

High performance crack-accommodating elastomeric acrylic protective and decorative coating for concrete and masonry conforming to the requirements of BS EN1504-2

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 and is suitable for repair principles 1.3, 2.2, 8.2 as defined in BS EN1504-2.

Advantages

- Can accommodate substrate cracking up to 6mm and cyclic movement up to 1mm
- 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
- 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 primer and a single component elastomeric pigmented coating, both ready for immediate site use.

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 a wide range of colours.

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 conforming to the requirements of BS EN1504-2 Principles 1.3, 2.2 and 8.2.

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 30N/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 0.76 metres (by the Klopfer method) at a dry film thickness of 400 microns.

When tested to BS 476, Pt 7 : 1987, it must exhibit a Class 1 spread of flame and achieve a Class 0 Building Regulations Rating when tested to BS 476, Pt 6 : 1989 and Pt 7 : 1987.

Standards compliance

Dekguard Elastic complies with the requirements of BS EN1504-2-Surface Protection Systems Principles 1.3, 2.2 and 8.2.

Fire tested to BS 476, Pt 7: 1987. Spread of flame - Class 1.

Fire tested to BS 476, Pt 6: 1989. Propagation index I — 0.0. Sub index i₁ — 0.0.

Building Regulations rating — class 0

Fire rating EN 13501-1 2007 Euroclass B.

CE 370	
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Dekguard Elastic	
EN1504-2: Surface protection systems methods 1.3, 2.2 and 8.2	
Permeability to CO ₂	Sd > 50 m
Permeability to water vapour	Class 1 < 5 m
Capillary absorption and permeability to water	< 0.1 kg/(m ² h ^{0.5})
Adhesion strength by pull-off test	≥ 0.8 MPa (non-trafficked)
Crack bridging ability	Class IV>1250μ
Fire Classification	Class B
Dangerous substances	Complies with 5.3

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Properties

The following results were obtained at a temperature of 20°C unless otherwise stated.

Test Method	Standard	EN 1504 - 2 Requirement	Result
Bond Strength by pull off	EN 1542:2000	Non traffic weight >0.8 MPa	1.13 MPa
Water vapour permeability	EN ISO 7783-2:1999	Class 1 Sd <5m	0.76m
Liquid water permeability	EN 1062-3:1999	$W < 0.1 \text{ Kg/m}^2 \cdot \text{h}^{0.5}$	$0.02 \text{ Kg / m}^2 \cdot \text{h}^{0.5}$
Carbon dioxide permeability	EN 1062-6:2002	Sd >50m	106m
Crack bridging	UNE EN 1062-7:2004	Class IV >1250 um	1595um
Surface drying Ballotini method	EN ISO 1517:1996	-	2 h 15 m
Volume Solids	-	-	54.5%
Equivalent thickness of 30 MPa concrete cover	Taywood Method	-	>125 mm
Carbon dioxide permeability after 2000 hours QUV	Taywood Method	-	>100 m
Reduction in chloride ion penetration when Dekguard primer is used	Aston University diffusion cell method	-	>99%
Fire testing : Surface spread of flame	BS 476 Pt7 :1987	-	Class 1
Fire testing : Propagation Index	BS476 pt6: 1989	-	Propagation index i 0.0 Sub index i ₁ 0.0 Building Regulations rating Class 0
Fire Testing EN 13501-1 2007	Methods EN -ISO 11925-2 and EN 13823	-	Euroclass B S1 d0
Number of coats	-	-	Nitoprime DG: Flood coat Dekguard Elastic: 2
Theoretical application rate per coat	-	-	Nitoprime DG: 0.4 litres / m ² Dekguard Elastic: 0.4 litres / m ²
Theoretical wet film thickness per coat	-	-	Nitoprime DG: n/a Dekguard Elastic: 400 microns
Overcoating time @ 20°C			Nitoprime DG: 12 hours Dekguard Elastic: 16 hours
Minimum application temperature			Application should not commence / be carried out at substrate temperatures below 5°C. Cure times will be increased at low temperatures.
Colour range			Standard colours BS 4800: White BS 00E55 Magnolia BS 08B15 Sandstone BS 08B17 Portland BS 00A01 Other colours to special order.

Clarification of property values: The typical properties given above are derived from laboratory testing. Results derived from field applied samples may vary.

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Application instructions

All coating work to be carried out in accordance with the relevant sections of BS6150:2006, Painting of Buildings - Code of Practice.

Preparation

Bare concrete

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.

If Nitobond AR has been used as a curing membrane over Renderoc patch repairs, it is not necessary to remove this prior to the application of Dekguard Elastic.

It is essential to produce an unbroken coating of Dekguard Elastic. To ensure this is achieved, surfaces containing blowholes or similar areas of pitting should first be filled using Renderoc FC, a cementitious fairing coat. Depending on the thickness required, rougher substrates can be levelled using Renderoc ST05, a protective cementitious coating, or Renderoc RP252 cementitious reprofiling and protection mortar. Separate data sheets must be referred to before commencing overcoating of Renderoc ST05 or RP252 with Dekguard Elastic.

Overcoating

The Dekguard Elastic system is formulated for application to clean, sound concrete or masonry. When applied over existing coatings or paints, the performance characteristics of Dekguard Elastic may be impaired and its fire rating invalidated. Trial areas should be conducted to ensure compatibility and bond of Dekguard Elastic to the existing coating and also to validate retention of the bond between the underlying coating and the substrate after overcoating. Only after successful test panels are completed should application proceed over large areas.

The existing coating should be cleaned with a sponge and dilute detergent then rinsed with clean water and allowed to thoroughly dry. Any areas of flaking or crazing in the existing coating should be removed back to an area soundly bonded. Any bare concrete exposed should be prepared as described above.

A priming coat of 1 part Dekguard Elastic to 1 part water by volume should be prepared and applied to the surface and allowed to dry. Two coats of undiluted Dekguard Elastic are then applied as described below. Note, areas to be overcoated do not require the use of Nitoprime DG.

For further advice, contact Fosroc Technical Services.

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.

Where more than one batch of material is to be used, restrict use of batch to whole separate elevations. Contact local Fosroc Office for further details.

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 or window frames should be masked. Plants, grass, joint sealants, asphalt and bitumen-painted areas should be protected during application.

Apply Nitoprime DG 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.

Allow the primer to dry for a minimum of 12 hours (at 20°C), longer at lower temperatures. Under no circumstances should the primer be overcoated with Dekguard Elastic until the surface is properly dry. When overcoating existing surfaces priming should be in accordance with previous overcoating preparation instructions.

Dekguard Elastic may be applied by the use of suitable brushes, rollers or spray equipment. For further information about application techniques, please consult Fosroc Technical Services Department.

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. Apply the first coat to all areas until a uniform coating with a wet film thickness not less than 400 microns is achieved. Allow to dry until firm to the touch. Typically, this will be after about 16 hours in dry weather at 20°C.

Apply the second coat of Dekguard Elastic as above.

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

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.

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Estimating

Supply

Nitoprime DG:	20 litre drums
Dekguard Elastic:	10 litre drums
Fosroc Solvent 102:	5 litre drums

Coverage

Nitoprime DG:	2.5 m ² per litre
Dekguard Elastic:	2.5 m ² per litre per coat

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

Limitations

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, or less than 3°C above the dew point.

Dekguard Elastic should not be applied where there is a likelihood of exposure to frost within 48 hours of application. Do not apply 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%.

Dekguard Elastic should not be considered for areas subjected to exposure to ponded water. In such cases use Dekguard S.

The elastomeric properties and high tear strength of Dekguard Elastic make it unsuitable for use in areas subject to direct physical attack by vandals. Where appropriate, Dekguard S should be considered.

Dekguard Elastic should not be used on soffits subject to possible water ingress. In these cases use Dekguard S or W.

The manufacture of Dekguard coatings is a batch process and despite close manufacturing tolerances variation may occur between batches. Fosroc recommends using material from one batch only as the finish topcoat.

Storage

Store in cool, dry conditions, away from sources of heat and naked flames, in the original, unopened packs. Dekguard Elastic should be protected from frost.

All products have a shelf life of 18 months if kept in a dry store in the original, unopened packs. Material from different batches should be stored separately.

If stored at high temperatures and/or high humidity conditions the shelf life may be reduced.

Precautions

Health and safety

For further information refer to appropriate Product Safety Data Sheets available from www.fosroc.com.

Fire

Dekguard Elastic is 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

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Important note

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