

## EmO Guard AC 100

**Aliphatic, acrylic, structural protective coating**

### Uses

EmO Guard AC 100 is designed to protect atmospherically exposed, reinforced concrete structures from attack by chloride ions, oxygen and moisture ingress, especially where there is a danger of subsequent cracks appearing with in the substrate. Typical uses include, but are not necessarily limited to, the following:

- Very low dirt pick up
- New and existing structures
- Concrete storage tanks – external surface
- Bridge structures

### Typical Applications & Advantages

- High performance – comprehensive barrier against carbon dioxide, water, sulphates and chloride ions.
- Crack accommodation – withstands substrate cracking up to 2 mm and cyclic movement up to 1 mm.
- Breathable – water vapour can escape from the structure.
- Extremely durable – maintains elastomeric performance, with high recovery, even after long term UV weathering.

### Description

EmO Guard AC 100 is an elastomeric; water based structural protective coating, resistant to aggressive atmospheric elements and is available in different colors up on request. The complete system also includes a film-forming, stabilizing primer (EmO Guard Primer DG) which is supplied as a clear liquid and is based on an acrylic resin and a silane-siloxane dissolved in a penetrating organic carrier. The primer is reactive and capable of producing a chemically-bound hydrophobic barrier, thus inhibiting the passage of water and water-borne contaminants. A thin surface film is produced which consolidates and stabilizes porous substrates.

EmO Guard AC 100 system thus comprises a single component penetrating silane-siloxane primer and a single component elastomeric pigmented coating, both ready for immediate site use.

### Design criteria

To achieve the desired protective properties, the EmO Guard AC 100 system must be applied to the substrate at the correct coverage rates. The coating should thus be applied in two coats to achieve a total dry film thickness not less than 200 microns.

## Typical Properties

The values obtained are for the EmO Guard AC 100 system applied at the minimum recommended application rate.

Solids by weight : 64%

Volume solids : 54%

Improvement in UV reflectivity

(ISO-Tech 1il350 Dig. Light

Meter) : >100%

Re- radiation of Infra-Red : >95%

Resistance to heat and humidity: Resistant

(NFT -308-02)

Carbon dioxide diffusion Resistance DCO<sub>2</sub>

(Taywood method) :  $1.4 \times 10^{-7} \text{cm}^2 \text{s}^{-1}$

Water vapour diffusion Resistance

(Klopfer method-

-eff.resist.  $S^D < 4\text{m}$ ) : 1m @ 200

Microns dft

Chloride ion diffusion coefficient

(Taywood method) : Nil after 180 days.

Static crack spanning Capability @200 microns

Dft @ 23<sup>0</sup>c

Modified ASTM C836-76 : 2 mm

Tear resistance

(ASTM D1004-76) : 15N/mm

Tensile strength

ASTM D 412-87 : 5.0N/mm<sup>2</sup>

Reduction in water

Absorption (ASTM C 642) : >82%

Reduction in chloride ion

Penetration AASHTO M259 : >92%

Water vapor transmission rate :  $5.59 \times 10^{-5} @$

200 microns

Adhesion BS 1881 : 1.0N/mm<sup>2</sup>

## Specification

The protective system shall comprise the following elements:

- 1) A penetrating silane siloxane primer (EmO Guard Primer DG), and
- 2) A single component, elastomeric, aliphatic acrylic coating. (EmO Guard AC 100)

The total dry film thickness of the coating system shall be not less than 200 microns, and shall provide:

- a) CO<sub>2</sub> diffusion resistance equivalent to not less than 125 mm of 30N/mm<sup>2</sup> of concrete cover or 50 m of air cover (Taywood method)
- b) A water vapor transmission resistance of not more than 0.32 metres (Taywood method)
- c) Static crack accommodation of not less than 2mm (BRE).
- d) Adhesion greater than 1 N/mm<sup>2</sup> as per BS 1881.

## Technical Support

ELMRR provides a comprehensive technical support service to specifiers, end users and contractors and is able to offer on-site technical assistance.

## Instructions for Use

Application over existing membranes and / or coatings

For all types of membranes or coatings, it is advisable to carry out trials to determine compatibility with EmO Guard AC 100, and retention of bond between the underlying coating or the membrane and the substrate.

**Surface Preparation:** Ensure the concrete foundation surface is dimensionally stable and free of dirt, dust, oil, laitance, paint, curing compounds etc. Bolt holes and fixing pockets should be free from any dirt or debris. If possible a roughened surface is preferable to smooth surfaces. Metal surfaces must be free from rust, loose scaling and paint. Shuttering should be covered with polyethylene to ensure a clean release.

### Substrate priming

A primer coat is required to penetrate and stabilize the substrate. The depth of penetration of the primer, and thus its coverage rates, are determined by substrate profile, porosity and general condition. Hence for low permeability concretes, primer penetration will be low and area covered per litre will be high – permeability may be affected by cement replacements. Any areas of glass should be masked. Plants, grass, joint

sealants, asphalt and bitumen painted areas should be protected during application.

## Application

The primer should be allowed to dry for a minimum of 2 hours at 20<sup>o</sup>c before application of EmO Guard AC 100. Under no circumstances should the primer be over coated until the surface is properly dry.

All primed substrate should be treated with two coats of EmO Guard AC 100. It is important that no gaps or raw edges appeared in the finished coating. Special care should be taken to provide an unbroken coating at external corners and similar exposed protrusions.

The first coat should be applied to achieve a uniform coating with a wet film thickness not less than 200 microns. The coat should be allowed to dry until firm to the touch. Typically this will be after 12 hours in dry weather at 35<sup>o</sup>c.

The second coat of EmO Guard AC 100 should be applied at 90<sup>o</sup> to the first, to ensure a final full unbroken coating to the substrate. The second coat should once more be applied at a wet film thickness of not less than 200 microns.

## Cleaning

EmO Guard AC 100 should be removed from tools and equipment with clean water immediately after use. EmO Guard primer should be removed using **ELMIERE Solvent EP**.



### Limitations

Where application over existing sound coatings or paints is required, trials should be conducted to ensure compatibility and retention of the bond between the underlying coating and the substrate. Compatibility and soundness should be assessed on a trial area.

EmO Guard AC 100 should not be used in submerged or permanently wet conditions.

Application should not commence if the temperature of the substrate is below 20<sup>o</sup>c or above 60<sup>o</sup>c, or where the prevailing relative humidity exceeds 90%.

EmO Guard AC 100 should not be applied in windy conditions where early-age dust adhesion may occur, or where rain is likely within 2 hours.

### Packaging & Storage

**EmO Guard AC 100** is available in factory, pre-weighed units of 5 & 15 liters. It has a minimum shelf life of 12 months provided it is stored under cover, out of direct sunlight.

EmO Guard DG – 5 Ltr

### Coverage

2.7 m<sup>2</sup>/litre @ 370 microns Wft

### Health and safety

EmO Guard AC100 contains polymer powders which may cause irritation to skin and eyes, during use, avoid inhalation of the vapors and contact with skin or eyes. Wear suitable protective clothing- eye protection, gloves and respiratory equipment (particularly in confined spaces)

The use of barrier creams to provide additional skin protection is also advised. In case of contact with skin rinse with plenty of water, then cleanse thoroughly with soap and water. In case of contact with eyes rinse immediately with plenty of clean water and seek medical advice. If swallowed seek medical advice immediately-do not induce vomiting.

### Fire

EmO Guard AC 100 -Non flammable

EmO Guard DG - Flammable

### Manufactured By:

**ELMRR CONSTRUCTION CHEMICALS**

P.O.BOX 176, PC 124, Rusayl Industrial Area, Sultanate of Oman  
Tel: +968 24446914 Fax: +968 24446776  
Email: sales@elmrr.com