STRUCTURE GUARD

(High strength micro-concrete)

DESCRIPTION:

STRUCTURE GUARD is a general-purpose non-shrink, cementitious, flowable, high strength micro-concrete for repairs. It is composed of good quality cement, properly selected aggregates and corrosion resistant additives. It is used and designed for repairing of damaged reinforced concrete elements like columns, beams, & structures where the areas are restricted or not easily accessible for proper placement of concrete using vibrator. It is free flowing and suited for thickness up to 40 mm to 100 mm.

AREAS OF APPLICATION:

- Repair of damaged reinforced concrete elements like Beams, Columns, Wall etc.
- Where access is restricted and compaction is not possible.
- For jacketing of RCC columns to increase load- taking capacity (strengthening of vertical members).

ADVANTAGES:

- Pumpable–can be pumped or poured into restricted locations.
- Flowable—flowable hence does not require compaction.
- Shrinkage compensation—controlled expansion system which compensates for shrinkage and settlement in the plastic state.
- Strength—Develops high initial and ultimate compressive strength.
- Moisture resistant—offers excellent resistance to moisture ingress.
- Durability—makes repaired sections highly durable and compatible to parent concrete.
- Thickness builds up—can be applied at 100 mm thickness at one stroke.
- Chloride content—contains no chloride-based additive so prevents corrosion of reinforcement.
- Early reinstatement -Rapid strength gain helps in early reinstatement & removal of shuttering.

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
Water – powder mixing ratio	3.75-4 ltr/25 Kg of bag

TYPICAL PROPERTIES:

- Wet Density: BS 1881 – 2250 kg/m3 giving a yield of 13l/25 kgs bag at flowable Consistency (W/P = 0.16)
- Setting Time: BS 4550 at 20℃ and 0.13 water to powder ratio (flow consistency).
  Initial set: 6 hours 00 minutes
  Final set: 8 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 0.130 at 20°C without any bonding agent is 62 N/mm2 at 28 days.

TECHNICAL DATA:

Sr No.	Test Parameter	@ Day	Test Result
1	Compressive Strength (ASTM C 109)	1	25 N/mm^2
		7	40 N/mm^2
		28	60 N/mm^2
2	Flexural Strength (ASTM C 293)	7	8.2 N/mm^2
		28	9.2 N/mm^2
3	Split Tensile Strength (ASTM C 496)	7	3.0 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 Bond Guard A Bonding Agent. Allow the bonding agent to reach tacky condition before pouring of mix concrete.

MIXING:

Use mechanical mixture for mixing of STRUCTURE GUARD

- 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 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 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.