

# CIKOcrete Micro

## Free flowing micro concrete for structural concrete repair

### Description

CIKOcrete Micro is a single component, free-flowing micro concrete used extensively in areas where reinforcement is heavily congested or access to trowel application is limited. It is ideally suited for bridge repairs. Being highly fluid in nature, it can be pumped into the formwork whereby the need for compaction and vibration can be eliminated.

### Properties

- Single component system and only addition of water required at site.
- Product can be pumped or poured in to the formwork
- Self-compacting; no need for compaction and vibration
- High strength and low permeability makes the product suitable for application in areas where chloride resistance is required
- Chloride-free product
- Contains low alkali minimizing the risk of alkali-silica reactions

### Application area

- Columns, walls and beams
- Bridge structures
- Dams
- Retaining walls
- Large volume concrete repairs

### Applicable standards

- Complies with Qatar Construction Specifications QCS.

### Physical Properties

Form	Powder	
Density	≈2250±50 kg/m <sup>3</sup> [fresh]	
W/P ratio	0.14-0.16	
Compressive strength ASTM C109 (W/P=0.14)	1 day	≥14 N/mm <sup>2</sup>
	3 days	≥35 N/mm <sup>2</sup>
	7 days	≥50 N/mm <sup>2</sup>
	28 days	≥65 N/mm <sup>2</sup>
Flexural Strength BS 4551(W/P=0.14)	28 days	>11MPa
Anchorage Bonding BS 5080-1 @ 28 days (20 mm diameter anchor bolt embedded in CIKOcrete Micro)	>15 KN	
E-Modulus (Young's Modulus) @ 7 days	>11 GPA	
Water Penetration DIN 1048	<10mm	
Flow properties ASTM C1473-15 (W/P=0.15)	250mm (150%)	
Application Thickness*	From 10mm up to 200mm	

*\*Note: higher thickness may be achieved by adding 10mm aggregate with a ratio up to 40% by weight to the bag. Ex: 25kg CIKOcrete Micro will require 10kg aggregate.*

### Coverage / Yield

25 kg bag of CIKOcrete Micro mixed with 3.5 litres of water, yields approximately 12.5 litres of material.

### Application instructions

#### Surface preparation

Clean the concrete surface to remove loose and unsound materials by means of water blasting or suitable means to attain a sound concrete surface. Any traces of oil, grease, dirt, paint etc shall be completely removed from the surface. The concrete surface should be scrubbed and roughened to achieve a good bonding. All residues should be completely removed by vacuuming or by pressure water jet. Edges should be saw-cut to a depth of at least 10mm to avoid featheredging and to provide a square edge.

### **Exposed Reinforcement treatment**

The exposed reinforcement must be cleaned and treated to remove rust by sandblasting and priming using zinc rich based epoxy primer or alternative suitable primer.

In case a good surface preparation is hard to achieve, it is recommended to treat the rusty or poorly prepared steel with the suitable type of rust chelating product or rust converter.

### **Formwork**

In accordance to the orientation of the surface that to be repaired and method of placing CIKOCrete Micro, prepare a rigid and water tight formwork. The surface absorption of formwork should be properly sealed to ensure that there is no water absorption from the repair material. CIKOCrete Micro made to stiff mortar consistency can be used to seal the gaps between formwork and concrete to make it watertight. The unrestrained surface of repair should be kept to a minimum and care should be taken to ensure at least 20mm build up is there over reinforcement. Access to pour or pump the mixed material should be made in the formwork.

### **Priming**

The prepared concrete substrates must be dampened and soaked with clean water several hours prior to application of CIKOCrete Micro to assist the free flow of material. Prior application, ensure that the concrete is uniformly damp and free from any standing water. In case of presence of deleterious salts in the concrete, CIKOBond EPL may be used to bond the parent concrete with CIKOCrete Micro. If CIKOBond EPL is being used, pre-soaking should be avoided and the surface should be dry. Care should be taken to ensure that CIKOCrete Micro is applied over the parent concrete within the tack-free time of CIKOBond EPL. Alternatively CIKOBond AC can be used to prime the damp substrate.

### **Mixing**

CIKOCrete Micro is a ready to use material and only 3.5 - 4 litres of potable grade water is added to each 25kg pack. Mix for 2 to 3 minutes until a smooth and lump-free consistency is attained. Powder must always be added to water and not vice-versa.

Note: Chilled water must be used to attain best results.

### **Placing**

Mixed material has to be placed within 30 minutes of mixing in order to gain full benefits of fluidity and expansion properties.

### **Curing**

The repaired area must be cured as per the standard curing practices. Apply membrane curing agent CIKOCure AC, to prevent surface cracking.

### **Packaging**

CIKOCrete Micro is available in 25kg moisture resistant bags.

### **Shelf Life**

CIKOCrete Micro has a shelf life of 12 months if stored in accordance with CIKO instructions.

### **Storage**

CIKOCrete Micro should be stored under cool enclosed shaded area between 5°C and 35°C

### **Precautions**

- Application temperature must be between 5°C and 35°C.
- The temperature of both CIKOCrete Micro and elements coming into contact with the grout should be in the range of 10°C to 35°C.
- Do not overwork and avoid using mechanical vibration.
- Under no circumstances should CIKOCrete Micro be re-tempered by the later addition of water.

### **Health & safety**

Use standard mask to avoid inhalation of dust. Powder when wet or moist can cause burns to skin and eyes which should be protected during use. If comes in contact with skin/eyes, flush with plenty of fresh water and seek medical advice.

Refer Material Safety Data Sheet for further detail

### **Technical Support**

For any technical support, do not hesitate to contact CIKO team at any time as CIKO offers on and off site services to end users, specifier and contractors.

### **More from CIKO Middle East**

A wide range of construction chemical products are manufactured by CIKO Middle East which includes:

- Concrete admixtures and additives
- Waterproofing and damp proof coatings
- Surface treatments
- Flooring and toppings
- Grouts and anchors
- Tile adhesives and grout
- Adhesives and bonding agent
- Concrete repair materials
- Protective coating
- Joint Sealants
- Moulding compounds

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Note: The information presented herein based on the best of our knowledge and expertise for which every effort is made to ensure its reliability. Although all the products are subjected to rigid quality tests and are guaranteed against defective materials and manufacture, no specific guarantee can be extended because results depend not only on quality but also on other factors beyond our control



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