CHEMFIT ULTRAFLOW PCE700

Ultra High Range Water Reducer – Third Generation Superplasticizer

PRODUCT DESCRIPTION

ChemFit UltraFlow PCE700 is a third generation ultra high-range water-reducing superplasticizer based on advanced polycarboxylate ether (PCE) polymer technology. This state-of-the-art admixture provides exceptional water reduction (up to 40-45%) while producing highly fluid, self-consolidating concrete with excellent workability retention. Unlike conventional superplasticizers, PCE-based technology offers superior slump retention, reduced slump loss over time, and enhanced compatibility with a wide range of cement types.

PRIMARY APPICATIONS

ChemFit UltraFlow PCE700 is recommended for use in conditions such as:

- Self-consolidating concrete (SCC) requiring exceptional flowability
- High-performance concrete (HPC) with demanding strength requirements
- Ultra-high performance concrete (UHPC)
- Precast and prestressed concrete elements requiring superior finishes
- Ready-mix concrete requiring long slump retention without set retardation
- Concrete with dense reinforcement where vibration is difficult
- Architectural and decorative concrete requiring smooth surfaces
- Bridge decks, high-rise buildings, and infrastructure projects
- Concrete pumped over extreme distances or heights

KEY FEATURES AND BENEFITS

- **Ultra-high water reduction (35-45%)** – Achieves exceptional early and ultimate strengths with significantly lower water-cement ratios
- **Third generation PCE technology** – Superior performance compared to traditional superplasticizers
- **Exceptional slump retention** – Maintains workability for 90–150 minutes without significant slump loss
- **Self-consolidating capability** – Eliminates vibration requirements completely
- **Reduced cement content** – Achieves target strengths with less cementitious material
- **Improved durability** – Produces dense, low-permeability concrete with enhanced freeze-thaw resistance

- **Excellent cement compatibility** – Performs consistently across various cement types and SCMs
- **Chloride-free** – Safe for reinforced and prestressed concrete
- **Low dosage requirement** – Provides superior performance at economical dosage rates
- **Liquid form** – Easy to dispense and batch accurately

PHYSICAL AND CHEMICAL PROPERTIES

Property	Specification
Appearance	Liquid
Color	Clear to slightly hazy / Light straw
Specific Gravity	1.05 – 1.09 at 25°C
pH Value	5.0 – 7.0
Chloride Content	Nil (≤ 0.1%) – Non-corrosive to rebar
Alkali Content	< 1.0%
Freezing Point	0°C
-Water Reduction	35 – 45%
Slump Retention	90 – 150 minutes (depends on dosage & temperature)
Set Retardation	Minimal to none (can be modified with retarders if needed)

PACKAGING AND STORAGE

Packaging:

- 200 L drums
- 1000 L IBCs (Intermediate Bulk Containers)

Storage:

- Store in original sealed containers at +5°C to +40°C
- Protect from direct sunlight, frost, and extreme heat
- If frozen, slowly thaw and agitate before use (do not use direct heat)
- Avoid contamination with water or other chemicals

Shelf life:

- 12 months from date of manufacture

DOSAGE AND COVERAGE RATES

The recommended dosage of **ChemFit UltraFlow PCE700** is **0.8% to 1.5% by weight of cementitious material**.

- **Low dosage (0.8% – 1.0%):** Provides ultra-high water reduction with excellent flowability for standard SCC and HPC applications
- **Medium dosage (1.0% – 1.2%):** Delivers exceptional water reduction and extended slump retention for demanding pours
- **High dosage (1.2% – 1.5%):** Produces maximum fluidity for UHPC and complex formwork with extremely dense reinforcement
- **Per 50 kg cement bag:** Dosage ranges from 0.40 to 0.75 kg (approximately 350 to 650 ml) per bag
- **Yield per 200 L drum:** Approximately 530 to 1,000 bags of cement (26 to 50 tons of cement), based on 1.0% dosage
- **Yield per 1000 L IBC:** Approximately 2,660 to 5,000 bags of cement (133 to 250 tons of cement), based on 1.0% dosage

NOTE: Concrete trial mixes shall be carried out to confirm optimal dosage for specific project requirements, as coverage varies with total cementitious content including fly ash, slag, and silica fume. Due to the high efficiency of PCE technology, lower dosages may be sufficient compared to traditional superplasticizers.

APPLICATION GUIDLINES

ChemFit UltraFlow PCE700 should be added directly to the mixing water or to the wet concrete after 70% of the mixing water has been added. For optimal performance, addition of the admixture to the concrete mix after the cement and aggregates have been wetted (delayed addition method) can significantly enhance water reduction and slump retention. 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. Do not premix **ChemFit UltraFlow PCE700** with other admixtures (including air entrainers, retarders, or accelerators) in concentrated form; add them separately to the mix, avoiding contact at the same point. If overdosed, significant fluidity and potential segregation may occur, which can be corrected by adding additional fines or reducing the dosage in subsequent batches. For best results, add this admixture after other admixtures. For SCC applications, a medium dosage of 1.0% to 1.2% typically provides the required flowability without segregation.

HEALTH AND SAFETY

ChemFit UltraFlow PCE700 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.

CLEAING 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 UltraFlow PCE700 conforms to the following standards:

- **ASTM C494 / C494M** – Type A (Water Reducing Admixture)
- **ASTM C494 / C494M** – Type F (High Range Water Reducing Admixture)

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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