



PRODUCT N ° : 3.164

## TECMA ADMIX CRYSTAL

### Integral waterproofing cementitious admixture by crystallization

#### DESCRIPTION:

**TECMA ADMIX CRYSTAL** is a cementitious admixture specially formulated for improving the waterproofing of concrete. The active chemicals that contains will produce a catalytic reaction inside the concrete that will form a non soluble crystalline material that precipitates inside the pores and capillaries of the concrete structure, sealing them against the pass of water and originating a phenomenon of densification and waterproofing in all the concrete mass. This way concrete is permanently waterproofed for positive and negative water pressures, even for high pressures

#### PROCESS OF CRYSTALLIZATION GENERATED BY TECMA ADMIX CRISTAL:

The active chemicals of **TECMA ADMIX CRYSTAL**, according to the Fick Laws, and as a consequence of Brownian movements and osmotic processes, diffuse through the solid and liquid phases inside the concrete structure and, in the presence of water, react with the by products of the cement hydration generating a series of catalytic reactions that culminate with the formation of non soluble crystals inside the pores and capillaries of the concrete, sealing them against the water penetration. Due to the continuous production of crystals the concrete becomes more and more dense and this way blocks the pass of water and prevents the pass of noxious substances. This way the concrete gets its waterproofing properties and at the same time allows the pass of water vapour (concrete breathing). The formed crystals will stay inside the concrete and the crystallization process will continue provided there is presence of water.

The cracks that will be produced in the concrete in the future will be sealed if they have a maximum width of 0.4 mm. (self healing property).

#### APPLICATION FIELD:

**TECMA ADMIX CRYSTAL** can be used for most of the concrete structures that are expected to be in contact with water. It is recommended, among others, for:

- Pre-cast structures
- Tunnels and galleries
- Bridges
- Potable water tanks
- Waste water treatment plants
- Silos
- Marine or coastal structures
- Dams
- Canals
- Basement walls and floors
- Parking structures
- Ponds and swimming pools

#### CHARACTERISTICS:

Water content (%)	< 1.00
Non-volatile content (%)	> 99.00
Chloride content (%)	< 0.10
Total sulphur content (%)	< 0.25

Test	Test Result	Standard
Water permeability test (mm)	≤ 15 mm	UNE – EN 12390-8 (5 Kg./cm <sup>2</sup> during 72 hours)

#### METHOD OF USE:

It is recommended a Standard dosage of **0,8%** of **TECMA ADMIX CRYSTAL** of the weight of cement and reactive pozzolans.



Example: For a concrete containing 350 Kgs. of cement per cubic meter of concrete it will be necessary to add 2.8 Kgs. of TECMA ADMIX CRYSTAL (0,8%) per cubic meter of concrete.

**Batching procedure:**

- **TECMA ADMIX CRYSTAL** will be added into concrete either in concrete batch plant or concrete mixing trucks.
- In concrete batch plant, it is recommended that **TECMA ADMIX CRYSTAL** shall be added into concrete after the addition of cement, sands and aggregates. We recommend a through mix between 5 to 10 minutes.
- The same method applied to concrete mixing truck. **TECMA ADMIX CRYSTAL** will be added into concrete mixing truck and proceed for a through mix during 5 to 10 minutes.
- It is recommended to carry out previous tests (during the phase of concrete mix design) to determine the optimum quantity of water for the concrete, because **TECMA ADMIX CRYSTAL** admixture will normally reduce the amount of water needed by 5 to 20 litres per cubic meter.
- Water is completely necessary to allow crystallization process. This process should grow continuously inside concrete. Therefore, curing is very important to avoid that concrete dehydrate.

**Setting time:**

**TECMA ADMIX CRYSTAL** admixture may increase the setting time of concrete, subject to different mix designs. Trial mixes are recommended to determine the setting time and the workability of concrete.

**ADVANTAGES**

- It is the most economic method to provide an integral long lasting waterproofing and protection of concrete in new jobs, avoiding, this way, the use of waterproofing coatings and membranes, much more expensive.
- It provides permanent waterproofing of concrete, even to high positive or negative water pressures.
- It allows the breathing of concrete, avoiding concentrations of water vapour.
- It integrates concrete structure.
- Future cracks or voids in concrete structure up to a width of 0.4 milimeters will be sealed up creating a crystallization process provided water is present (Self healing properties).
- It is non toxic.
- It reduces significantly the construction schedule for waterproofing.

**CONTRAINDICATIONS:**

- Do not use **TECMA ADMIX CRYSTAL** with temperatures below 5° C.
- Avoid adding in the concrete mix aggregates that contain clays that will blow up, mica components, amorphous silica and other impurities.

**PACKAGING AND STORAGE:**

**TECMA ADMIX CRYSTAL** is supplied in multi-leaf paper sacks, containing 25 Kg. **TECMA ADMIX CRYSTAL** must be kept in the original sacks, well closed.

The storage life in the original sacks should not be longer than 12 months.