

PolarSet®

Non-Corrosive, Non-Chloride Set Accelerating Admixture

Description

PolarSet® is a non-corrosive, non-chloride admixture for concrete. It accelerates cement hydration resulting in shortened setting times and increased early compressive strengths.

PolarSet does not contain calcium chloride and is completely non-corrosive to reinforcing steel, metal decks, and to all metal components of your admixture storage and dispensing system. It conforms to Type C materials of ASTM designation C 494 and meets the recommendations of BS 8110: Part 1 for prestressed and reinforced concrete.



Benefits and Advantages

- Specially formulated to reduce concrete setting times and increase early strengths for concrete in very cold conditions.
- May be used to reduce the time that concrete must be protected against freezing in ambient temperatures as low as -7°C.
- May be used to speed finishing operations and/or form removal, leading to savings in concrete construction costs.
- Provides set time acceleration and early strength development similar to that provided by calcium chloride, but without the potential corrosive effects.

- Can be used where potential corrosion of embedded or stressed steel must be avoided.
- Can be used in concrete that is to be placed on steel clad or zinc coated steel decks where corrosion must be avoided.

Typical Properties

Appearance:

Light green liquid

Specific Gravity:

1.3 to 1.4 at 20°C

Alkali Content:

0.02% as Na₂O

Air Entrainment:

nil

Chloride Content:

<500 ppm

Freezing Point:

-23°C

Addition Rates

Range: 500 ml - 4000 ml per 100 kg cement

The amount of PolarSet used will depend on specific job conditions, on local materials and on the degree of set acceleration and early strength development required. Typical addition levels range from 500 ml to 2000 ml/100 kg of cement, but levels as high as 6520 ml/100 kg of cement can be used.

PolarSet is supplied ready for use. Since PolarSet may be used at high dosages, the concrete producer should account for the water contained in the PolarSet. One litre of PolarSet weighs approximately 1.35 kg and added to a concrete mixture will contribute 0.78 kg of water to that mixture.

Overdosing of PolarSet will produce an increased rate of setting but may result in a reduction of the ultimate concrete strength.

Compatibility

With cements: In concrete mixtures, PolarSet accelerates the chemical reaction between Portland Cement and water. It speeds up the formation of gel — the binder that bonds concrete aggregates together. Accelerated gel formation in turn shortens the setting time of concrete, compensates for the set-slowness effects of cold weather and contributes to the development of higher strengths. Gel formation promotes heat generation within the mixture — helping to protect the concrete from freezing during the critical first hours after placement.

With other admixtures: PolarSet is compatible with air-entraining admixtures such as the Darex® AE Series; water reducers such as WRDA® P4, WRDA P7 and WRDA P10; mid-range water reducers such as Daracem® 55 and WRDA 90, and high-range water reducers such as Daracem SP1 and Daracem SP5.

Precaution should be taken to avoid mixing PolarSet with other admixtures before they enter the concrete. However, once they have been separately added to the mixture, the products will function as prescribed.

Dispensing

A complete line of accurate dispensers is available. PolarSet may be introduced on the sand, in the water, or at the end of the batch cycles. Similar to all concrete admixtures, PolarSet should not come in contact with other admixtures prior to entering the concrete.

Packaging

PolarSet is supplied in 205-litre, non-returnable containers. Alternatively, bulk deliveries can be arranged.

Storage

PolarSet should be stored above 0°C and protected from frost. If the product does freeze, it should be carefully thawed before mixing.

Storage life in manufacturer's drums: 12 months from date of manufacture.

Storage life bulk storage: 12 months from date of delivery.

Health and Safety

See PolarSet Safety Data Sheet or consult Grace Construction Products.

Technical Service

The Technical Service department of Grace Construction Products is available to assist you in the correct use of our products. Contact:

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