

PRODUCT DATA SHEET

Sika® Arctic Overlay

SILICA-FUME AND FIBER-REINFORCED, MICRO CONCRETE FOR STRUCTURAL CONCRETE REPAIR AND HIGH QUALITY RE-SURFACING OF CONCRETE SLABS

DESCRIPTION

Sika® Arctic Overlay is a prebagged micro concrete with adjustable workability to meet project performance and placement requirements. It can receive Sika's industrial coatings and flooring materials and has been specifically developed to reduce heat generation. Therefore, large volume repairs may be performed without addition of aggregates. With its high silica fume content and combination of pozzolanic binders, a highly dense, impervious and hence durable repair micro concrete is obtained.

Sika® Arctic Overlay contains a combination of three pozzolanic binders, silica fume, fibres, graded aggregates and a powerful 4th generation superplasticizer based on our Viscocrete technology.

USES

Sika® Arctic Overlay is suitable for structural repairs to marine structures, bridges, columns, etc. It is also conducive for use in the following repair works where single placing is in excess of 25 mm:

- Bridge columns and beams
 - Jetty piles
 - Concrete piling
 - Spillways
 - Re-surfacing of heavily trafficked concrete slabs
 - Rehabilitation of concrete slabs prior to industrial flooring installation
- Sika® Arctic Overlay can be applied with conventional screeder bars and finished off by powerfloat.

CHARACTERISTICS / ADVANTAGES

- Prebagged at the factory - consistent quality
- Easy to mix and apply
- Good workability characteristics
- Suitable for large repairs
- High ultimate strengths
- Very dense and durable
- Non-toxic and non-corrosive
- Chloride and iron-free
- Impact and vibration resistant

PRODUCT INFORMATION

Packaging	25 kg bag
Appearance / Colour	Concrete Grey prebagged powder
Shelf life	12 months from date of production when stored in original unopened packaging in a cool, dry place
Storage conditions	Store in dry conditions and protected from direct sunlight.
Density	~ 2.30 - 2.35 kg/ltr (freshly mixed micro concrete)
Maximum Grain Size	8 mm maximum

TECHNICAL INFORMATION

Compressive Strength	Preferred Application	Structural Repair, Form & Pump or Form & Pour	Structural Repair, Form & Pump or Form & Pour	Wearing layer on concrete slabs, HP-Screed laid to fall(Overcoatable)	Wearing layer on concrete slabs, HP-Screed laid to fall(Overcoatable)
	Water per 25kg bag	1.9 - 2.0 liter	1.7 - 1.8 liter	1.6 - 1.7 liter	1.5 - 1.6 liter
1 day	> 18	> 25	> 28	> 32	> 32
3 days	> 32	> 40	> 46	> 50	> 50
7 days	> 40	> 48	> 53	> 62	> 62
28 days	> 45	> 53	> 60	> 70	> 70

Compressive Strength (N/mm ²) Structural Repair, Form & Pump or Form & Pour		
Water per 25 kg bag	Slump (Initial)	Slump After 40 Min.
1.9 - 2.0 liter	22 - 25	17 - 20
1.7 - 1.8 liter	20 - 23	15 - 18

Flexural Toughness	At 28 days > 7N/mm ² (at 30°C under laboratory conditions)
Tensile Strength	At 28 days > 2.5 N/mm ² concrete failure (with bonding bridge: SikaTop® Armatec 110 EpoCem® or Sikadur® -32 TH / at 30°C under laboratory conditions)

APPLICATION INFORMATION

Mixing Ratio	Water addition depends on required consistency: 1.5 (stiff) - 2.0 (flowing) litres of water per 25 kg of powder
Consumption	For 1 m ³ of mortar approx. 87 x 25 kg bags and 152 litres of water.
Pot Life	Minimum 40 minutes (at 30°C)

APPLICATION INSTRUCTIONS

SUBSTRATE QUALITY / PRE-TREATMENT

(Form and Pump / Form and Pour)

Surface Preparation

Concrete surfaces should be clean, free from oil, grease, laitance and loosely adhering particles. A few hours prior to repair work, the substrate must be properly saturated with clean water. Drain away the water prior to starting work.

Metal surfaces (iron and steel) should be free from scale, rust, oil and grease. It is recommended to apply SikaTop® Armatec 110 EpoCem® as bonding bridge between parent concrete and Sika® Arctic Overlay and also as corrosion protection to the steel bars (refer to Product Data Sheet for details).

Saw cut the extremities of the repair to at least 10 mm depth to prevent feather edging. Exposed re-bars should have a clearance of at least 25 mm.

Formwork Preparation

The formwork must be constructed to be leak proof, in order to avoid loss of binder during placement of Sika® Arctic Overlay. However, it should include outlets to drain outlets to drain out water used for presoaking the substrate.

MIXING

Sika® Arctic Overlay should be mechanically mixed in a pan type compulsory mixer. A normal tilting drum concrete mixer is not suitable. According to the mixing ratio (1.5 - 2 litres per 25 kg bag) place first the water into the clean mixing pan and add Sika® Arctic Overlay slowly while mixing. Ensure a minimum mixing time of 3 minutes.

APPLICATION

After mixing, pour or pump the Sika® Arctic Overlay immediately into the prepared formwork. Consolidate the placed Sika® Arctic Overlay with external formwork vibrators or use suitable bottle type vibrators.

When placing Sika® Arctic Overlay over a large area, it is advisable to maintain continuous flow of mixed material to avoid formation of cold joints. Work sequence should be organized accordingly. In such large areas, Sika® Arctic Overlay may be pumped using a heavy-duty piston or screw feed pump.

CURING TREATMENT

Exposed surfaces should be kept to a minimum and cured with appropriate curing method as soon as the mortar has hardened. The formwork can be stripped after at least 3 days. Upon removal of the formwork, cure the repaired areas immediately with Antisol® -E curing compound if no further treatment is required or Antisol® -S curing compound if a protective coating is to be applied (consult Sika Technical Services Department) - refer to the respective Product Data Sheet for application rate and method.

CLEANING OF EQUIPMENT

Clean all tools and equipment with water immediately after use. Hardened mortar can only be mechanically removed.

FURTHER INFORMATION

- At temperatures of 20°C and below, setting time and strength development will be slower.
- During mixing, the micro concrete will initially have a dry appearance, but upon continuous mixing, it will wet out and obtain the desired consistency. Hence, do not add more water than the recommended maximum mixing ratio.

BASIS OF PRODUCT DATA

All technical data stated in this Product Data Sheet are based on laboratory tests. Actual measured data may vary due to circumstances beyond our control.

LOCAL RESTRICTIONS

Please note that as a result of specific local regulations the performance of this product may vary from country to country. Please consult the local Product Data Sheet for the exact description of the application fields.

ECOLOGY, HEALTH AND SAFETY

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LEGAL NOTES

The information, and, in particular, the recommendations relating to the application and end-use of Sika products, are given in good faith based on Sika's current knowledge and experience of the products when properly stored, handled and applied under normal conditions in accordance with Sika's recommendations. In practice, the differences in materials, substrates and actual site conditions are such that no warranty in respect of merchantability or of fitness for a particular purpose, nor any liability arising out of any legal relationship whatsoever, can be inferred either from this information, or from any written recommendations, or from any other advice offered. The user of the product must test the product's suitability for the intended application and purpose. Sika reserves the right to change the properties of its products. The proprietary rights of third parties must be observed. All orders are accepted subject to our current terms of sale and delivery. Users must always refer to the most recent issue of the local Product Data Sheet for the product concerned, copies of which will be supplied on request.

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Product Data Sheet

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