

Fosroc® Dekguard W

constructive solutions

High performance water-based acrylic copolymer protective and decorative coating for concrete and masonry conforming to the requirements of BS EN1504-2

Uses

To protect atmospherically exposed reinforced concrete structures, cementitious substrates and masonry from aggressive elements, weathering and rain.

Dekguard W is suitable for use on all types of structures, including those in coastal environments. It is equally suitable for new and existing structures.

Dekguard W is a component of Fosroc's Renderoc system of concrete reinstatement.

Dekguard W is suitable for principles 1.3, 2.2 and 8.2 as defined by BS EN 1504-2

Advantages

- Excellent barrier to carbon dioxide, chloride ions, oxygen and water
- Allows water vapour to escape from the structure
- High resistance to the effects of long-term weathering and durable in all climatic conditions
- Water-based
- Wide range of decorative colours

Description

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

A range of reactive primers are available to suit substrate porosity and site conditions and inhibit the passage of water and waterborne contaminants.

Specification clauses

Protective/decorative surface coating

The protective coating shall comprise a penetrating silane-siloxane primer and Dekguard W, a single component aliphatic acrylic coating conforming to the requirements of BS EN 1504-2 principles 1.3, 2.2 and 8.2.

The total dry film thickness of the coating shall be not less than 150 microns and shall be capable of providing carbon dioxide diffusion resistance equivalent to not less than 130 metres of air.

It shall provide a reduction in chloride ion penetration not less than 84% (by the Aston University Diffusion Cell method) and no chloride ion diffusion after 600 days (by the Taywood method). It must exhibit a water vapour transmission resistance (Sd) of not more than 0.9 metres.

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 W complies with the requirements of BS EN 1504-2 Principles 1.3, 2.2 and 8.2.

Fire tested to BS 476 Pt 6 1989 Fire propagation-Propagation index I :-0. Sub index i₁ :0.

Fire tested to BS 476, Pt 7: 1987. Spread of flame - Class 1. Building Regulations Rating-Class 0.

Fire rating EN 13501-1 2007 Euroclass B.

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Dekguard W	
EN1504-2: Surface protection systems methods 1.3, 2.2 and 8.2	
Permeability to CO ₂	> 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	≥1.0MPa (non-trafficked)
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	EN1504-2 Requirement	Result
Bond strength by pull off	EN 1542:2000	Non traffic weight >1.0 MPa	3.32 MPa
Water vapour permeability	EN ISO 7783-2:1999	Class 1 Sd < 5 metres	0.84 metres
Liquid water transmission rate	EN 1062-3:1999	$W < 0.1 \text{ kg}/(\text{m}^2 \text{ h}^{0.5})$	$< 0.04 \text{ kg}/(\text{m}^2 \text{ h}^{0.5})$
Carbon dioxide permeability	EN 1062-6:2002	Sd > 50 m	133 metres
Surface drying Ballotini method	EN ISO 1517:1996	-	2 h 15 m
Equivalent thickness of 30MPa concrete cover	Taywood Method	-	279 mm
Carbon dioxide permeability after 2000 hours QUV	Taywood Method	-	91 m
Reduction in chloride ion penetration when Dekguard Primer is used	Aston University diffusion cell method	-	> 84%
Fire testing: Fire propagation	BS 476 Pt6: 1989	-	Fire propagation index I:0 Sub index I ₁ :0
Fire testing: Surface spread of Flame	BS 476 Pt 7:1987	-	Class 1
Fire Testing EN 13501-1 2007	Methods EN-ISO 11925-2 and EN 13823	-	Euroclass B S1 d0
Number of coats	-	-	Dekguard Primer : Flood coat Dekguard W: 2 coats
Theoretical application rate per coat	-	-	Dekguard Primer: 0.4 litres / m ² Dekguard W: 0.18 litres / m ²
Theoretical wet film thickness per coat	-	-	Dekguard Primer : n/a Dekguard W : 180 microns
Volume Solids			41%
Overcoating time @ 20°C	-	-	Dekguard Primer: 12 hours Dekguard W: 6 hours
Minimum application temperature	-	-	Application should not commence / be carried out at temperatures below 2°C. Cure times will be increased at low temperatures.
Colour range	-	-	Standard colours BS4800: 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 W.

It is essential to produce an unbroken coating of Dekguard W. 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 W.

Overcoating

The Dekguard W system is formulated for application to clean, sound concrete or masonry. When applied over existing coatings or paints, the performance characteristics of Dekguard W may be impaired and its fire rating invalidated. Trial areas should be conducted to ensure compatibility and bond of Dekguard W 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.

Dekguard W should not be applied over elastomeric coatings.

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

For further advice, contact Fosroc Technical Services.

Application

In order to obtain the protective properties of the Dekguard W 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.

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

Dekguard Primer 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.

Porous surfaces may require the application of Nitoprime DG as an alternative primer, or may require other special treatment. Nitoprime DG should be applied at the same coverage rate as Dekguard Primer but in continuous, multiple coats as necessary. If in doubt about the condition of the substrate consult Fosroc Technical Services.

All primed substrates should be treated with two coats of Dekguard W. Stir material before use. Application may be by brush, roller or airless spray. The first coat should be applied to achieve a uniform coating with a wet film thickness not less than 180 microns. This coat should be allowed to dry until firm to the touch. Typically, this will be after 16 hours in dry weather at 20°C.

The second coat of Dekguard W should be applied as detailed above, again achieving a wet film thickness not less than 180 microns and a total dry film thickness not less than 150 microns.

Semi protected surfaces

For semi-protected surfaces, such as multi storey car park interiors, a reduced specification may be adopted whilst still achieving a carbon dioxide diffusion resistance of > 50m of air.

Omit Dekguard Primer and apply two coats of Dekguard W at a wet film thickness of 140 microns per coat, diluting the first coat with 10% v/v water, to achieve a total dry film thickness of not less than 110 microns.

If such an application is to take place on porous concrete, first apply a primer layer consisting of 1 part Nitobond AR and 10 parts water.

Rough surfaces

Where Dekguard W is to be applied to rough substrates e.g. exposed aggregate surfaces, apply Dekguard Primer as standard. After drying, apply 3 coats of diluted Dekguard W, made up of 3 parts Dekguard W to 1 part water by volume at a wet film thickness of 150 microns. Between coats the typical drying time is 6-8 hours in dry weather at 20°C.

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Cleaning

Dekguard W should be removed from tools and equipment with clean water immediately after use.

Limitations

The application of the primer should not commence if the temperature of the substrate is below 2°C. Application of Dekguard W should not commence if the temperature of the substrate is below 5°C, or less than 3°C above the dew point.

Dekguard W 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) or when the prevailing relative humidity exceeds 90%.

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

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.

Estimating

Supply

Dekguard W:	10 litre drums
Dekguard Primer:	20 litre drums
Nitoprime DG:	20 litre drums

Coverage

Dekguard W:	5.5 m ² per litre per coat
Dekguard Primer:	2.5 m ² per litre
Nitoprime DG:	2.5 m ² per litre

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

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

Dekguard 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 Sheet available at www.fosroc.com

Fire

Dekguard W is non-flammable.

Dekguard Primer and Nitoprime DG 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

Dekguard Primer:	38°C
Nitoprime DG:	38°C

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

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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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