

PolyCrete C-1000



Cementitious Crystalline / Concrete Waterproofing Addmixture

Ver. A1218

DESCRIPTION:

PolyCrete C-1000 is a 3rd generation integral crystalline waterproofing admixture in dry powder form. **PolyCrete C-1000** is added to the new concrete mix during batching. **PolyCrete C-1000** consists of Portland cement, and various active, and proprietary chemicals. It is designed for use in above- and below-grade applications. These active chemicals react with the moisture in fresh concrete with the by-products of cement hydration to cause a catalytic reaction, which reduces concrete permeability by permanently sealing micro-cracks, pores and capillaries and effectively protecting the concrete against water penetration from any direction and the effects of deterioration due to harsh environmental conditions, even under high hydrostatic pressure.

PolyCrete C-1000 provides projects with self-healing concrete with the ability to reseal cracks that develop during the lifetime of the concrete. In addition, **PolyCrete C-1000** enhances the natural hydration process in concrete by intensifying hydration crystal growth, increasing compressive strength. In absence of moisture, the activating chemicals remain dormant in concrete for years. Should cracks recur at any time, these dormant materials are activated by any penetrating moisture, and the chemical action and sealing process repeats itself automatically. **PolyCrete C-1000** has been specially formulated to meet varying project and temperature conditions (see setting time and strength).

ADVANTAGES:

- Protects concrete for a lifetime (Increases the durability of concrete)
- Self-heals hairline cracks up to 0.5mm and stops water ingress that may occur from subsequent damage to the structure.
- Resists extreme hydrostatic pressure from either positive or negative surface of the concrete slab.
- Non-toxic -Safe for contact with potable water
- Reduces concrete shrinkage and cracking
- High resistant to aggressive chemicals
- Save Time of the project by reduces construction scheduling time
- System becomes an integral part of the concrete
- Protect reinforcement steel from corrosion.
- Permanently waterproofs and protect concrete.
- Increases compressive strength of hardened concrete.
- No negative effect to the concrete mix design.
- Replaces unreliable exterior membranes, liners and coatings.

AREAS OF APPLICATION:

Can be used in all concrete, or screed applications where permanent active waterproofing is required in the following areas:

- Sewage and Water Treatment Plants

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- Foundations and below grade parking structures
- Basements, and Elevator pits
- Reservoirs and Swimming Pools
- Tunnels, Subway Systems and below grade pipelines
- Cooling towers in power stations
- Cast, Cast-in-Place and shotcrete applications.
- Secondary Containment Structures.

APPLICATION METHOD:

Dosage Rate: PolyCrete C-1000 1 % - 1.25 % by weight of cement.

Mixing: PolyCrete C-1000 must be added to the concrete at the time of batching.

a) Dry Batch Operation: Add PolyCrete C-1000 in powder form directly to the coarse aggregate conveyor belt manually or through computer controlled mass batching system. Account for worker health and safety issues with moving belts and wind-blown dust issues.

b) Truck Mixer Operation (on the job site): The addition of PolyCrete C-1000 at the job site (truck mixer) **MUST NOT** happen in the powder form. Mix the required amount of PolyCrete C-1000 with an equal amount of water by weight in a suitable vessel (preferably a plastic bucket/container) until a slurry is obtained and then add the entire content completely

into the truck mixer's drum. The subsequent mixing time at least 5 minutes in a transit mixer at maximum speed to ensure even distribution of PolyCrete C-1000 throughout the concrete. Ensure that the additional slurry water does not increase the water/cement ratio above the projected value. Otherwise the water amount must be reduced from the mixing water dosage at the batch plant. The working time after addition of PolyCrete C-1000 depends on the reactivity of the used cement and can either be extended or shortened.

c) Precast Batch Plant: Add PolyCrete C-1000 to the rock and sand, then mix thoroughly for 2-3 minutes before adding the cement and water. The total concrete mass should be blended using standard practices.

NOTE: It is important to obtain a homogeneous mixture of PolyCrete C-1000 with the concrete. Therefore, do not add dry PolyCrete C-1000 powder directly to wet concrete as this may cause clumping and thorough dispersion will not occur. For further information regarding the proper use of PolyCrete C-1000 for a specific project, consult with a PolyCrete C-1000 Technical Representative.

Setting Time and Strength: The setting time of concrete is affected by the chemical and physical composition of ingredients, temperature of the concrete and climatic conditions. Retardation of set may occur when using PolyCrete C-1000. The amount of retardation will depend upon the concrete mix design and the dosage rate of PolyCrete C-1000. However, under

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normal conditions, **PolyCrete C-1000** will provide a normal set concrete. Concrete containing **PolyCrete C-1000** may develop higher ultimate strengths than plain concrete. Trial mixes should be carried out under project conditions to determine setting time and strength of the concrete. Concrete treated with **PolyCrete C-1000** should be placed and finished in accordance with good concrete practices. ACI guidelines and recommendations should be observed.

When incorporating PolyCrete C-1000, the temperature of the concrete mix should be above 40°F (4°C).

SHELF LIFE:

PolyCrete C-1000 products must be stored dry at a minimum temperature of 45°F (7°C). Shelf life is 12 months when stored under proper conditions.

SUPPLY:

20 kg / metal pail / 48 pail / pallet
15 kg / plastic pail / 48 pail / pallet
10 kg / plastic bag / 4 bags / carton.

MATERIAL PROPERTIES:

Visual Appearance	Grey powder
Chloride content	< 0,1 % by mass
Alkali content	< 10,3 % by mass
Compressive strength	≥ 85 % of control
Conventional dry material content	> 99,5 %
Air content in fresh concrete	≤ 2 % by volume
Capillary Absorption (after 90-day curing)	≤ 60 % by mass
VOC Content	Non

HEALTH & SAFETY:

PolyCrete C-1000 is alkaline. As a cementitious powder or mixture, **PolyCrete C-1000** may cause significant skin and eye irritation. Directions for treating these problems are clearly detailed on all **PolyCrete C-1000** pails and packaging. The Manufacturer also maintains comprehensive and up-to-date Safety Data Sheets on all its products. Each sheet contains health and safety information for the protection of workers and customers. The Manufacturer recommends you contact **PolyCrete C-1000** Technical Services Representative to obtain copies of Safety Data Sheets prior to product storage or use.

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