

CasTech PC 303

Mid-Range Superplasticizer based on Poly-carboxylate Ether

Technical Data Sheet

issue 01/Jan. 2024

Description

CasTech PC 303 is a versatile, mid-range superplasticizer based on polycarboxylate technology, specifically formulated for high-performance applications in both the ready-mix and precast concrete sectors. This advanced additive is designed to enhance durability and performance across a broad range of concrete mixtures, from traditional formulations to self-compacting variants.

CasTech PC 303 apart from conventional superplasticizers it is innovative dual-action mechanism. While traditional additives rely primarily on electrostatic repulsion.

CasTech PC 303 combines this with the stabilizing influence of long lateral chains bonded to the polymer structure. This unique blend significantly improves workability retention and accelerates the development of early compressive strength.

Uses

- Precast concrete where low water-cement ratios are required.
- Ready-mix concrete requiring low water-cement ratios.
- High early and high ultimate strength concrete production.
- Conventional concrete production.
- Self-compacting concrete.
- Pumped concrete.
- High-performance concrete.

- Concrete requiring long workability retention.
- Concrete with admixtures (micro silica, GGBS, PFA)
- Hot weather concreting

Advantages

- High workability without segregation.
- Reduced labor costs.
- Chloride-free.
- Enhanced durability.
- Superior flowability increases early and ultimate compressive strength.
- Improves concrete durability and rheology.
- Lowers permeability.
- Reduces drying shrinkage and creep.

Typical Properties at 25°C

Property	Value
Colour	Light Brown Liquid
Specific Gravity	1.08 ± 0.02 @ 25 °C
Chloride Content	NIL to BS 5075
pH	4.0 ± 1.0

Standard

CasTech PC 303 complies with ASTM C 494 Type G and BS EN 934-2.

Dosage

Dosage rates will vary based on the desired level of plasticity and water reduction. The suggested dosage ranges from 0.50 to 2.0 liters per 100 kg of total cementitious material. In certain cases, different dosages may be recommended depending on specific site conditions. Conducting trial mixes is strongly advised to identify the optimal dosage for particular performance needs.

Overdosing

Surpassing the recommended dosage may lead to increased retardation and enhanced workability. However, as long as proper curing is ensured, the ultimate strength of the concrete should remain unaffected. The impact of overdosing can be more pronounced when using cement replacement materials or Type V cement. Additionally, overdosing may result in higher air entrainment, which could potentially reduce strength.

Curing

Curing methods to protect concrete surfaces should be adopted.

Compatibility

CasTech PC 303 is fully compatible with all Portland cements that comply with recognized international standards. **CasTech PC 303** is ideal for use in mixes containing micro silica, pulverized fuel ash, and ground granulated blast furnace slag cement. Avoid using this product alongside naphthalene-based admixtures

Dispensing

CasTech PC 303 is a ready-to-use liquid which is dispensed into the concrete together with the mixing water. The plasticizing effect and water reduction are higher if the admixture is added to the concrete after 50 to 70% of the mixing water has been added. The addition of **CasTech PC 303** to dry aggregate or cement is not recommended.

Storage and Shelf Life

Up to 1 year in unopened original packing, protected from extremes of heat and cold and stored under shade.

Packaging

CasTech PC 303 is available in IBC, 210-liter drums and in 1000 L IBC tanks upon request.

Precaution

CasTech PC 303 is water-based liquid and is not a fire or health hazard. However, it should not be swallowed or allowed to come into contact with skin and eyes. Suitable protective gloves and goggles should be worn. Spillages should be washed down immediately with cold water. For further information refer to the Material Safety Data Sheet.

Warranty

CASTECH products are guaranteed against defective materials and manufacture and sold subject to **CASTECH** standard terms and conditions of sale. Whilst **CASTECH** endeavors to ensure that any advice, information or recommendation given is correct, the company cannot accept any liability either directly or indirectly arising from the use of its products, since the company has no control over the application of its products. Information contained in this document is given on the best current knowledge. **CASTECH** policy is one of continuous improvement and the company reserves the right to change the company products without prior notice.

Head Office: CASTECH MIDDLE EAST FZE, T6-04, Sharjah Airport Free Zone, Sharjah, UAE
P.O. Box: 121661, Tel.: +971-6-5489207, Fax: +971-6-5579879
Email: info@castechchem.com
www.castechchemicals.com