

## EmO Guard S

**High performance, pure aliphatic acrylic coating for concrete and masonry**

### Uses

EmO Guard S 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:

- Bridge abutments
- Concrete cladding and precast units
- Boundary walls
- Plinths and pipe support racks
- Concrete storage tanks – external surface
- High rise buildings and villas
- Coastal environments

### Typical Applications & Advantages

- Protection in depth – dual action system protects both the surface and the substrate.
- High performance – comprehensive barrier against carbon dioxide, water, sulphates and chloride ions.
- Extremely durable – maintains elastomeric performance, with high recovery, even after long term UV weathering.
- Breathable – water vapor can escape from the structure.

### Description

EmO Guard S is a pure aliphatic acrylate, solvent based protective coating. 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.

The EmO Guard S 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 S 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 150 microns.

### Typical Properties

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



Volume solids : 43%

Carbon dioxide diffusion Resistance  
 equivalent Thickness of air : >250 meters

(klopfer criterion for effective protection > 50m)

Carbon di oxide diffusion

Resistance : >500 mm

Equivalent thickness of 30N concrete

(Taywood method)

Water vapor diffusion

Resistance : S D 1.9m @ 150 microns dft

(Taywood method)

Chloride ion diffusion coefficient 2000 hours

QUV weathered

(Taywood method) : No chloride ion diffusion after 1500 days.

Freeze/thaw salt scaling

(50 cycles) : Unaffected

Good quality concrete : Severe scaling

Fire testing – spread of

Flame : Class 1

(BS 476 pt 7)

Fire testing

Propagation index I : 1.5

Sub index i1 : 1.3

Building regulations

Rating : Class 0  
 (BS 476, Pt 6)

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

### Technical Support

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

### Specification

The protective system shall comprise the following elements:

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

The total dry film thickness of the coating system shall be not less than 150 microns, and shall provide:

- a) CO<sub>2</sub> diffusion resistance equivalent to not less than 500 mm of 30N/mm<sup>2</sup> of concrete cover or 250 m of air cover (Taywood method)
- b) A water vapor transmission resistance of not more than 1.9 metres (Taywood method)
- c) No chloride ion diffusion after 1500 days (Taywood)
- d) A class 1 spread of flame (BS 476, pt7), and

- e) A class 0 building regulations rating (BS 476, Pt 6)
- f) Adhesion greater than 1 N/mm<sup>2</sup> as per BS 1881.

### 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 S, 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°C before application of EmO Guard S. 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 S. 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 175 microns and not greater than 225 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°C.

The second coat of EmO Guard S should be applied at 90° 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 175 microns.

### Cleaning

EmO Guard S should be removed from tools and equipment with clean water immediately after use. EmO Guard primer should be removed using **ELMIERE Solvent No.1**.

## 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 S 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 S 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 S is available in factory, pre-weighed units of 5 liters. It has a minimum shelf life of 12 months provided it is stored under cover, out of direct sunlight.

## Coverage

4m<sup>2</sup>/litre @ 200 microns wft

## Health & Safety

### Precautions

EmO Guard products does not fall into the hazard classifications of current regulations. However, it should not be swallowed or allowed to come into contact with skin and eyes. Suitable protective gloves and goggles should be worn. Splashes on the skin should

be removed with water. 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.

### Important note

ELMRR endeavors to ensure that the technical information contained herein is true, accurate and represents our best knowledge and experience. No warranty is given or implied, as ELMRR has no control over the conditions of use and the competence of any labor involved in the application are beyond our control. As all ELMRR technical data sheets are updated on a regular basis it is the customer's responsibility to check that the product is suitable for the intended application, and that the actual conditions of use are in accordance with those recommended.

### FIRE

EmO Guard S	:	Flammable
ELMIERE Solvent NO1	:	Flammable
EmO Guard DG Primer	:	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