### Description:
Hayper crystalline-1K: a cement-based crystallized mortar in powder form made of specifically selected fine aggregates and chemicals activated by water and moisture. It is applied in positive and negative directions and the chemicals it contains penetrate into the concrete in depth by reacting with moisture and free lime present in the concrete, and forms crystals that do not dissolve in capillary voids and pores.

### Usage Areas:
- **Application Areas: Positive Water Pressure:**
  - Water Tanks.
  - Swimming pools.
  - Isolation of retaining walls and shear walls.
  - Irrigation canals.
  - Sewer system pipes, concrete pipes and manholes.
  - Dams.
  - Cisterns.
- **Negative Water Pressure:**
  - Interior isolation of basement walls and grounds.
  - Exterior isolation of water tanks.
  - Retaining walls.
  - Tunnels, subways.
  - Floors and horizontal joints.
  - Elevator excavation.

### Advantages:
The product is provides the following beneficial properties:
- Effective in both positive and negative water pressure.
- Integrated with the surface it is applied, does not get ripped, pierced and provides a long lasting and complete water insulation.
- Ensures impermeability by filling the capillary voids in the concrete every time it contacts with water, with its crystallized structure that does not dissolve.
- Not poisonous. Perfect for water tanks.
- Protects the concrete and reinforcement iron by preventing corrosion.
- It does not need to be protected with materials such as isolation plates prior to the filling application.
- Air and water vapor permeable, the structure can breathe.
- Can be applied to fresh concrete that has not set yet.
- Resistant to freeze-thaw cycle.

### Shelf life/storage conditions:
12 months from date of production.
The product must be stored as per local storage regulations and should be kept in dry and well-ventilated location far from heat and direct sunlight.
Availability:
Available in 20 kg powder.
(Packing may vary from country to country depending on local requirements)

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## Surface Preparation

The application surface must be clear of materials which prevent bonding, such as dust, oil, paint, curing agents, detergents, mold release oils, silicone, and has to be moisturized. Weak parts of the concrete must be repaired, plasters that are not adhering well must be removed, the surface must be shaped flat and sound, static cracks on the building must be repaired with plaster with Hayperflex Latex or HYPER REPAIR MORTAR. The application surface must be saturated with water and must be kept moist during application.

## Application:

After the completion of surface preparation, there are three alternative types of application methods depending on the state of surface and the age of the structure:

1. **Slurry (mortar with water):** Hayper crystalline -1K is applied on the moisturized surface with a brush in two layers that are perpendicular to each other. Second layer is applied when the first layer is hardened but not completely dry (in about 3 - 4 hours).

2. **Plaster:** First coat of Hayper crystalline -1K can be applied with a plaster of 5 - 10 mm thickness for very old concrete, brick wall or briquette surfaces. Second layer of Hayper crystalline -1K can be applied on this as mortar.

3. **Dry Shake:** In cold joint applications, Hayper crystalline -1K can be sprinkled in powder form into the joints on horizontal surfaces. Curing with water is very important after all types of application. Following the application, Hayper crystalline -1K must be prevented to get dry quickly and kept moist for about 1 week. Thus, operations such as water spraying or laying out moist sack as implemented in concrete curing operations are useful.

Remark: The application method is selected depending on the state of the structure being old or new.

### Application on New Structures

It is preferred to use the product as slurry or dry shake:

For isolating the water coming from the ground, Hayper crystalline -1K can be applied as slurry or dry shake on the leveling concrete surface right before pouring floor covering concrete. This method prevents the surface to be flooded by preventing the water to leak inside. In groundwork, water isolation must be made on outer surface (the direction of water in-flow) if possible and if not, it must be made on inner surface.

In cold joint applications due to breaks while pouring the concrete during the construction work, it can be applied as dry shake horizontally and as slurry vertically.

### Application on Old Structures

It is preferred to be used as slurry or plaster:

Water isolation for concrete curtain walls with water leakage or exposed to high water pressure:

- If there are holes on the surface with high water flow, the holes are enlarged first with a drill or a chisel in order to let the water flow and reduce the water pressure in these holes.
- If there are leakages in more than one spot, water must be evacuated by drilling a hole at the lower sections of the wall.
- If the water pressure is too high, a thin plastic pipe is placed inside the holes. If the pressure is not too high there is no need for a plastic pipe.
- After Hayper crystalline -1K plaster is cured, the isolation is implemented by applying Hayper crystalline -1K slurry provided the surrounding area of the hole is also covered.

Water isolation on top of very old concrete, brick, and briquette: Hayper crystalline -1K is added to the plaster.

### Important remarks

- Avoid application in temperatures below +5°C and above +35°C.
- Avoid application on frozen areas, on areas under risk of freezing in 24 hours or on areas open to direct sunlight or wind.
- Never attempt to extend the expired mortar by adding powder and water. To maintain the consistency of the mortar during the application mix it often.
Important remarks

• Structures such as water tanks must be filled with water 24 hours after the last layer of Hayper crystalline -1K is applied since water pressure speeds up the formation of the crystal and the penetration of Hayper crystalline -1K into the concrete. Complete water isolation is obtained in 5 - 7 days after the application in general. Soil filling is done at the end of this period.
• The degree of formation of crystal and penetration depends on the density of the concrete and the absorbency of the surface.
• In order to avoid non-decorative aspect of the crystals formed by Hayper crystalline -1K, plaster must be applied on it when it is still wet, and the paint must be applied on the plaster. In the case of ceramic or tile applications, ceramic adhesive must be applied directly on freshly applied Hayper crystalline -1K. If these applications will be made on Hayper crystalline -1K that is cured, crystals on the surface must be wiped off with diluted hydrochloric acid or bleach before the plaster. Wiping process only removes the crystals on the surface but does not inflict damage on the crystals penetrated inside the concrete.

Cleaning:

Clean all equipment and tools with water immediately after use.

Safety:

For information and advice on the safe handling, storage and disposal of chemical products, users should refer to the most recent Material Safety Data Sheet containing physical, ecological, toxicological and other safety-related data.

Application instructions and technical data provided for the products are obtained in line with our experience and the tests are implemented according to international standards, under ambient temperatures of 23±2°C and ambient relative humidity conditions of 50%±5. Higher temperatures decrease while lower temperatures increase these durations. ALVO Yapı Kimyasalları San. Tic. Inc. is not responsible for any application that may occur if the product is used outside of its intended purpose or if the application conditions and recommendations specified above are not followed. And this technical data Sheet is valid until the next revision is published. ALVO reserves the right to change the values specified in this Technical Data Sheet, provided that a new version is published. And it is user’s responsibility to check the updated document. For more information, please contact our sales department. Providing a general information about the use and application of our products that can be used in a wide range of different areas and general technical details, this guide has been prepared to demonstrate. This information reflects the knowledge and experience of our company. And it is advisory. Given here information and especially recommendations regarding application and end-use, where products are stored, handled and handled under normal conditions and recommended conditions. It has been given in good faith to cover the situations in which it has been applied. Products, application surfaces, application areas and application conditions are practically quite it is diverse. Therefore, when using the products, it is necessary to make sure that you apply the right product in the right conditions and in the right place.

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