

# CIKOcoat EPU



## Flexible Hybrid Epoxy-Polyurethane Protective Coating

### Description

CIKOcoat EPU is two components protective coating based on hybrid combination of epoxy and polyurethane resins cured with a combination of special hardeners which upon curing provides a flexible watertight and protective coating film having thickness ranging between 0.2 and 1 mm applied in several layers. The product exhibits good chemical, impact and abrasion resistance.

CIKOcoat EPU is designed to be applied over properly prepared and cleaned concrete and steel surfaces subjected to variation of temperature and permanent exposure to water, sea water, treated sewage, raw sewage, etc.

CIKOcoat EPU is supplied in pre-weighted packs and available in wide range of colours.

### Properties & Advantages

- Easy to mix and handle, application can be done using brush, roller or spray machines.
- Self-priming.
- Good abrasion resistance
- Provides excellent adhesion to concrete and steel substrates
- flexible coating upon curing at several thicknesses
- Low VOC, environmentally friendly
- Excellent chemical resistance
- Retains its physical properties under UV exposure and direct sunlight however colour is subject to yellowing.
- Anti- Bacterial properties
- Impermeable protective coating with excellent resistance to underground environment and chemicals.
- Excellent Crack bridging properties

### Application Area & Uses

CIKOcoat EPU is suitable to use both in industrial and commercial segments such as:

- Wall and floor coating for concrete protection
- Water retaining structures such as water tanks, reservoirs, water treatment tanks etc.,
- Lining for sewage and effluent plants
- Intermediate or topcoat over epoxy or polyurethane screed for interior application.
- Internal and external manhole and pipe lining
- Foundation waterproofing
- Base and intermediate coat for exterior applications
- Reservoirs and water treatment reactors and tanks
- residential garage and basement areas
- coating for internal car park system

### Applicable Standards

CIKOcoat EPU complies with Qatar Construction Specification QCS.

### Coverage

15 L kit CIKOcoat EPU covers 73 to 75 m<sup>2</sup> at 200 microns dry film thickness. Minimum 2 coats are recommended to achieve minimum 400 microns total DFT. The total dry film thickness depends on life service requirements, applications area and project specifications. Consult CIKO Technical department for further assistance and advice.

The above given coverage figures are theoretical. Actual coverage may be reduced depending on the substrate type, substrate condition, wastage and finish.

## Physical properties

|   |   |
|---|---|
| Form  | Two components<br>Part-A : Liquid<br>Part-B : Liquid  |
| Colour  | Available in wide range of colours including RAL codes                                      |
| Mixing ratio  | Pre-weighed packs<br>Partial mixing is not recommended                                      |
| Mixed Density   | 1.35 ± 0.03 kg/L  |
| Solid content   | 99-100%   |
| VOC (EPA 24)  | <20 g/L   |
| Pot Life  | 40-60 minutes @ 25°C<br>20-30 minutes @ 35°C  |
| Tack Free Time  | within 6 hrs  |
| Over coating  | Minimum 8 hours<br>Maximum 24 hours   |
| Full cure   | 7 days @25°C<br>5 days @35°C  |
| Pull off Adhesion Strength<br>ASTM D7234/BS EN 1542/ASTM D4541<br>(7 days curing at standard conditions followed by 8 days thermal cycles at -20°C and 100°C) | ≥ 2 N/mm <sup>2</sup><br>(concrete Failure)<br><br>≥ 6 N/mm <sup>2</sup><br>(Treated steel) |
| Tensile Strength<br>ASTM D412 @ 7 days  | ≥10 N/mm <sup>2</sup>   |
| Elongation at break<br>ASTM D412 @ 7 days   | ≥30%  |
| Permanent Service temperature range/<br>thermal compatibility with steel and concrete   | -20°C to 70°C   |
| Tear Resistance<br>ISO 34-B / ASTM D1004 @ 7days  | ≥50 N/mm  |
| Shore hardness<br>ASTM D2240 @ 28 days  | 65-70 (D)<br>90-95 (A)  |
| Water Absorption<br>ASTM D570   | ≤0.05 %   |
| Water Penetration of concrete coated with CIKOcoat EPU<br>BS EN 12390-8   | NIL (0mm)   |
| Water Absorption of concrete coated with CIKOcoat EPU<br>BS 1881-122  | 0%  |
| Abrasion Resistance<br>ASTM D4060 (CS10, 1kg, 1000 cycles)  | <0.1g   |
| Crack bridging ability of 0.6 mm thick film<br>BS EN 1062-7   | Max. 5.1 mm<br>(Class A <sub>5</sub> )  |

## Chemical Resistance

CIKOcoat EPU is resistant to a wide range of chemicals when tested in Accordance to ASTM D543 at ambient conditions for a period of 7 days following the patching method. Specific data is available as per the following table:

| Test Solution                                | Observation & Test Result                                    |
|--|--|
| Ammonium hydroxide (15%)                     | No Characteristics Observed (Resistant)                      |
| Sodium hydroxide (25%)                       | No Characteristics Observed (Resistant)                      |
| Sodium chloride (10%)                        | No Characteristics Observed (Resistant)                      |
| Ferric Chloride (15%)                        | No Characteristics Observed (Resistant)                      |
| Raw Sewage Water and treated Sewage effluent | No Characteristics Observed (Resistant)                      |
| Sea Water                                    | No Characteristics Observed (Resistant)                      |
| Toluene                                      | No Characteristics Observed (Resistant)                      |
| Petrol                                       | No Characteristics Observed (Resistant)                      |
| Gasoline                                     | No Characteristics Observed (Resistant)                      |
| Kerosene                                     | No Characteristics Observed (Resistant)                      |
| Diesel                                       | No Characteristics Observed (Resistant)                      |
| Hydraulic oil                                | No Characteristics Observed (Resistant)                      |
| Vegetable oil                                | No Characteristics Observed (Resistant)                      |
| Hydrochloric acid (10%)                      | Slight discoloration only without disintegration (Resistant) |
| Nitric Acid (10%)                            | Slight discoloration only without disintegration (Resistant) |

## Application instructions

### Surface preparation of Concrete

The concrete surface should be clean, dry, free from dust and loose particles. All contamination such as oil, grease and extraneous spillages has to be cleaned using the suitable cleaning and decreasing agent. Concrete surface shall be diamond disk grinded, grit blasted or treated with equivalent and suitable mechanical means prior to the application of CIKOcoat EPU.

All surface irregularities, blowholes shall be repaired and resurfaced using CIKOpoxy Putty, CIKOMortar FC or CIKOpoxy FC as instructed in its respective technical data sheets.

### Surface preparation of Metal

The steel shall be grit or sand blasted to achieve a surface free of all visible oil, grease, dirt, dust, mill scale, rust and paint or coatings to meet the requirements of SA 2<sup>1/2</sup> according to Swedish standard. Clean the surface well post treatment.

### Priming of concrete surface

Priming is not required on properly prepared and repaired concrete surfaces. However, on highly porous substrates it is advisable to apply a single coat of epoxy-based primer among CIKOpoxy Prim range of products.

### Priming of Metal surface

Immediate coating of the treated surface is recommended to prevent formation of rust especially under severe environmental conditions. If not possible, prime the surface using 2 components zinc rich epoxy-based primer or 100% solids pure epoxy primer such as CIKOpoxy Prim 14.

### Mixing

The base component [Part-A] of CIKOcoat EPU should be mixed thoroughly using a heavy-duty adjustable speed drill-paddle assembly for 1 to 2 minutes and ensure that all settled particles are dispersed and that a homogenous mix with uniform colour is achieved.

Whilst mixing, Pour the hardener component [Part-B] into the component [Part-A] and further mix for 2 to 3 minutes to achieve a homogeneous and uniform consistency.

## Application method

Properly mixed material should be applied using brush, roller, or spray over the clean and dry substrate, maintaining the required thickness and not exceeding 200 microns over vertical surface and 300 microns over horizontal surfaces.

A minimum of two coats application is recommended to obtain a full-unbroken coating.

The first coat must be applied with a minimum wet film thickness of 200 microns and kept for minimum of 8 hours and maximum 24 hours before application of the second coat at the same minimum wet film thickness of 200 microns. Failure to abide to the allowed over coating time requires sanding and abrading the surface using the suitable grit size of sandpaper prior proceeding with subsequent coat,

CIKOcoat EPU may be used in conjunction with glass fibre cloth where necessary, to bridge fine static cracks in the substrate. The cloth should be laid directly on the first coat whilst wet and should be pressed firmly and smoothed out with a stiff nylon brush or split washer roller. The second coat should then be applied, allowing no more than 24 hours between coats, a third coat might be required to fully cover the reinforcement mesh.

## Cleaning

Equipment is to be cleaned with CIKOsol immediately after usage.

## Precautions

- The substrate moisture content is less than 4%.
- The ambient temperature is between 10 – 45°C.
- The substrate temperature is between 10 – 35°C and at least 3°C above dew point temperature.
- The relative humidity is below 75%.
- Rain, water or condensate are not expected within 24 hours of application
- Do not apply CIKOcoat EPU over movement joints and sealants.
- Exposure to direct sunlight and UV rays change the colour of the coating. It is advisable to apply an additional thin coat of CIKOcoat UV333 to maintain colour stability if required.

### **Packaging**

CIKOcoat EPU is available in 4.0 litre and 15 litre kits consisting of Part-A & B.

### **Shelf life**

CIKOcoat EPU has a shelf life of 12 months if, stored in accordance with CIKO instructions.

### **Storage**

CIKOcoat EPU should be stored under enclosed shaded area at temperatures between 5 – 35°C.

### **Health & safety**

CIKOcoat EPU should not contact eyes or be swallowed. Ensure adequate ventilation and avoid inhalation of vapours. Applicator should wear appropriate clothes, gloves and goggles. Use of barrier cream is recommended to provide additional skin protection. If it contacts eyes, flush with plenty of fresh water and seek medical advice.

Refer Material Safety Data Sheet for further details.

### **Technical Support**

For further 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
- Concrete repair materials
- Adhesives and bonding agent
- Protective coating
- Joint Sealants and Moulding compounds
- Ancillaries

### **Legal Notice and Warranty**

CIKO warrants this product to be free from manufacturing defects and to meet the technical properties stated in the current Technical Data Sheet, if used as directed within its shelf life. Satisfactory results depend not only on quality of product but also on many factors beyond our control. CIKO makes no other warranty or guarantee, express or implied, including warranties of merchantability or fitness for a particular purpose with respect to its product. The sole and exclusive remedy of purchaser for any claim concerning this product, including but not limited to, claims alleging breach of warranty, negligence, strict liability or otherwise, is the replacement of product or refund of the purchase price, at the sole option of CIKO. Any claims concerning this product must be received in writing within one (1) year from the date of shipment and any claims not presented within that period are waived by purchaser. CIKO will not be responsible for any special incidental, consequential including lost profits or punitive damages of any kind. Purchaser must determine the suitability of the products for the intended use and assumes all risks and liabilities in connection therewith. This information and all further technical advice are based on CIKO's present knowledge and experience. However, CIKO assumes no liability for providing such information and advice including the extent to which such information and advice may relate to existing third party intellectual property rights, especially patent rights, nor shall any legal relationship be created by or arise from the provision of such information and advice. CIKO reserves the right to make any changes according to technological progress or further developments. The Purchaser of the Product(s) must test the product(s) for suitability for the intended application and purpose before proceeding with a full application of the product(s). Performance of the product described herein should be verified by testing and carried out by qualified expert.

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All CIKO products are manufactured under a strict management system conforming to and in compliance with requirements of international standards of Quality, Environmental, occupational Health and Safety ISO 9001, ISO14001 and ISO45001.



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