

High performance, aliphatic acrylate based, anticarbonation, protective cum decorative coating for concrete and masonry

Uses

Fosroc Dekguard S is an anticarbonation protective coating system developed to protect atmospherically exposed reinforced concrete structures from attack by carbon-di-oxide, chloride ions, sulphates, oxygen and water. The product is also suitable to protect other cementitious substrate and masonry. Dekguard S is suitable for use on all types of RCC infrastructures like road & rail bridges, flyovers and port & oil jetties which are subjected to aggressive marine and saline environments. Dekguard S is recommended for both new construction and post repair and rehabilitation.

Advantages

- Excellent barrier to carbon dioxide, chloride ions, sulphates, oxygen and water
- Allows water vapour to escape from the structure
- Highly UV resistant aliphatic acrylate gives exceptional resistance to the effects of long term weathering.
- Highly durable in all climatic conditions.
- Selected range of decorative colours
- Ease of application - Single pack - no mixing of separate components.

Standards compliance

Dekguard S has been approved by the British Board of Agreement under Certificate No. 92/2824.

Description

Dekguard S Protective coating system comprises of a single component, penetrating silane/silaxone primer and a single component pigmented top coat, both ready for immediate site use.

Dekguard primer is supplied as a clear liquid and is based on a silane/silaxone blend 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 waterborne contaminants.

Dekguard S top coat is an aliphatic acrylate, solvent based protective coating, providing outstanding resistance to aggressive agents like carbon dioxide, chloride ions, sulphates, UV light and rain. It is available in a selected range of RAL colours/shades.

Technical support

The company provides a technical advisory service supported by a team of specialists in the field.

Design criteria

Dekguard S coating should be applied in two coats over Dekguard primer at a wet film thickness of not less than 175 microns per coat.

To achieve the correct protective properties, Dekguard primer and top coat system must be applied on to the substrate at the coverage rates recommended.

Properties

	Dekguard S	Control concrete
Specific gravity	1.2 to 1.25 g/cc	
Percentage water absorption after 24 hours	Nil	1.02
Permeability as per BS:1881 (ml/m ² /s) after		
2 hours	Nil	-
6 hours	Nil	9.0
24 hours	Nil	30.3
48 hours	10	52.8
Depth of carbonation in mm (Accelerated carbonation test)		
2 hours	Nil	1.0
4 hours	Nil	3.0
6 hours	Nil	5.0
12 hours	Nil	7.0
24 hours	Nil	8.0
Depth of chloride penetration in mm		
After 24 hours	Nil	> 8.0
48 hours	Nil	> 10.0
Chloride ion diffusion in mg/l		
After 24 hours	Nil	> 300
48 hours	Nil	> 1000
72 hours	Nil	> 2500
Tensile strength(ASTM D638)		> 2.5 N/mm ²
Elongation (ASTM D638)		> 4%
Adhesive bond strength to concrete (ASTM D4541)		> 2.5N/mm ²
Alkali & fungal resistance (ASTM D3273) :Passes		

Breathability Test(ASTM E96)	Breathable
Resistance to UV radiation (ASTM D822)	: Sample subjected to 1000 hrs accelerated weathering in UV passes

Specification clauses

Anticarbonation, Protective cum decorative surface coating

The anticarbonation, protective cum decorative coating shall comprise of Dekguard Primer, a penetrating silane/silaxone primer and Dekguard S top coat, a single component aliphatic acrylate coating. The total dry film thickness of the coating shall be not less than 150 microns in two coats and shall be capable of providing carbon dioxide diffusion resistance and the depth of carbonation shall be Nil, when tested at 24 hours by the accelerated carbonation test. The permeability shall be Nil when tested at 24 hours as per BS 1881.

Application instructions

Preparation

All surface should be dry and free from contamination such as oil, grease, loose particles, decayed matter, moss, algae 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 S provided the adhesion to the substrate is excellent.

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 Fosroc.

It is essential to produce an unbroken coating of Dekguard S. To ensure this is achieved, surfaces containing blow holes or similar areas of pitting should first be filled using a suitable cementitious fairing coat like Renderoc FC or Acrylic fairing coat like Nitocote Putty (for further details, refer to Fosroc).

The cementitious fairing coat should be allowed to cure for about 48 hours depending on ambient conditions before the application of Dekguard S.

Application

In order to obtain the protective properties of the Dekguard system, it is important that the correct rates of application and over coating time are observed.

	Dekguard Primer	Dekguard S
Number of coat(s)	As required	2
Theoretical Application rate	0.4 litres/m ²	0.35 litres/m ²
Wet film thickness	NA	Around 175microns /coat
Dry film thickness	NA	150 microns for 2coats

Application should not commence if the temperature of the substrate is below 10°C.

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

The primer should be applied in one or more coats until the recommended application rate of 0.4 litre per square meter has been achieved. This is best accomplished by using portable spray equipment of the knapsack type. If in doubt about the condition of the substrate the local Fosroc office should be consulted.

The primer should be allowed to dry for a minimum of two hours (at 25° C) before application of Dekguard S. Under no circumstances should the primer be overcoated until the surface is properly dry.

Dekguard S may be applied by the use of suitable brushes or rollers. Queries relating to spray application should be referred to the local Fosroc office prior to the commencement of work. For further information about application techniques, please consult Fosroc.

All primed substrates should be treated with two coats of Dekguard S. The material should be stirred thoroughly before use. The first coat should be applied to all areas by the use of suitable brushes or rollers to achieve a uniform coating with wet film thickness not less than 175 microns. This coat should be allowed to dry before continuing.

The second coat of Dekguard S should be applied exactly as detailed above, again achieving a wet film thickness not less than 175 microns.

Cleaning

Cementitious fairing coat should be removed from tools and equipment with clean water immediately after use.

Dekguard Primer, Dekguard S should be removed from tools and equipment using Nitoflor Sol.

Limitations

The Dekguard S system is formulated for application to clean, sound concrete or masonry. The product should not be applied over dense, nonporous materials. Where application over existing sound coating or paints is required, trials should be conducted to ensure compatibility and retention of the bond between the underlying coatings or paints, the performance characteristics of Dekguard S may be impaired. Compatibility and soundness should be assessed on a trial area. For further advice, consult Fosroc.

Estimating

Packaging & coverage

Dekguard primer	5 & 20 litre cans
Dekguard S	5 & 20 litre cans
Nitoflor Sol	5 litre cans

Coverage

Dekguard primer	2.5 m ² per litre/coat
Dekguard S	Around 5.5- 6m ² /litre @ 175 microns WFT/coat

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

Storage

Shelf life

All products have a shelf life of 12 months if kept in a dry store in the original, unopened packs. If stored at high temperatures and/or high humidity conditions the shelf life may be reduced.

Precautions

Health & Safety

Dekguard primer and Dekguard S and Nitoflor Sol should not come in contact with the skin and eyes, or be swallowed. Adequate ventilation should be ensured and inhalation of vapours should be avoided. Some people are sensitive to resins, hardeners and solvents, hence suitable protective clothing, gloves and eye protection should be worn. 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, should be rinsed immediately with plenty of clean water and medical advice sought. If swallowed, medical attention sought immediately. Should not induce vomiting.

Fire

Dekguard Primer, Dekguard S and Nitoflor Sol are flammable, should be kept away from sources of ignition. Smoking not allowed. In the event of fire, extinguish with CO₂ or foam, should not use a water jet.

Flash points

Dekguard Primer	38°C
Dekguard	42°C
Nitoflor Sol	33°C

Additional information

Dekguard S was formerly known as Nitocote Dekguard S. Fosroc manufactures a wide range of products specifically designed for repair and refurbishment of damaged reinforced concrete. This includes hand-placed and spray grade repair mortars, fluid micro - concretes, chemical resistant epoxy mortars and a comprehensive package of protective coatings. In addition, a wide range of complementary products is available. This includes joint sealants, water proofing membranes, grouting, anchoring and specialised flooring materials.

Fosroc have also produced several educational training videos which provide more detail about the mechanisms which cause corrosion within reinforced concrete structures and the solutions which are available to arrest or retard these destructive mechanisms. Further information is available from the publication : "Concrete Repair and Protection - The Systematic Approach".

For further information about products, training videos or publications, contact the local Fosroc office.

Dekguard S



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