

Crack-accommodating elastomeric, pigmented acrylic, chloride ion and carbonation protective coating for concrete and masonry

Uses

To protect atmospherically exposed (non-trafficked) 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 Elastic is suitable for use on all types of structures, including those in coastal environments. It is equally suitable for new and existing structures. Dekguard Elastic is a component of Fosroc's Renderoc system of concrete reinstatement.

Advantages

- Can accommodate substrate cracking up to 6 mm and cyclic movement up to 1 mm
- True elastomeric coating with excellent elongation and recovery properties which are maintained at sub-zero temperatures
- 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 Elastic 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 Elastic is an elastomeric, 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 technical support package to specifiers, end-users and contractors, as well as on-site technical support.

Design Criteria

The coating should be applied in two coats to achieve a total dry film thickness of not less than 400 microns in order to accommodate substrate cracking up to 6 mm and cyclic movement up to 1 mm. To achieve the correct protective properties, the Dekguard Elastic 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 Elastic, 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 400 microns and exhibit Elongation at Break (ASTM D412) >400%; Carbon dioxide diffusion resistance (AS/NZS 4548.5-1999):Equivalent thickness of air (R)>150m;Chloride ion diffusion coefficient (AS/NZS 4548.5-1999) @ 147 days: $5.5 \times 10^{-14} \text{ m}^2/\text{sec}$.

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: When Nitoprime 330 has been used to cure Renderoc repairs, it is not necessary to remove the Nitoprime 330 prior to the application of Dekguard Elastic. Any other curing membrane will need to be mechanically removed.

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 Elastic. 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 dependent on ambient conditions before the application of Dekguard Elastic.

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Properties

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

Test method	Typical result
Volume solids	49%
Elongation at Break (ASTM D412):	> 400%
Carbon dioxide diffusion resistance (AS/NZS 4548.5-1999): Equivalent thickness of air (R), m: (Note: To protect concrete from carbonation, R must be at least 50m - Klopfer criteria)	> 150 metres
Equivalent thickness of 30 MPa concrete cover (Sc):	> 380 mm
CO ₂ Diffusion Coefficient, cm ² /sec:	3.8x10 ⁻⁰⁷
Water vapour transmission resistance (AS/NZS 4548.5-1999)	
Vapour Transmission Rate:	40.4g/m ² /24hr
Equivalent Thickness of Air (Sd) m:	<1
Vapour Diffusion Coefficient cm ² /sec:	1.3x10 ⁻⁰⁴
Water Transmission Resistance (AS/NZS 4548.5-1999)	14g/24hr/m ² /KPa
Chloride ion diffusion coefficient (AS/NZS 4548.5-1999): @147 days	5.5 x 10 ⁻¹⁴ m ² /sec
Incipient crack spanning capability @ 400 microns dft - static test (ASTM C836-84 (modified))	
20°C:	8 mm
0°C:	4 mm
-15°C:	1.3 mm
Tear resistance (ASTM D624-84):	12 N/mm ²
Fire testing (BS 476, Pt 7: 1987) - Spread of flame:	Class 1
Dynamic crack bridging capability, 0 mm - 1 mm - 0 mm cycling	
20°C:	20,000 cycles (no failure)
0°C:	15,000 cycles (no failure)
-15°C:	4,000 cycles (no failure)

Application

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

	Nitoprime DG	Dekguard Elastic
Number of coats:	Flood coat	2
Theoretical application rate per coat:	0.4 litres/m ²	0.4 litres/m ²
Theoretical wet film thickness per coat:	N/A	400 microns
Overcoating time - @ 20°C:	2 hours	16 hours

Application of Nitoprime DG should not commence if the temperature of the substrate is below 2°C. Application of Dekguard Elastic should not commence if the temperature of the substrate is below 5°C.

Application rates are theoretical and assume ambient temperatures of 20°C. If ambient temperatures and/or substrate temperature drops below 10°C, reduced application rates should be expected and allowed for.

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 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 Elastic until the surface is properly dry.

Dekguard Elastic may be applied by the use of suitable brushes, rollers or spray equipment.

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All primed substrates should be treated with two coats of Dekguard Elastic. 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. The first coat should be applied to all areas by the use of suitable brushes, rollers or spray to achieve a uniform coating with a wet film thickness not less than 400 microns. This coat should be allowed to dry until firm to the touch. Typically, this will be after about 16 hours in dry weather at 20°C.

The second coat of Dekguard Elastic should be applied exactly as detailed above, again achieving a wet film thickness not less than 400 microns.

Under poor drying conditions at low temperatures it may be more practical to apply three thinner coats (270 microns wet film thickness each) of Dekguard Elastic to achieve better 'through-drying'. This method will achieve the correct recommended dry film thickness.

Spray Application

When being applied to well prepared surfaces (no blow holes) it is possible to spray apply Dekguard Elastic. This can be a substantial time saving on a project. Multiple coats must still be applied to meet the required thickness, allowing each coat to dry as detailed above. 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 Elastic should be removed from tools and equipment with clean water immediately after use. Nitoprime DG should be removed from tools and equipment using Fosroc Solvent 10.

Limitations

The Dekguard Elastic 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. When applied over existing coatings or paints, the performance characteristics of Dekguard Elastic may be impaired and its fire rating invalidated. Compatibility and soundness should be assessed on a trial area. For further advice, consult your local Parchem sales office.

Application of Nitoprime DG should not commence if the temperature of the substrate is below 2°C. Application of Dekguard Elastic should not commence if the temperature of the substrate is below 5°C. Reduced application rates will occur at lower ambient/substrate temperatures.

Dekguard Elastic 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 Elastic should not be considered for areas subjected to exposure to ponded water. Dekguard S should be considered where occasional ponded water is anticipated.

Dekguard coatings are not designed nor suitable for use on trafficable surfaces.

Estimating

Supply

Nitoprime DG 20 litre:	FC862600-20L
Dekguard Elastic White 15 litre:	FC860600-15L
Dekguard Elastic Special Colour 15 litre:	FC860621-15L
Fosroc Solvent 10:	4 & 20 litre drums

Coverage

Nitoprime DG:	2.5 m ² per litre (total)
Dekguard Elastic:	1.25 m ² per litre (total 2 coats) (0.4 litres/m ² each coat)

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

Storage

Shelf life

Dekguard Elastic and Nitoprime DG have a shelf life of 12 months if kept in a dry store in the original, unopened 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 Elastic should be protected from frost.

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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.



constructive solutions

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