

PRODUCT DATA SHEET

Sika® Microcrete-3000

DUAL SHRINKAGE-COMPENSATED HIGHLY FLOWABLE ECO-FRIENDLY CEMENTITIOUS REPAIR MATERIAL FOR FORMWORK REPAIRS

DESCRIPTION

Sika® Microcrete-3000 is a dual shrinkage-compensated pre-bagged flowing micro concrete. It has very good flow properties and has been specifically developed to reduce heat generation. As such, large volume repairs may be performed without addition of aggregates. With its high silica fume content and combination of blended cement, a highly dense, impervious and hence durable repair mortar is obtained. Sika® Microcrete-3000 contains blended cement, silica fume, graded aggregates and additives which give rise to controlled expansion in both the plastic and hardened states.

USES

Sika® Microcrete-3000 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 thickness:

- Bridge columns and beams
- Jetty piles
- Concrete piling
- Spillways
- Dams
- Grouting applications

Sika® Microcrete-3000 can be applied by gravity pour or mechanical pumping.

CHARACTERISTICS / ADVANTAGES

- Easy to mix and apply
- Good flow 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
- Gaseous expansion system to compensate plastic shrinkage
- Controlled crystalline expansion system to compensate shrinkage in the hardened state

PRODUCT INFORMATION

Packaging	25 kg bag
Appearance / Colour	Concrete grey powder
Shelf Life	6 months from the date of production
Storage Conditions	Store properly in original, unopened and undamaged sealed packaging in dry conditions at temperatures between +10 °C and +25 °C. Keep away from direct sunlight, rain and water.

Maximum Grain Size 6 mm

TECHNICAL INFORMATION

Compressive Strength	at 1 day	~ 20 N/mm ²	(EN 12190:1999)
	at 7 days	~ 70 N/mm ²	
	at 28 days	~ 95 N/mm ²	
Tensile Strength in Flexure	~9 N/mm ² at 28 days		(EN 196-1)
Restrained Shrinkage / Expansion	< 0.2 % at 28 days		(ASTM C1090)
Bleeding	0 % at 3 hours		(ASTM C940)
Baenziger Block	No cracks		
Water Absorption	Initial Surface Absorption Test (ISAT) at 28 days	< 0.02 ml/m ² /sec	(BS 1881:Part 208:1996)
	Water Absorption at 28 days	< 0.5 kg.m ² h ^{-0.5}	(EN 13057)
Chloride Ion Diffusion Resistance	< 500 coulombs at 28 days		(ASTM C1202)

APPLICATION INFORMATION

Mixing Ratio	Flowable consistency: 3.0–3.2 L of water/25 kg bag			
Fresh mortar density	~2.30 kg/l			
Yield	Sika® Microcrete- 3000	2.05 kg	25.0 kg	82 bags x 25 kg
	Water	0.25 L	3.0 L	262 L
	Volume of mortar	1.0 L	12.17 L	1 m ³
Flowability	Flow spread	> 650 mm		(EFNARC)
	Spread time to reach 750 mm	< 15 seconds		
	L-Box	> 80 %		
Pot Life	40 minutes min. (at +30 °C)			

APPLICATION INSTRUCTIONS

SUBSTRATE QUALITY / PRE-TREATMENT

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

Metal surface (iron and steel) should be free from scale, rust, oil and grease. For marine structures, it is recommended that the steel bars be protected with SikaTop® Armatec®-110 EpoCem® (refer to Product Data Sheet for details).

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

Formwork preparation

The formwork must be constructed to be leak proof, as Sika® Microcrete-3000 is a free flowing material. However, it should include outlets to drain out water used for pre-soaking the substrate. Adequate air release shall be installed. If repair is carried out at the soffits, provision for air venting through the substrate must be provided.

MIXING

Sika® Microcrete-3000 should be mechanically mixed in a clean container using a heavy-duty drill and paddle or a forced-action mixer. Collomix mixer with mixing paddle MK or any other equivalent Force-Action mixer is recommended. According to the mixing ratio (3.0–3.2 L / 25 kg bag) place first the water into the clean mixing container and add Sika® Microcrete-3000 slowly while mixing. Ensure a minimum mixing time of 4 minutes.

During mixing, the mortar will initially have a visibly stiff appearance, but upon continuous stirring, it will become free-flowing. Hence, do not add more water than the recommended maximum mixing ratio. The speed of the mixer should not exceed 500 rpm to minimise air entrainment.

APPLICATION

After mixing, stir lightly with a spatula for a few seconds to release any entrapped air. Pour the free flowing mortar immediately into the prepared formwork. To obtain maximum benefit of the expansion, place the mortar within 20 minutes after mixing. Pour or pump the mixed material through a flexible tube (minimum 50 mm ϕ) to the lowest point in the formwork. Care shall be taken not to entrap any air during the repair operation as this may affect the bonding properties of the repair.

When placing Sika® Microcrete-3000 over a large area, it is important to maintain continuous flow throughout. Work sequence must be properly organised to ensure uninterrupted flow. In such large areas, Sika® Microcrete-3000 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 methods. The formwork can be stripped after at least 3 days. Upon removal of the formwork, cure the repaired areas immediately with Sika® Antisol® E curing compound if no further treatment is required or Sika® Antisol® A curing compound if a protective coating is to be applied (consult our Technical Service Department) – refer to the respective Product Data Sheet for application rate and method.

CLEANING OF TOOLS

Clean all tools and application equipment with water immediately after use. Hardened or cured material can only be mechanically removed.

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August 2020, Version 01.01

020302020010000046

FURTHER DOCUMENTS

At temperatures of +20 °C and below, setting time and strength development will be slower.

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

For information and advice on the safe handling, storage and disposal of chemical products, users shall refer to the most recent Safety Data Sheet (SDS) containing physical, ecological, toxicological and other safety-related data.

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.

SikaMicrocrete-3000-en-SG-(08-2020)-1-1.pdf