



constructive solutions

Dekguard Elastic

High performance crack-accommodating elastomeric acrylic 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 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.

Technical support

Fosroc offers a comprehensive range of high performance, high quality products suitable for use within all aspects of the concrete repair and protection industry. In addition, the company offers a technical support package to specifiers, end users and contractors, as well as on-site assistance all over the world.

Standards compliance

- Dekguard Elastic has been approved by the British Board of Agreement under Certificate No. 92/2824.
- Fire tested to BS476, Pt 7:1987, Spread of flame – Class 1.
- Fire tested to BS476, Pt 6:1989. Propagation index 1 – 0.0. Sub index i_1 – 0.0. Building Regulations rating – Class 0.

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 penetration 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. It is available in wide range of colours.

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.

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Properties

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

Volume solids:	49%	
Carbon dioxide diffusion resistance (BRE method) Equivalent thickness of air	Initial:	> 50 metres
	After 2000 hours QUV:	> 50 metres
Equivalent thickness of 30 N/mm² concrete cover (Taywood method):	> 125 mm	
Water vapour diffusion resistance (Klopfer method):	SD 0.11 mm at 400 microns dft	
Reduction in chloride ion penetration (Aston University Diffusion Cell method):	> 99%	
Incipient crack spanning capability at 400 microns dft static test (ASTM C836-84 modified)	20°C:	8 mm
	0°C:	4 mm
	-15°C:	1.3 mm
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)
	-5°C:	4,000 cycles (no failure)
Tear resistance (ASTM D624-84):	12 N/mm ²	
Fire testing (BS 476, Pt 7:1987) Spread of flame:	Class 1	
Fire testing (BS 476, Pt 6:1989) – Propagation index I:	0.0	
Sub index i1:	0.0	
Building Regulations rating:	Class 0	

Specification clauses

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 shall be capable of providing carbon dioxide diffusion resistance equivalent to not less than 125 mm of 30 N/mm² concrete cover (by the Taywood method) and a reduction in chloride ion penetration not less than 99% (by the Aston University Diffusion Cell method). It must exhibit a water vapour transmission resistance (SD) of not more than 0.11 metres (by the Klopfer method) at a dry film thickness of 400 microns.

The coating must be capable of withstanding 20,000 0 mm – 1 mm – 0 mm cycles at 20°C without failure. In static testing, it must be capable of bridging an 8 mm incipient crack at 20°C before failure and a 4 mm incipient crack at 0°C before failure. When tested to BS476, Pt 7:1987, it must

exhibit a Class 1 spread of flame and achieve a Class 0 Building Regulations rating when tested to BS476, Pt 6:1989 and Pt 7:1987.

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 Fosroc's Nitobond AR curing membrane prior to the application of Dekguard Elastic.

Where application over existing sound coatings is required, trials should be conducted to ensure compatibility and retention of the bond between the under-laying coating and the substrate. For further advice, consult the local Fosroc 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 data sheet). Renderoc FC should be allowed to cure for approximately 48 hours, depend on ambient conditions, before the application of Dekguard Elastic.

Application

In order to obtain the protective properties of the Dekguard Elastic system, it is important that the correct rates of application and over-coating 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
Over-coating time:	2 hrs at 2°C	When firm to the touch

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.

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 m² has been achieved. This is best



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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 over-coated with Dekguard Elastic until the surface is properly dry.

Dekguard Elastic may be applied by the use of suitable brushes, rollers or spray equipment. For further information about application technique, please consult the local Fosroc office.

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 or rollers 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.

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 102.

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 the local Fosroc 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.

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 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.

Estimating

Supply

Renderoc FC:	20 kg bags
Nitoprime DG:	25 litre drums
Dekguard Elastic:	15 litre drums
Fosroc Solvent 102:	4 litre drums

Coverage

Renderoc FC:	12 litres (4 m ² at 3 mm thickness)
Nitoprime DG:	2.5 m ² per litre (total)
Dekguard Elastic:	1.25 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

All products have a shelf life of 12 months if kept in a dry store in the original, unopened containers.

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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Precautions

Health and Safety

Renderoc FC contains cement powders which, when mixed or become damp, release alkalis which can be harmful to the skin. During use, avoid inhalation of dust and contact with skin and eyes. Wear suitable protective clothing, gloves, eye protection and respiratory protective equipment. The use of barrier creams provide additional skin protection. In case of contact with skin, rinse with plenty of clean water, then cleanse 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 attention immediately – **do not** induce vomiting.

Nitoprime DG, Dekguard Elastic and Fosroc Solvent 102 should not come in contact with the skin and eyes, or be swallowed. Ensure adequate ventilation and avoid inhalation of vapours. Some people are sensitive to resins, hardeners and solvents. Wear suitable protective clothing, gloves and eye protection. If working in confined areas, suitable respiratory protective equipment must be used.

The use of barrier creams provide additional skin protection. In case of contact with skin, rinse with plenty of clean water, the cleanse with soap and water. **Do not** use solvent. In case of contact with eyes, rinse immediately with plenty of clean water and seek medical advice. If swallowed, seek medical attention immediately – **do not** induce vomiting.

Fire

Renderoc FC and Dekguard Elastic are non-flammable.

Nitoprime DG and Fosroc Solvent 102 are flammable. Keep away from sources of ignition. No smoking. In the event of fire, extinguish with CO₂ or foam. Do not use a water jet.

Flash points

Nitoprime DG:	38°C
Fosroc Solvent 102:	33°C

For further information, refer to the Product Material Safety Data Sheet.

Additional Information

Fosroc manufactures a wide range of complementary products which include:

- Waterproofing membranes & waterstops
- Joint sealants & filler boards
- Cementitious & epoxy grouts
- Specialized flooring materials

Fosroc additionally offers a comprehensive package of products specifically designed for the repair and refurbishment of damaged concrete. Fosroc's 'Systematic Approach' to concrete repair features the following:

- hand-placed repair mortars
- spray grade repair mortars
- fluid micro-concretes
- chemically resistant epoxy mortars
- anti-carbonation/anti-chloride protective coatings
- chemical and abrasion resistant coatings

For further information on any of the above, please consult your local Fosroc office - as below.



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Important note:

Fosroc products are guaranteed against defective materials and manufacture and are sold subject to its standard Conditions for the Supply of Goods and Services, copies of which may be obtained on request. Whilst Fosroc endeavours to ensure that any advice, recommendation, specification of information it may give is accurate and correct, it cannot, because it has no direct or continuous control over where or how its products are applied, accept any liability either directly or indirectly arising from the use of its products, whether or not in accordance with any advice, specification, recommendation of information given by it.

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