

CEMCRETE HS

Ultra High Strength Flowable Cementitious Non-Shrink Grout

Description:

CEMCRETE HS is an ultra high compressive strength cementitious non-shrink flowable grout. It is formulated to suit in projects that specifically requires high and early strength development. CEMCRETE HS consists of special blend of cement, silica sand, special aggregate and chemical additives to give, when mixed with water a self-leveling, non-shrinking and very fluid mortar, with high initial and final mechanical strength.

CEMCRETE HS ideally used in several applications such as void filling, grouting under steel structural base plates, precast erection machine base filling operating under heavy load and vibration, under turbine base plates and when high strength grout is required. When mixed with water, CEMCRETE HS transform into a flowable mix which makes it easier to apply to fill irregular spaces.

CEMCRETE HS has excellent characteristics of adhesion to the substrate, impermeability and flowable consistency. It is featured by thermal expansion coefficient similar to high quality concrete. It can be applied to full gaps with a size 20-200 mm.

Uses:

CEMCRETE HS is applied as grouting in many applications including:

- Grouting under very harsh conditions
- Under plates of beams in steel structures.
- Under machinery bases grouting, such as generator, compressors, etc.
- Grouting of structural elements.
- Anchoring bolts and footings for turbine towers.
- Floor patching and void filling.
- Precast elements erection.
- Under wind turbine base plates.

Advantages:

- Shrinkage compensated, high precision grouting purposes.

- Suitable for heavy duty support under machines base plates.
- Ultra High compressive strength and impact resistance.
- Low permeability and high strength which cause very good protection against chlorides and carbon dioxide.
- Contains, well graded aggregate to provide increased resistance to dynamic and repetitive loading.
- Low alkali content minimizes the risk of alkali-silica reaction.
- Excellent fatigue resistance.
- Self-compacting, flowable nature eliminates honey combing while applying without vibration.
- Easy to use by trowel or pouring, or pumping.
- Excellent bond to concrete substrates.
- Thermal expansion coefficient and permeability coefficient which is similar to high quality concrete.

Instructions for Use:

Surface Preparation:

The surface must be solid, compact, clean, free from dust, cement laitance, oil, grease, etc. All loose parts of concrete should be removed. A coarse surface profile with aggregate exposed is preferred.

For grouting under base plate, construct a strong tight, leak-proof formwork around the designated area with the required height. Extend the side of the formwork on the grout pouring side. This will provide a head of grout during placement. Formwork should be built in a way to allow the grout to follow by gravity between the plate and the foundation.

Soak the surface with water prior to start grouting and allow to drain. Concrete surface should be damped (with no free water) in order to avoid possible water absorption at the moment of casting.

Base plate must be clean and free from oil, grease, or any other contaminated material. Formwork should be constructed to be leak proof to avoid any material loss as CEMCRETE HS is a free-flowing grout.

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Mixing:

CEMCRETE HS must be mixed mechanically with low-speed drill mixer 200 - 300 rpm, fitted with a suitable paddle. To prepare the mortar, pour into a cement mixer or into a container about 2.75-3.0 Lt. of clean water (depending on the required consistency), then add 25 Kg bag of CEMCRETE HS and mix for few minutes till obtaining a homogeneous mixture, free from lumps. Always add the powder to water when mixing cementitious products.

Application:

The mixed grout should be poured only from one side of the formwork to eliminate the entrapment of air. This can be achieved by pouring the grout across the shortest distance. While pouring, maintain a constant head, preferably of at least 15 cm on the side where the grout has been poured. Allow 10 cm clearance between the side of the form and the base plate of the machine.

Do not add extra water to the mix more than what specified. If the mix starts to harden, do not add more water to remix. In this case do not use the mix and prepare a new one.

Once the poured product starts to dry, it should be cured in accordance with good concrete curing practice and protected from sun, rain and winds. Curing shall be done with curing compound CEMCURE AR, or with a wet Hessian cloth covered with polyethylene sheet.

Standards:

- ASTM C1107M, C827, C109, C580

Packaging:

CEMCRETE HS is available in 25 kg high quality recyclable paper bags.

Yield:

CEMCRETE HS bag of 25 kg achieves 11.6 liters of wet grout when mixed with 2.75 liter water.

TECHNICAL PROPERTIES	
Appearance	Dark Grey Powder
Wet Density	2.25 ± 0.03 kg/lit
Potlife time at 25°C	>50 minutes
Setting Time	Initial: 1.5-2 hours Final: 3-3.5 hours
Flow@5 drops, flowable	125-140%
Volumetric Change (ASTM C827)	Up to 1% in 24 hours
Compressive Strength (ASTM C109)	>70 N/mm ² @3 day >95 N/mm ² @7 days >110 N/mm ² @28 days
Bonding Strength (BS 1881, part 207)	>2 N/mm ²
Flexural Strength (ASTM C580)	>10 N/mm ² @7 days >16 N/mm ² @28 days
Chloride Content (ASTM 1202)	NIL
Tensile Strength	>7 N/mm ²
Modulus of Elasticity	40 GPa
Concrete Strength Class	C90/105

*Values indicated may vary depending on the environment and conditions of the material. Figures given are tested according to standard laboratory conditions.

Storage:

Store in original packing in dry conditions away from direct sunlight and high humidity levels.

Shelf Life:

CEMCRETE HS can be utilized within 12 months of production date if stored in proper conditions in an unopened original packing.

Cleaning:

Clean tools and equipment with water before material hardens. Hardened material can only be removed mechanically.

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Remarks:

- Do not apply where ambient temperatures are below 5°C.
- Variations of temperature may increase or reduce the initial and final setting time of the mortar.
- During the peak temperature of the day in the summer season, working area should be covered if work to be executed externally. Use cold water for mixing and keep all tools and mixer in shaded areas
- Do not add sand, aggregate or any chemical additives as this could affect the mix proportion.
- Mixing water temperature should be in range of +2°C to +30°C
- Protect casted grout from strong drying conditions such as strong wind and/or direct sunlight.

Health and Safety:

Avoid contact with eyes and skin. Wear suitable protective clothing such as coveralls, goggles, dust mask and gloves. Use barrier cream. Ensure that there is adequate ventilation. Do not breathe vapour or spray mist.

FIRST AID:

- Eyes: In the event of accidental splashes, flush with warm water and seek medical advice.
- Skin: Wash skin thoroughly with soap and water
- Inhalation: Remove to fresh air, keep patient rested
- Ingestion: Do not induce vomiting. Seek immediate medical attention.

For further safety information, please refer to CEMCRETE HS Material Safety Data Sheet.

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