

STRUCTURE GUARD- UHPC

(Ultra-High-Performance Micro- Concrete)

DESCRIPTION:

STRUCTURE GUARD- UHPC is an Ultra-High-Performance Micro -Concrete is a cementitious, fibre-reinforced composite characterized by very high compressive strength, excellent durability, and extremely low permeability. It is typically used for bridge elements, precast components, rehabilitation works, thin sections, and high-durability structure.

AREAS OF APPLICATION:

- Bridge decks, girders & joints
- Precast panels & façade elements
- Jacketing & strengthening of RCC members
- Marine & coastal structures
- Thin architectural elements
- Blast & impact resistant structures

ADVANTAGES:

- Extremely high strength.
- Very long service life.
- Reduced section thickness.
- Superior corrosion protection.
- Low maintenance cost.

PRODUCT INFORMATION:

Appearance	Grey cementitious powder
Chloride content	Nil
Depth of carbonation	Nil
Packaging	25 Kg in moisture resistant bags
Shelf life	6 months in original unopened bag



TYPICAL PROPERTIES:

- Wet Density: 2350-2400 kg/m³
- Setting Time: (flow consistency).
Initial set: 12hours 00 minutes
Final set: 24 hours 15 minutes
- Alkali content: The presence of non-alkali reactive aggregates ensures its resistance to future expansive reactions and deterioration.
- Bond Strength: The typical shear bond strength when tested as per BS-6319 at water powder ratio of 0.15 at 20°C without any bonding agent is 110 N/mm² at 28 days.

TECHNICAL DATA:

Sr No.	Test Parameter	@ Day	Test Result
1	Compressive Strength (ASTM C 39)	7	65 N/mm ²
		28	110 N/mm ²
2	Flexural Strength (ASTM C 1609)	7	8.2 N/mm ²
		28	11 N/mm ²
3	Split Tensile Strength (ASTM C 496)	7	5.0 N/mm ²
		28	7.0 N/mm ²
4	Slant Shear Strength (ASTM C 882)	7	12 N/mm ²
		28	18 N/mm ²

METHOD OF APPLICATION:

SURFACE PREPARATION:

- clean the surface and remove loose concrete, dust, oil, paint, grease, waterproof coating, etc. Expose fully any corroded steel in the repair area and remove all scale and corrosion deposits. Apply Rust Guard for rust free bars.
- Saturate the substrate with water to prevent absorption of water from the mixed material. In case of a very old concrete substrate, it should be primed by applying one coat of Bonding Agent. Allow the bonding agent to reach tacky condition before pouring of mix concrete.

MIXING:

Use mechanical mixture for mixing of STRUCTURE GUARD- UHPC


- Charge 85-90 % of clean & potable mixing water (3.75 to 4 litres per 25 kg bag) to a Mechanical Mixer. Start addition of Micro Concrete powder slowly under continuous mixing. Keep mixing for 2 minutes. Add balance quantity 15 – 20% of mixing water & again mix for another 2-3 minutes to form a homogeneous, free flowing, uniform & lump-free mix.

APPLICATION:

Pour or pump the mixed STRUCTURE GUARD-UHPC into a watertight shuttering. Allow it to cure for 24 hours before de-shuttering. Cure the repaired concrete for minimum 7 days.

SAFETY PRECAUTIONS:

STRUCTURE GUARD- UHPC is a cementitious alkali product. Care should be taken to avoid contact with eyes, skin, mouth and food stuff. Any splashes on the human body must be washed with plenty of water.

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