Construction

SikaRep® Microcrete-3 UW

(Formerly known as SikaRep® Microcrete-3)

Antiwashout, non-shrink, high strength cementitious micro concrete for underwater repairs

Product Description	SikaRep® Microcrete-3 UW is a factory design, pourable/ pumpable, non-shrink anti wash repair concrete with selected cement, aggregate and other chemicals. Recommended water only to be added at site.
Uses	SikaRep® Microcrete-3 UW is mainly recommended for the repair of damaged concrete structures for damp wet and submerged condition. ■ Bridge Columns ■ Pier ■ Pile caps ■ Quay Pillars ■ Retaining wall in splash zone / submerged condition ■ It is also recommended for grouting of large gaps. For larger pockets of voids SikaRep® Microcrete-3UW can be added with 8 mm down aggregate in the ratio of 2:1
Characteristics / Advantages	SikaRep® Microcrete-3 UW has the following advantages : ■ Shrinkage compensation ■ Anti wash property ■ Low porosity ■ High bond strength ■ High early strength ■ Chloride free ■ Durability

Product Data

Form

Appearance / Colour	Grey powder
Packaging	30 kg bag

Storage

Storage Conditions / Shelf-Life	6 months from date of production if stored properly in undamaged and unopened, original sealed packaging, in dry conditions at temperatures between +5°C and +40°C. Protect from moisture, direct sunlight and frost.

Technical Data

Bulk Density	1.30 kg/l at 27 ºC
pH Value	11 - 13.5 when mixed with water (ready to pour).

Mechanical / Physical Properties

Compressive Strength

Ambient temperature: +30°C (According to ASTM C 109* , 70mm Cube)

1 day	3 days	7 days	28 days
~20 N/mm^2	~35 N/mm^2	~45 N/mm^2	~55 N/mm^2

*Test were conducted stimulating site conditions by casting cubes under water

Flexural Strength

Ambient temperature: +30°C (According to ASTM C 293-79)

7 days	28 days
~6.5 N/mm^2	~8 N/mm^2

Pullout bond strength

~6 N/mm^2 at water: powder ratio 0.18 at 0.025mm slip at 28 days (Used 12mm dia TMT bar) (According to IS:2770(Part-1)-1967)

Setting Time

Ambient temperature: +30°C (According to ASTM C 403)

Initial Setting Time (minutes)	~250
Final Setting Time (minutes)	~450

System Information

Application Details

Consumption/Dosage	2200 kg/m^3 At water: powder ratio 0.19
Substrate Quality	Substrate must be clean and sound. All loose material must be removed.
Substrate Preparation	Substrates that are permanently immersed should be cleaned by suitable means. Non-immersed or intermittently immersed substrates can also be prepared using these techniques. Depending on the circumstances, scrabbling or bush hammering may be appropriate. In view of the fluid nature of SikaRep® Microcrete-3, all shuttering must be leakproof. This can be achieved using foam rubber sealing strips at the edges.

Application Instructions

Mixing	Water : Powder = 0.18 to 0.19 by weight (5.4 l to 5.7 l water per 30 kg bag)dependent on the desired flow.
Mixing Time	5 minutes minimum
Mixing Tool	Mix powder by mechanically powered mixer or drum type concrete mixer. Ensure that the machine capacity and the number of operators are adequate to enable grouting to be carried out as a continuous operation. Put around 80 to 90% of required water in the mixing drum, followed by SikaRep® Microcrete-3 UW and then add the balance water. Do not mix more material, which cannot be used within Pot Life. DO NOT ADD EXTRA WATER.

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Application Method / Tools	The mixed material shall be placed within 20 minutes of mixing to gain full benefit of the expansion process. Continuous material flow is required and the material shouldbe poured or pumped through a flexible tube, minimum diameter 50mm, to the lowest point in the form. At the start of the operation, the material flow should be restricted in order to avoid any water entrapment. The bottom of the tube may be raised as necessary to reduce any back pressure but should not be raised above the level of the material SikaRep® Microcrete-3 UW may be placed in thicknesses upto 80mm in one pour when placed above water. When placed under water, the heat sink effect in this environment permits thicknesses upto 150mm to be placed. For thicker sections upto 200mm above water and 400mm under water, it is necessary to fill out SikaRep® Microcrete-3 UW underwater micro concrete using a clean, rounded and well graded aggregate in the size range from 2mm upto 8mm. The quantity of aggregate added should not exceed 1 part aggregate to 1 part SikaRep® Microcrete-3 UW by weight. For such mixes a concrete mixer must be used. Unrestrained surface area should be kept to a minimum.
Curing Details	Curing will not be required in intermittently or totally submerged situations. However, when cast above water, all exposed surfaces should be thoroughly cured.
Cleaning of Tools	Clean all tools and application equipment with water immediately after use. Hardened / cured material can only be removed mechanically.
Notes on Application / Limitations	Curing will not be required in intermittently or totally submerged situations. However, when cast above water, all exposed surfaces should be thoroughly cured. For additional technical information on SikaRep® Microcrete-3 UW or other products contact the technical services department.
Value Base	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.
Health and Safety Information	For information and advice on the safe handling, storage and disposal of chemical products, users shall refer to the most recent Material Safety Data Sheet 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.

Sika India Pvt. Ltd.
Commercial Complex II
620, Diamond Harbour Road
Kolkata, 700 034, India

Phone +91 33 2447 2448/2449
Telefax +91 33 2468 8688/2665
www.sika.in
info@in.sika.com