MICRETE

TECHNICAL DATA SHEET

GENERAL PURPOSE, NON-SHRINK, CEMENTITIOUS MICROCONCRETE

Description

MiCRETE is supplied as a ready to use dry powder which requires only addition of clean water at site to produce a free flowing non-shrink repair micro concrete. This is a cementitious material, with additives, which impart controlled expansions characteristics in the plastic state while minimizing water demand. This is specially designed for repairs to damaged reinforced concrete elements, particularly where area is restricted and where vibration of the placed material is difficult or impossible.
For larger repairs, the MiCRETE may be modified by the addition of 5mm to 12mm clean, graded, saturated surface dry aggregates at site. For exceptionally large repairs, the local FIRST CHOICE SPECIALITY CHEMICALS PRIVATE LIMITED office shall be consulted.

Uses

MiCRETE is used for repairs to damaged reinforced concrete elements, particularly where access is restricted
and where vibration of the placed material is difficult or impossible.
Typical applications are:

- Extensive repairs to beams, columns and other structural elements.
- Repairs to industrial structures
- Repair of structural members subjected to repetitive loading.
- Jacketing of beams, columns and other structural elements for strengthening.

Advantages

- Can be pumped or poured into restricted locations.
- Flow able mortar hence does not require compaction.
- Develop high initial and ultimate final strengths.
- Offers excellent resistance to moisture ingress.
- Makes repaired sections highly durable
- Can be applied at 100 mm thickness at one stroke
- Contains no chloride admixture.
- Rapid strength gain to facilitate early reinstatement.
- Gaseous expansions system compensates for shrinkage and settlement in the plastic state.

Characteristics

Appearance	Grey Powder
Water/Powder ratio, by weight	0.16
Fresh Weight Density	2250 kg/m^3
Compressive Strength (ASTM C109, 7 cm cube)	12 MPa at 1 Day
	32 MPa at 3 Days
	42 MPa at 7 Days
	52 MPa at 28 days
Expansion Characteristics (ASTM C827 – 1987)	Unrestrained Expansion: 1 – 4 %
Tensile Strength	2 N/mm^2 @ 28 Days
Flexural Strength (BS 4551 – 80)	5 N/mm^2 @ 28 Days
Young's Modulus	25 KN/mm^2

Direction for Use

Correct substrate preparation is critical for optimum performance.

The prepared surface should be structurally sound and free from contaminants. Remove concrete that has been saturated with oil or grease. Simple light sandblasting will not provide a sufficient profile for most repairs.

Depending on the substrate condition and environmental requirements, use an effective method
for removal of weak concrete such as, wet grit blasting, high pressure water jetting and needle scaling.

Saw cut the boundary of repair area perpendicular to the surface to at least 20 mm depth and remove concrete within the saw-cut boundary at least to that depth. Where saw cutting is not possible, after material removal, prepare the edge of the repair area vertical.

Prepare the final surface free from dust and debris and to a rough profile with at least 5 mm level difference between surface troughs and peaks.

Where rebars are corroded, cut back the concrete to at least 20 mm behind rebars. Grit blast around the rebars to remove corrosion products. Replace the affected part of rebar if the diameter after grit blasting is found reduced by more than 20% of the original diameter.

Note: It is recommended that the decision on replacement of rebars is taken based on the advice of the structural engineer responsible for the works.

For superior protection from corrosion in aggressive environments, coat the rebars with EPCOAT ZINC– the zinc rich primer in environments not laden with chlorides. Saturate the prepared surface with clean water for at least one to two hours before applying the mortar.

Formwork

Proper design of formwork is essential for effective repair. The forms must be of good quality, treated with a chemical release agent such as SHUTTEROL for smooth release, provided with water drain holes, strong and well braced to withstand the fluid pressure of the mortar until it hardens. If required, consult FCSC representative for advice.

Mixing

For better results mix the material mechanically using paddle stirrer as per the design recommended by FIRST CHOICE SPECIALITY CHEMICALS PRIVATE LIMITED. Mix continuously for 5 minutes, ensuring a smooth even consistency of the mix. To enable the grouting operation continuously essential that sufficient man power and mixing capacity are available at the site.

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Placing

Place the mixed mortar within 20 minutes by pouring or pumping. Place continuously into the pouring hopper of the formwork until completion. Do not vibrate MiCRETE Strike off the formwork after 1 - 3 days.

For repairs beyond 100 mm in thickness, extend MiCRETE with up to 30 kg of 5-12 mm sized, washed, saturated surface-dry (SSD), graded, low absorption, high density aggregates. Please consult your local FCSC representative for advice.

Typical results of MiCRETE with graded coarse aggregates of maximum size 12mm.

MiCRETE: Coarse aggregate (SSD) (By weight) = **1 : 0.75**

Water/Powder ratio, by weight	0.16
Compressive Strength (ASTM C109, 7 cm cube)	12 MPa at 1 Day
	32 MPa at 3 Days
	42 MPa at 7 Days
	52 MPa at 28 days

Packaging

MiCRETE is supplied in 30 kg moisture resistant bags.

Coverage

Approximately 15.6 litres per 30 kg bag. Actual yield per bag will depend on the consistency of MiCRETE and quantity of coarse aggregate added.

Technical Support

FIRST CHOICE SPECIALITY CHEMICALS PRIVATE LIMITED provides technical advisory services for on-site assistance and guidance on mix design, optimum dosage evaluation of trials.

Storage and Shelf life

Store under cover, out of direct sunlight and protect from extremes of temperature. In tropical climates the product must be stored in an air-conditioned environment.
Shelf life is 6 months when stored as above.

Safety Precautions

MiCRETE should not be swallowed or allowed to come into contact with skin and eyes. Avoid inhalation of vapours and ensure adequate ventilation.

Suitable protective gloves and goggles should be worn. Some people are sensitive to resins and solvents. Resin Barrier creams provide additional skin protection. Should accidental skin contact occur, remove immediately with a resin removing cream followed by washing with soap and water - do not use solvent. In case of contact with eyes rinse immediately with plenty of water and seek medical advice. If swallowed seek medical attention immediately - do not induce vomiting

Note

All Technical Data Sheets are updated on regular basis; it is the user's responsibility, to obtain the most recent issue.

Field services where provided, does not constitute supervisory responsibility, for additional information contact our local FIRST CHOICE SPECIALITY CHEMICALS PRIVATE LIMITED representative.

Disclaimer

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