIFREEZE AF100

## Cold Weather Admixture – For Low Temperature Concreting

### PRODUCT DESCRIPTION

**ChemFit AntiFreeze AF100** is a specialized cold weather admixture designed to protect fresh and early-age concrete from freezing damage during low temperature concreting. This advanced formulation lowers the freezing point of concrete mix water, accelerates cement hydration, and promotes strength development even in sub-zero conditions. It enables winter concreting operations to continue safely and efficiently without the risk of freeze-thaw damage or delayed setting times.

### PRIMARY APPLICATIONS

**ChemFit AntiFreeze AF100** is recommended for use in conditions such as:

- Winter concreting in sub-zero temperatures (down to -10°C)
- Low temperature concreting (0°C to 10°C) requiring accelerated setting
- Cold weather foundation pours and slab placements
- Infrastructure repairs during winter months
- Precast concrete production in cold climates
- Bridge deck and roadway construction in low temperatures
- Tunnel concreting in cold conditions
- Emergency repairs during freezing weather
- Remote construction sites with limited cold weather protection
- Mass concrete pours requiring protection from freezing

### KEY FEATURES AND BENEFITS

- **Freeze protection** – Lowers freezing point of mix water to prevent ice formation
- **Accelerates setting** – Reduces initial and final set times in cold weather (up to 50% reduction)
- **Early strength development** – Promotes rapid strength gain at low temperatures (0°C to 10°C)
- **Extends concreting season** – Enables winter construction operations
- **Prevents freeze-thaw damage** – Protects fresh concrete from destructive ice formation
- **Chloride-free formula** – Safe for reinforced and prestressed concrete (non-corrosive)
- **Compatible with all cements** – Works with OPC, PPC, PSC, and blended cements
- **Improves hydration** – Enhances cement hydration reaction at low temperatures
- **Liquid form** – Easy to dispense and batch accurately
- **Cost-effective** – Reduces need for expensive heating and protection methods

## PHYSICAL AND CHEMICAL PROPERTIES

Property	Specification
Appearance	Clear to slightly hazy liquid
Color	Colorless to light amber
Specific Gravity	1.15 – 1.25 at 25°C
pH Value	8.0 – 10.0
Chloride Content	Nil ( $\leq 0.05\%$ ) – Non-corrosive to rebar
Alkali Content	< 1.5%
Freezing Point	- 15°C (product itself)
Freezing Protection	Down to -10°C (in concrete mix at recommended dosage)
Set Time Reduction	30 – 60% vs. control at 5°C

## PACKAGING AND STORAGE

### Packaging:

- 25 L pails
- 200 L drums

### Storage:

- Store in original sealed containers at +5°C to +35°C
- Protect from direct sunlight and extreme heat
- Keep container tightly closed when not in use
- If product freezes, thaw completely and agitate before use (product quality remains intact)

### Shelf life:

- 12 months from date of manufacture

## DOSAGE AND COVERAGE RATES

The recommended dosage of ChemFit AntiFreeze AF100 is approximately **1.0% by weight of cementitious material**, with adjustment based on ambient temperature.

- **Mild cold (0°C to 5°C):** 0.8% – 1.0% dosage provides moderate freeze protection and acceleration
- **Moderate cold (0°C to -5°C):** 1.0% – 1.2% dosage delivers standard freeze protection and rapid strength gain
- **Severe cold (-5°C to -10°C):** 1.2% – 1.5% dosage produces maximum freeze protection for extreme conditions
- **Per 50 kg cement bag:** Dosage ranges from 0.40 to 0.75 kg (approximately 350 to 650 ml) per bag, with standard dosage at 0.50 kg (approx. 435 ml) per bag at 1.0%
- **Yield per 25 kg pail:** Approximately 50 bags of cement (2.5 tons of cement), based on 1.0% dosage
- **Yield per 200 L drum:** Approximately 400 bags of cement (20 tons of cement), based on 1.0% dosage

**NOTE: Concrete trial mixes shall be carried out to confirm optimal dosage for specific project requirements and ambient conditions. For temperatures below -10°C, additional protective measures (insulation, enclosures, heating) should be used in conjunction with this admixture. Dosage recommendations assume proper concrete mix design and curing practices.**

## APPLICATION GUIDELINES

**ChemFit AntiFreeze AF100** should be added directly to the mixing water or to the wet concrete during batching. For best results, add the admixture to the mixing water before combining with cement and aggregates. The concrete should be mixed for a minimum of 2 to 3 minutes to ensure uniform dispersion of the admixture. This product is compatible with all standard Portland cements, blended cements, and most supplementary cementitious materials such as slag, fly ash, and silica fume. **ChemFit AntiFreeze AF100** is compatible with most concrete admixtures including water reducers, superplasticizers, retarders, and air entrainers; however, trial mixes are recommended to confirm compatibility. Do not pre-mix with other admixtures in concentrated form. If overdosed, rapid setting and potential heat generation may occur; reduce dosage in subsequent batches. For low temperature concreting, use heated mixing water (but not exceeding 60°C) and protect fresh concrete from freezing during the first 24-48 hours. Ensure proper curing with insulating blankets or enclosures when ambient temperatures remain below freezing. Do not use on concrete that will be subjected to deicing salts within the first 28 days without proper air entrainment.

## HEALTH AND SAFETY

**ChemFit AntiFreeze AF100** is not classified as hazardous under normal use. However, it may cause mild eye irritation, so if eye contact occurs, rinse thoroughly with water for 15 minutes. For skin contact, wash with soap and water. If swallowed, do not induce vomiting; instead rinse the mouth and drink water, then seek medical advice. Use nitrile gloves and goggles during handling. Refer to the Safety Data Sheet for detailed information.

## CLEANG OF TOOLS

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

## APPROVALS AND STANDARDS

**ChemFit AntiFreeze AF100** conforms to the following standards:

- **ASTM C494 / C494M** – Type C (Accelerating Admixture)
- **ASTM C1141** – Admixtures for Shotcrete (where applicable)

## 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.*

**CHEMfit CONSTRUCTION CHEMICAL AND SERVICES LIMITED**  
Office No. 8, 1KM Near Gaey Soap, Sargodha Road, Faisalabad  
Tel: +923364544837  
Web: [www.chemfitchemicals.com](http://www.chemfitchemicals.com)  
Email: chemfit.pro@gmail.com

***Product Technical Datasheet ChemFit AntiFreeze AF100 SRA100, May 2026 Version 1.0***