

Multipurpose Concentrated Crystalline Waterproofing – Self-Healing, Both-Side Pressure

DESCRIPTION

CasTech Crystal Seal Concentrate is a crystalline waterproofing system for below-grade applications such as concrete basements and water-holding structures. Moisture and free lime in the substrate react with the active chemicals to create a continuous barrier of insoluble crystals that penetrate deep into the water-bearing capillaries of the concrete, blocking the passage of water while allowing air and water vapour through so the structure can breathe.

It is equally effective against positive and negative water pressure and can be used as an admixture or surface applied as a slurry on internal or external concrete faces. Full waterproofing is usually achieved 5 – 7 days after application. The active chemicals then remain dormant in the concrete; any later contact with water reactivates the sealing process.

SYSTEM COMPONENTS

Admixture: cementitious powder added to the dry mix at the concrete mixer at 0.80 kg per m³ of concrete.

Slurry: Concentrate mixed with sand, cement and lime (optional) – surface applied.

Mortar: mixed to mortar consistency with water for crack and honeycomb repair, screed render and fillets.

Hardener: used in place of water with the slurry for ultra-rapid set, for leak plugging.

TYPICAL USES

Water-retaining structures: water tanks and towers, reservoirs and canals, swimming pools and concrete pipes, water treatment areas, harbours and dams.

Water-resisting structures: basements, retaining walls, bridge decks and foundations, tunnels and underground car parks, inspection pits, sea defence walls and jetties.

ADVANTAGES

Characteristics:

- Fault finding – shrinkage cracks are easy to find and repair with slurry and mortar; no lifting of membranes
- Efficient – waterproofing from the positive or negative side shortens the programme
- Crack sealing – seals static hairline cracks up to 0.4 mm
- Long-term performance – no re-application or maintenance required

- Fast backfilling – immediately after forms are stripped
- No protection boards required

INSTRUCTIONS FOR USE

Admixture

Addition rate 0.80 kg per m³ of concrete. Distribute the powder evenly through the dry mix before adding water. The powder has a plasticizing effect; do not use water-reducing or air-entraining admixtures with it.

Surface-applied slurry

Dry mix: 0.5 kg silica sand, 0.1 kg lime (optional, or increase sand), 0.5 kg general-purpose cement and 0.20 kg Concentrate. Mix 1 part water to 2.5 parts powder by volume, adding water to the powder. Mix only enough slurry for 10 minutes. Apply at 1 kg/m² per coat by brush or spray onto the dampened, clean substrate, in 2 coats at right angles; apply the 2nd coat while the first is firm but green (usually 3 – 4 hours). If the 2nd coat is applied the next day, dampen first.

Mortar

Mix with sufficient water to a mortar consistency; use as required. Dampen the surface and laminate in layers no more than 30 mm thick.

General instructions

Protect from sun and ponding water for 4 days, and mist-spray with water 3 – 4 times a day for 4 days to assist curing and penetration. Plastic or rubber containers are recommended. Not suitable for subsequent decoration unless first protected by a sand/cement render.

SURFACE PREPARATION

Surfaces must be free from dust, oil, grease, paint, curing compound, form release oil or previous treatments. Remove laitance to give a slightly rough, open-pore surface as a mechanical key.

Existing structures: inspect leaking structures to find the cause and clear away water. Chase out and repair static cracks over 0.5 mm; chip out and repair voids or honeycombs; form dynamic cracks into an elastomeric movement joint. Repair leaking cold joints as for cracks or voids. Movement joints are the responsibility of others.

REPAIRS

Cracks over 0.5 mm: chase out to 30 – 40 mm deep, dampen, prime with slurry and laminate mortar in 30 mm layers until filled.

Voids and honeycombing: hack out to solid concrete, dampen, prime with slurry and laminate mortar in 30 mm layers until

Product Data Sheet

CasTech Crystal Seal

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filled.

Plugging leaks: seal leaks and pressure-relief holes with a plugging compound of slurry mixed with hardener liquid. Under pressure: chase out the leak, insert a hose, seal around it with plugging compound, coat the cavity with slurry and, when tacky, fill with mortar. When surrounding waterproofing is complete, withdraw the hose, plug the hole (hold approx. 1 minute until set), fill the remainder with mortar and lap slurry coats over the area.

LIMITATIONS

CasTech Crystal Seal is not suitable for applications exposed to thermal stress, or for dynamic cracks or movement joints; use an elastomeric joint sealant for these. Maintenance: none required.

CLEANING

Clean tools and equipment immediately after use.

PACKAGING AND STORAGE

Available in 0.8 kg packets, 25 kg bags and 200 kg drums.

Store in cool, dry, shaded warehouses, under cover, out of direct sunlight and protected from extreme temperatures. Shelf life is 12 months when stored as recommended. In extreme tropical climates, store in a cooled environment; excessive humidity and UV exposure reduce shelf life.

HEALTH AND SAFETY

CasTech Crystal Seal contains no hazardous substances; however, caution should always be exercised.

PPE: Gloves and goggles shall be worn whilst handling.

Precautions: Treat splashes to skin or eyes with fresh water immediately. If swallowed, do not induce vomiting; call for medical assistance immediately. Reseal containers after use.

Additional information: Refer to MSDS (available on request).

TECHNICAL SUPPORT

CasTech provides on-site assistance and consulting services on projects when requested. Technical data sheets on other CasTech products and guidance on their use are available on request.