

### CRACK HEALING AND INTEGRAL CRYSTALLINE WATERPROOFING ADMIXTURE FOR CONCRETE & MORTAR

#### Description

**AQUAPROOF CRYSTALLINE**, an integral crystalline waterproofing compound, is added to the concrete or mortar mix at the time of batching. The active chemicals react with the moisture in fresh concrete and with the by-products of cement hydration to cause a catalytic reaction, which generates a non-soluble crystalline formation throughout the pores and capillary tracts of the concrete. Thus, **AQUAPROOF CRYSTALLINE** reduces water permeability of concrete structures which can allow it to be used in place of various surface applied waterproofing membranes systems. This product also has a **self-healing** property under presence of moisture and can heal cracks up to 0.5 mm.

**AQUAPROOF CRYSTALLINE** can be used as an applied coating, mixed to a slurry consistency with potable water.

#### Uses

- Water tanks, Reservoirs
- Building Basements & foundations
- Swimming pools and water parks
- Sewage and Water treatment plants
- Dams, canals, Tunnels, Harbours
- Retaining walls & sea defence walls
- Concrete pipes

#### Advantages

- Easy to use, require only mixing with concrete.
- Integral waterproofing system.
- Resists positive and negative side hydrostatic pressure
- Can seal hairline cracks up to 0.5 mm
- Exhibits good resistance to hydrostatic water pressure both surface.
- Compatible with our full range of water reducing admixture.
- More effective due to formation of crystalline in tiny capillaries.
- Reduce Shrinkage and Creep
- Increase Durability

#### Technical Data

Appearance	: Grey powder
Bulk density	: 800 - 1000 Kg/m <sup>3</sup>
Workability	: To be adjusted using water reducing & retarding admixture
Water Penetration depth Below 15mm	: 7 mm
(DIN1048 Part 5)	

#### Characteristic

##### Setting time:

**AQUAPROOF CRYSTALLINE** admixture has little to no effect on concrete setting time within the recommended dosage range. However, it is recommended to test this in case any additives or blended cementitious combinations are used in concrete.

##### Permeability:

**AQUAPROOF CRYSTALLINE** reacts in concrete to form insoluble crystalline hydration products in the capillary pores/capillary tracts of the concrete.

These crystalline hydration products are deposited and fill the pores and hairline cracks, effectively reduce the permeability of concrete, its capillary absorption and penetration of water and other liquids into the concrete.

#### Dosage

The optimum dosage of **AQUAPROOF CRYSTALLINE** to meet specific requirement should always be determined by conducting laboratory and batch trials. However, as a guide, the normal dosage ranges between 0.6 to 1.5 percent by weight of total cement or binder content is recommended. Dosage up to 2 Kg per 100kg of cementitious content can be used in special requirements.

##### Note:

- Ensure water / cement ratio is less than 0.5
- Addition of good superplasticiser from the ESTEEMA or ESTEEMA PLUS range is advised to achieve minimum water/cement ratio.
- Place concrete quickly and compact it well.
- Ensure complete curing with a CUREWELL curing compound.

#### Application as waterproofing coating system

##### Surface Preparation

Surfaces to be treated must be free from dust, oil, grease, paint, residual curing compound, mould oil or any previous surface treatment that will impair adhesion of the **AQUAPROOF CRYSTALLINE** treatment. Remove any laitance and provide an open pored, slightly rough surface sufficient to act as a mechanical key, essential for adequate adhesion of the **AQUAPROOF CRYSTALLINE** treatment. Light sand / grit blasting of the concrete surface is the preferred method of surface preparation.

Areas of weak or honeycombed concrete must be repaired. Hollow, debonding renders must be removed and made good.

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Surfaces to be treated if not already wet, should be saturated for a period of 24 hours before first applications. AQUAPROOF CRYSTALLINE system technology requires the presence of water for the active chemicals to migrate into the concrete. Crystalline development will usually extend to the depth of water penetration.

Mixing for coating application :

Always add water to AQUAPROOF CRYSTALLINE - not in reverse order. Mix 1 part of water to 2.25 - 2.5 parts of AQUAPROOF CRYSTALLINE powder by volume. Mix only sufficient AQUAPROOF CRYSTALLINE that can be used in 20 minutes

#### Application as Integral Waterproofing

AQUAPROOF CRYSTALLINE admixture is batched at the concrete production plant in a manner similar to that for cement or other cementitious materials. It may be batched in either a central or truck mixer.

Follow the procedures outlined in ASTM C94 / C94M, Standard Specification for Ready-Mixed Concrete, for general batching and mixing instructions for concrete if adding to a truck mixer.

Provide at least 5 minutes of mixing after the addition of AQUAPROOF CRYSTALLINE admixture to ensure thorough and uniform distribution of the admixture in the concrete mixture.

#### Compatibility

AQUAPROOF CRYSTALLINE can be used with all types of cements except high alumina cement.

It is compatible with all Naphthalene, Melamine, ligno-sulphonates and carboxylic acid base Admixture and retarders and also with most type of air entrainers, accelerators, viscosity modifying agent, extended set-control admixtures, corrosion inhibitors, and shrinkage reducers. Site trials should be carried out to optimize dosages.

AQUAPROOF CRYSTALLINE is also compatible with slag and pozzolans such as fly ash, GGBS and silica fume.

#### Durability

Produces impermeable concrete, thus enhancing durability of concrete.

#### Corrosion

AQUAPROOF CRYSTALLINE neither initiates nor promotes corrosion as it does not contain any harmful chemicals. Rather it reduces the risk of corrosion of reinforcement or other embedment, as it produces impermeable concrete.

#### Packaging

AQUAPROOF CRYSTALLINE is available in 0.5 kg and 30 kg pack.

#### Storage & Shelflife

Store in dry conditions at temperatures between +10°C and +40°C. Protect from direct sunlight and frost. 12 months from date of production if stored properly in undamaged unopened, original sealed packaging.

#### Safety precautions

AQUAPROOF CRYSTALLINE does not fall into the hazard classifications. However, it should not be swallowed or allowed to come into contact with the skin and eyes. Suitable protective gloves and goggles should be worn. Splashes on the skin should be removed with water. In case of contact with the eyes it shall be rinsed immediately with plenty of water and medical advice sought immediately. If swallowed, medical attention shall be sought immediately - Vomiting should not be induced.

#### Fire

AQUAPROOF CRYSTALLINE is non-flammable.

#### Note

All Technical Data Sheets of FIRSTCHOICE SPECIALITY CHEMICALS are updated on regular basis; it is the user's responsibility, to obtain the most recent issue. Field services where provided, does not constitute supervisory responsibility, for additional information contact our local representative.

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