

CHEMFIT CORROSHIELD CI300

Advanced Corrosion Inhibitor – For Marine & Aggressive Environments

PRODUCT DESCRIPTION

ChemFit CorroShield CI300 is an advanced, high-performance corrosion inhibiting admixture specifically formulated for reinforced concrete structures exposed to marine and aggressive environments. This next-generation corrosion inhibitor provides superior protection against chloride-induced corrosion, carbonation, and other aggressive attack mechanisms. It significantly extends the service life of concrete structures in the most demanding exposure conditions, including seawater immersion, tidal zones, splash zones, and industrial aggressive environments.

PRIMARY APPLICATIONS

ChemFit CorroShield CI300 is recommended for use in conditions such as:

- Marine structures (piers, docks, wharves, jetties, harbors)
- Seawater immersion structures (intake/outfall structures, offshore platforms)
- Tidal and splash zone concrete elements
- Coastal infrastructure (sea walls, revetments, breakwaters)
- Bridges and viaducts in coastal regions
- Tunnels and underground structures in aggressive groundwater
- Industrial concrete exposed to aggressive chemicals
- Wastewater treatment plants and sewer infrastructure
- Concrete repair and rehabilitation in marine environments
- Precast concrete for marine and coastal applications
- Port facilities and container terminals

KEY FEATURES AND BENEFITS

- **Advanced corrosion protection** – Superior inhibition of chloride-induced and carbonation-induced corrosion
- **Marine grade protection** – Specifically formulated for seawater immersion, tidal, and splash zones
- **Extended service life** – Adds 20-50+ years to reinforced concrete structures in aggressive environments
- **Dual protection mechanism** – Protects both cathodic and anodic corrosion sites
- **Chloride resistance** – Significantly increases critical chloride threshold (3-5 times vs. control concrete)
- **Carbonation resistance** – Reduces carbonation rate and protects steel in carbonated concrete
- **Non-toxic formulation** – Environmentally acceptable for marine applications

- **No adverse effects on concrete** – Does not affect setting time, strength, or workability at recommended dosages
- **Compatible with all cements** – Works with OPC, PPC, PSC, slag, fly ash, and silica fume blends
- **Compatible with all admixtures** – Works with superplasticizers, retarders, accelerators, and air entrainers
- **Liquid form** – Easy to dispense and batch accurately
- **Reduces lifecycle costs** – Lowers maintenance, repair, and rehabilitation expenses

PHYSICAL AND CHEMICAL PROPERTIES

Property	Specification
Appearance	Clear to slightly hazy liquid
Color	Light amber to straw-colored
Specific Gravity	1.10 – 1.20 at 25°C
pH Value	7.0 – 9.0
Chloride Content	Nil ($\leq 0.01\%$) – Non-corrosive to rebar
Active Ingredient	Proprietary organic/inorganic blend
Freezing Point	0°C (protect from freezing)
Corrosion Protection	$\geq 95\%$ reduction in corrosion rate (laboratory testing)
Critical Chloride Threshold	Increased by 3 – 5 times vs. control concrete
Set Time Effect	Minimal to none at recommended dosage
Compressive Strength Effect	Neutral to slightly positive (0 – 5% increase)

PACKAGING AND STORAGE

Packaging:

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

Storage:

- Store in original sealed containers at +5°C to +35°C
- Protect from direct sunlight, frost, and extreme heat
- Keep container tightly closed when not in use
- If frozen, 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 CorroShield CI300** is **2% to 4% by weight of cementitious material**.

- **Low dosage (2.0% – 2.5%):** Provides advanced corrosion protection for mild marine exposure (splash zone only, low chloride concentration)
- **Medium dosage (2.5% – 3.2%):** Delivers superior corrosion protection for standard marine environment (tidal zone, moderate chloride exposure)
- **High dosage (3.2% – 4.0%):** Produces maximum corrosion protection for severe marine immersion (seawater immersion, high chloride concentration, aggressive industrial environments)
- **Per 50 kg cement bag:** Dosage ranges from 1.0 to 2.0 kg (approximately 900 to 1,800 ml) per bag, based on 2% – 4% dosage
- **Yield per 200 L drum:** Approximately 200 to 400 bags of cement (10 to 20 tons of cement), based on 2.5% dosage
- **Yield per 1000 L IBC:** Approximately 1,000 to 2,000 bags of cement (50 to 100 tons of cement), based on 2.5% dosage

NOTE: Concrete trial mixes shall be carried out to confirm optimal dosage for specific project requirements. For marine structures with expected chloride exposure > 0.6% by weight of cement, higher dosages (3.2% – 4.0%) are recommended. For structures with 100+ year design life requirements, use high dosage range (3.5% – 4.0%).

APPLICATION GUIDELINES

ChemFit CorroShield CI300 should be added directly to the mixing water or to the concrete during batching. For best results, add the admixture to the mixing water before combining with cement and aggregates to ensure uniform distribution throughout the concrete mix. 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 including slag, fly ash, silica fume, and metakaolin. **ChemFit CorroShield CI300** is compatible with all concrete admixtures including water reducers, superplasticizers, retarders, accelerators, air entrainers, and shrinkage reducers; no adverse interactions have been observed. Do not pre-mix with other admixtures in concentrated form; add separately to the mix. If overdosed (above 5%), minor set retardation or slight air entrainment may occur; reduce dosage in subsequent batches. For marine structures, ensure adequate concrete cover over

reinforcement (minimum 50mm for tidal/splash zones) and proper curing (minimum 7 days wet curing). For maximum corrosion protection, use in combination with low water-cement ratio (≤ 0.40) and supplementary cementitious materials (slag or fly ash). For structures in severe chloride environments (seawater immersion), a dosage of 3.0% – 3.5% is recommended.

HEALTH AND SAFETY

ChemFit CorroShield CI300 may cause mild eye and skin irritation. 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. Avoid prolonged or repeated skin contact. 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 CorroShield CI300 conforms to the following standards:

- **ASTM C494 / C494M** – Type S (Specific Performance Admixture)
- Provides corrosion inhibition performance meeting international standards for reinforced concrete in marine and aggressive environments

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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