

Elastomeric, pigmented acrylic, chloride ion and carbonation protective and decorative coating for concrete and masonry

Uses

To protect atmospherically exposed reinforced concrete structures from attack by acid gases, chloride ions, oxygen and water, especially where there is a danger of subsequent cracks appearing within the substrate. The product is also suitable to protect other cementitious substrates and masonry. Dekguard E2000 is suitable for use on all types of structures, including those in coastal environments. It is equally suitable for new and existing structures. Dekguard E2000 is a component of Fosroc's Renderoc system of concrete reinstatement.

Advantages

- Can accommodate substrate cracking up to 2 mm and cyclic movement up to 0.3 mm
- True elastomeric coating with excellent elongation and recovery properties
- Excellent barrier to carbon dioxide, chloride ions, oxygen and water
- Special acrylic polymer minimises dirt retention
- Allows water vapour to escape from the structure
- UV-resistant with high resistance to the effects of long-term weathering
- Water-based
- Wide range of decorative colours

Description

The Dekguard E2000 system comprises a single component penetrating silane-siloxane primer and a single component elastomeric pigmented coating, both ready for immediate site use.

The film-forming, stabilising primer (Nitoprime DG) 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 stabilises porous substrates.

Dekguard E2000 is a crack-accommodating, water based protective coating based on a special acrylic polymer. It provides excellent elongation and recovery, low dirt pick-up, resistance to aggressive elements, UV light and rain.

Technical Support

Parchem offers a comprehensive range of high performance, high quality repair, maintenance and construction products. In addition, Parchem offers a technical support package to specifiers, end-users and contractors, as well as on-site technical support.

Design Criteria

The coating should generally be applied in two coats to achieve a total dry film thickness of not less than 200 microns in order to accommodate substrate cracking up to 2 mm and cyclic movement up to 0.3 mm. It is possible to achieve the total dry film thickness in one coat however, this depends on the substrate type and the finish required. Trials are recommended prior to full application to ensure the finish meets the clients requirements. To achieve the correct protective properties, the Dekguard E2000 system must be applied on to the substrate at the coverage rates recommended.

Specification Clause

Elastomeric protective/decorative surface coating

The protective coating system shall comprise Nitoprime DG, an acrylic film-forming penetrating silane-siloxane primer and Dekguard E2000, a single component elastomeric coating suitable for application by brush, roller or spray. The total dry film thickness of the coating shall be not less than 200 microns and exhibit Elongation at Break (ASTM D412) >300%; Carbon dioxide diffusion resistance (AS/NZS 4548.5-1999):Equivalent thickness of air (R)>96m;Chloride ion diffusion coefficient (AS/NZS 4548.5-1999) @ 147 days: $2.3 \times 10^{-14} \text{ m}^2/\text{sec}$.

Fosroc® Dekguard E2000

Properties

The values obtained are for the Dekguard E2000 system applied at the minimum recommended application rate.

Test method	Typical result
Volume solids	50% approx
Elongation at Break (ASTM D412):	> 300%
Carbon dioxide diffusion resistance (AS/NZS 4548.5-1999): (Note: To protect concrete from carbonation, R must be at least 50m - Klopfer criteria)	
Equivalent thickness of air (R), m:	> 96 metres
Equivalent thickness of 30 MPa concrete cover (Sc) :	> 240 mm
CO ₂ Diffusion Coefficient, cm ² / sec:	3.7 x 10 ⁻⁰⁷
Water vapour transmission resistance (AS/NZS 4548.5-1999):	
Vapour Transmission Rate:	55.7g/m ² /24hour
Equivalent thickness of Air (Sd)m:	< 1
Vapour Diffusion Coefficient cm ² /sec:	1.1x10 ⁻⁰⁴
Chloride ion diffusion coefficient (AS/NZS 4548.5-1999): @ 147 days:	2.3 x 10 ⁻¹⁴ m ² / sec
Incipient crack spanning capability @ 200 microns dft After 2000 hours accelerated weathering - static test (ASTM C836-84 modified) 20°C:	2 mm
Fire testing (BS 476, Pt 7: 1987) - Spread of flame:	Class 1
Water Transmission Resistance (AS/NZS 4548.5-1999)	14g/24h/m ² /KPa
Dynamic crack bridging capability, 0 mm - 0.3 mm - 0 mm cycling	
20°C:	> 6,000 cycles (no failure)
0°C:	> 6,000 cycles (no failure)

Application Instructions

Preparation

All surfaces should be dry and free from contamination such as oil, grease, loose particles, decayed matter, moss, algal growth, laitance, and all traces of mould release oils and curing compounds. This is best achieved by lightly grit-blasting the surface. Where moss, algae or similar growths have occurred, treatment with a proprietary biocide should be carried out after the grit-blasting process.

Note: it is not necessary to remove Nitobond AR prior to the application of Dekguard E2000.

Where application over existing sound coatings is required, trials should be conducted to ensure compatibility and retention of the bond between the underlying coating and the substrate. For further advice, consult your local Parchem sales office.

It is essential to produce an unbroken coating of Dekguard E2000. To ensure this is achieved, surfaces containing blow-holes or similar areas of pitting should first be filled using Renderoc FC, a cementitious fairing coat (for further details, refer to separate Technical Data Sheet). Renderoc FC should be allowed to cure for approximately 48 hours, depending on ambient conditions, before the application of Dekguard E2000.

Application

In order to obtain the protective properties of the Dekguard E2000 system, it is important that the correct rates of application and overcoating times are observed.

	Nitoprime DG	Dekguard	
Number of coats:	Flood coat	One	Two
Theoretical application			
Rate per coat:	0.4 litres/m ²	0.4 L/m ²	0.2 L/m ²
Theoretical wet film			
Thickness per coat (microns):	N/A	400	200
Overcoating time (@ 20°C):	2 hours	N/A	16 hours

Application of Nitoprime DG should not commence if the temperature of the substrate is below 5°C. Application of Dekguard E2000 should not commence if the temperature of the substrate is below 5°C.

Any areas of glass should be masked. Plants, grass, joint sealants, asphalt and bitumen-painted areas should be protected during application.

Nitoprime DG should be applied first. It should be applied in one or more coats until the recommended application rate of 0.4 litre per square metre has been achieved. This is best

Fosroc® Dekguard E2000

accomplished by using portable spray equipment of the knapsack-type. A uniform surface appearance (sheen) should be achieved. If any matt porous patches remain, a further application of primer should be made.

The primer should be allowed to dry for a minimum of two hours (at 20°C) before continuing. Under no circumstances should the primer be overcoated with Dekguard E2000 until the surface is properly dry.

Dekguard E2000 may be applied by the use of suitable brushes, rollers or spray equipment. All primed substrates should be treated with one or two coats of Dekguard E2000 as specified. It is important that no gaps or 'raw edges' appear in the finished coating. Special care should be taken to provide an unbroken coating at external corners and similar exposed protrusions.

Spray application

When being applied to well prepared surfaces (no blow holes) it is possible to spray apply Dekguard E2000 in a single coat to achieve the 400 micron wet film thickness (200 micron wet film thickness). This can be a substantial time saving on a project. Suitable equipment includes Graco 795 or Graco 1095 airless running at 3000 psi and utilising 19 thou or 21 thou spray tips.

For further information contact:
Phillro Industries (NSW, Vic & Qld) Ph: 1300 503 610
Pumpline (WA) Ph: 08 9271 2265
Blastmaster (SA) Ph: 1800 882 229

Cleaning

Renderoc FC and Dekguard E2000 should be removed from tools and equipment with clean water immediately after use. Nitoprime DG should be removed from tools and equipment using Solvent 10.

Limitations

The Dekguard E2000 system is formulated for application to clean, sound concrete or masonry. 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. For further advice, consult your local Parchem sales office.

Important notice

A Safety Data Sheet (SDS) and Technical Data Sheet (TDS) are available from the Parchem website or upon request from the nearest Parchem sales office. Read the SDS and TDS carefully prior to use as application or performance data may change from time to time. In emergency, contact any Poisons Information Centre (phone 13 11 26 within Australia) or a doctor for advice.

Product disclaimer

This Technical Data Sheet (TDS) summarises our best knowledge of the product, including how to use and apply the product based on the information available at the time. You should read this TDS carefully and consider the information in the context of how the product will be used, including in conjunction with any other product and the type of surfaces to, and the manner in which, the product will be applied. Our responsibility for products sold is subject to our standard terms and conditions of sale. Parchem does not accept any liability either directly or indirectly for any losses suffered in connection with the use or application of the product whether or not in accordance with any advice, specification, recommendation or information given by it.

Application of Nitoprime DG should not commence if the temperature of the substrate is below 5°C. Application of Dekguard E2000 should not commence if the temperature of the substrate is below 5°C.

Dekguard E2000 should not be applied where there is a likelihood of exposure to frost within 48 hours of the application. The product should not be applied in windy conditions where early-age dust adhesion may occur, or where rain is likely within 2 hours at 20°C or 20 hours at 5°C (up to 80% RH). It should not be applied when the prevailing relative humidity exceeds 90%.

The use of Dekguard E2000 should not be considered for areas subjected to exposure to ponded water. Dekguard S should be considered in this occasion.

Estimating

Supply

Dekguard E2000:	15 litre drums (PC: 560625 - White)
Nitoprime DG:	20 litre drums
Renderoc FC:	15 kg bags
Solvent 10:	4 & 20 litre drums

Coverage

Dekguard E2000:	2.5 m ² per litre (total)
Nitoprime DG:	2.5 m ² per litre (total)

The coverage figures given are theoretical - due to wastage factors and the variety and nature of possible substrates, practical coverage figures will be reduced.

Storage

Shelf life

Dekguard E2000 has a shelf life of 12 months from date of manufacture if kept in a dry store in the original, unopened bags or packs. Refer to the Use by Date indicated on the packaging. Storage conditions

Store in cool, dry conditions, away from sources of heat and naked flames, in the original, unopened packs. If stored at high temperatures and/or high humidity conditions the shelf life may be reduced. Dekguard E2000 should be protected from frost.



constructive solutions

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