Product Data Sheet

STARCEM 2K

Flexible Cementitious Waterproof and Protective Coating

Uses

- Waterproof lining for water tanks, dams, canals,...etc.
- Wet-areas waterproofing while receiving tile adhesives.
- Protecting concrete and masonry structures against ingress of chloride ions and carbonation.
- Negative hydrostatic pressure resistance

Product Description

STARCEM 2K is a two-component flexible polymer modified cementitious waterproof coating; it has perfect waterproofing characteristics, even after long term water immersion. The product is suitable for use and contact with potable water and can withstand negative hydrostatic pressure.

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Advantages

- Non-Toxic - approved in contact with drinking water
- Flexible
- Waterproof
- Ready to receive tile adhesives
- Withstands high positive and negative hydrostatic pressures.
- Easy application by brush, roller.
- Bonds to damp concrete.
- Effective barrier to sulfates and chlorides.
- Excellent bond to concrete and masonry

Standard Compliance

- EN 1992-3:2006 - Eurocode 2. Design of concrete structures.
- Liquid retaining and containing structures
- EN BS 6920 - Elevated temperatures.
- DIN 1048 : Water Penetration Test.
- Fire Tested to BS476 : Parts 6 -2009 and 7-1997

Technical Properties

STARCEM 2K	Typical Values @ Laboratory Conditions
Pot Life	30 - 40 min
Density	1.90 kg/Ltr (approx.)
Resistance to positive	Resistance to positive
Resistance to positive Water pressure (DIN1048)	> 5 Bar
Resistance to negative water pressure (DIN1048)	> 2 Bar
Static crack accommodation	> 1 mm
Abrasion resistance (ASTM D4060, mg)	< 75
Water Vapor Permeability	< 20 gm/m²/24h
Water Impermeability (EN 14891 A.7)	> 150 Kpa – No penetration
	DIN 1048: 5 bar
Elongation (in %, ASTM D412)	> 40%
Tensile Strength (MPa, EN ISO 527, PT, 28 days cured)	Air cured > 0.4
	Water cured > 0.6
Tensile Strength M/mm² (ASTM D412)	> 1.0
Initial Adhesion (EN 14891 A.6.2)	>0.5
CO2 diff Res. (5,000 h QUV2)	> 50 m

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Usage Instruction

Surface 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 mold 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. Remove spalled and deeply disintegrated concrete to sound concrete and repaired with a STAR repair system.

If the surface contains small blow-holes, typically less than 1mm wide, the coating can be applied directly onto the substrate without the need for treatment.

Cracks that are less than 0.3mm in width can be overcoated as long as the crack is not likely to open up to greater than 0.3mm. Chased out cracks greater than 0.3mm in width to 4mm in width and approximately 15mm in depth; fill with STARCEM 2K. When the material in the crack hardens, apply the coating over the crack.

Mixing

Pour **STARCEM 2K** liquid concentrate from the plastic container into a suitably sized mixing container. Commence mixing with a propeller agitator attached to a slow speed drill (300-500rpm). Gradually, add the powder component to the liquid part to avoid lump formation and mix for 2-4 minutes. Immediately after mixing, use **STARCEM 2K**. Do not mix material more than the quantity that can use within the pot life. Keep mixing **STARCEM 2K** during the application.

Pre-Wetting of Surface

Thoroughly dampen the substrate surface with water using a brush roller or spray bottle. High porosity substrates will require more dampening than dense substrates. Do not apply the coating when the substrate is wet, but allow the water to soak in until the substrate

is just visibly damp before proceeding. Remove any excess water using a sponge. Stop any running water with a suitable plugging mortar. Contact the local STAR office for further advice on other suitable water-stopping materials.

Application

STARCEM 2K white should be applied as the first coat for optimum use of the product, with **STARCEM 2K** grey as the second coat. This gives a visual indication of coverage.

Apply first and second coat at a rate of 0.9 to 1.9 kg/m2 or 1 liter/m^2/mm.

To ensure achieving the correct thickness, measure out an area (for example, 200m2) then calculate how much material will be needed to cover this area. Monitor the coating thickness during application at regular intervals using a wet film gauge. During application, take care of filling the imperfections such as blowholes.

If not, fill them while the coating is still in fluid status by using a dry sponge. If the coating dried before finding these imperfections, fill them using fresh material.

The exact drying time will depend on surface temperature, relative humidity, and air movement. High temperatures and/or low humidity will reduce the drying time. This can vary from 1 to 16 hours. Leave the first coat to dry until firm and non-markable to the touch. There is no maximum time between coats; however, the surface may need cleaning with water before applying the second coat to remove potential contamination.

Apply the second coat at a wet film thickness of 1mm. Pre-dampening of the surface is not necessary before applying the second coat.

However, **STARCEM 2K** is self-curing; protect the freshly applied coating from rain and strong wind until it becomes firm to the touch.

Brush application

The most suitable brush is a soft-bristled wallpaper paste brush (120 - 220mm wide). Where applied to larger areas, it is advisable to use a brush with a handle.

Load the brush up well and spread the material to the required thickness. If the brush begins to drag during the application, do not add water to the material but dampen the surface again. Finish in one direction for a neat appearance. For floor application, a soft-bristled broom is recommended. Pour the material onto the substrate and then spread it to the required thickness.

Roller application

Application by roller has the benefit of quick speeding over brush application, particularly on smooth substrates. A good quality medium hair roller is recommended. Load the roller well for ease of application.

A heavy roller will leave a pattern; therefore, it is important to use a finishing tool to produce a smooth coating with a uniform 1mm wet film thickness.

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Finishing tools

To produce a smooth finish or to repair film defects, use a finishing tool. Examples of suitable tools include a steel plastering trowel, a caulking tool, and a hard sponge. Use all those tools immediately after coating application; otherwise, the coating may drag or tear. When using a hard sponge, it should be dry or very slightly damp. Do not use a wet sponge as this will cause the polymer to come to the coating surface, which will cause an unsightly white, streaky effect.

Spray application

Carry out spray application using specialized pumping equipment. This is the preferred method for applications over 150m2.

In smaller tanks with restricted access, it may be beneficial not to use the spray application method. This means the material will be pumped into the restricted area rather than carrying it physically.

Follow the mixing procedure as previously described, taking extra care in mixing to ensure that no lumps remain in the mix. Place the mixing container on plastic sheeting to prevent contamination in the mix.

Scrap the material from the mixing vessel above the wet line following every mix. Clean the mixing paddle to remove hardened material, which, if ingested, may cause blockage in the pump.

Pour the material into the hopper. Scrape the sides of the hopper down at regular intervals to prevent hardened material from contaminating the mix. Place a cover over the hopper to prevent product skinning caused by water loss.

Pump the mixed material through the hose to the spray gun. Adhere to the substrate preparation and coverage rates described above. Measure the wet film thickness using a wet film thickness gauge every 2-3 meters until the spray operator judges the ideal application speed and distance from the substrate. Re-spray any areas less than 1mm thick. Subsequent film thickness measurements should be carried out approximately every 10m2.

Sealed joints

Before applying **STARCEM 2K**, and where required, seal joints with a suitably approved joint sealant. For further details on suitable sealants, contact your local STAR office.

Apply debonding tape over the sealant. Following the application of STARCEM 2K, remove the tape and overlaying coating.

Curing

Allow the **STARCEM 2K** to cure for at least 7 days

Cleaning

Immediately following application, clean all tools and equipment with clean water. Hardened material can be removed by mechanical means.

Packaging & Coverage

Product Pack Size	Pack Size	Theoretical Coverage
STARCEM 2K	20 Kg Kit	0.9 - 1.9 Kg/m2/Coat

Stated consumption data are for general guidance. Actual consumption depends on the nature of substrate, consistency used, method of application, and wastage.

Shelf Life & Storage

The original sealed bag and container of **STARCEM 2K** have a shelf life of 12 months, provided it is stored clear of the ground, in a dry, shaded place below 35°C.

Limitations

- Do not apply the product at a temperature less than +5°C.
- For further information contact STAR technical department.

Health & Safety

STARCEM 2K powder is irritating to the eyes, respiratory system, and skin. Avoid inhalation of dust and wear suitable respiratory protective equipment.

STARCEM 2K liquid is not classified as dangerous –

STARCEM 2K, when mixed, becomes highly alkaline. Wear suitable protective clothing, gloves, and eye protection.

For both components and the material, when mixed, avoid contact with eyes or skin. In case of contact, rinse immediately with plenty of water and seek medical advice. Waste material should be allowed to harden overnight then disposed of as non-hazardous waste. **STARCEM 2K** is non-flammable.

For complete instruction and information, please refer to STAR MSDS.

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Additional Information

STAR manufactures a wide range of construction chemicals and specialty products for various applications divided into the following product sections:

1. **Waterproofing Products**
2. **Sealants, Grouts, and Joint Fillers**
3. **Adhesives**
4. **HVAC – Adhesives, Coatings & Sealants**
5. **Flooring Products**
6. **Industrial Adhesives (i.e. Paper Industry)**
7. **Accessories**

STAR Technology provides various technical information such as detailed method statements, specification clauses, application manuals and technical support both in contractors and consultant's offices as well as construction sites.

For further information on these products and systems kindly visit our website or contact your local STAR representative.