

PRODUCT DATA SHEET

Sikacrete[®]-155 UW IN

Anti-washout, non-shrink, high strength cementitious micro-concrete for underwater repairs
(Formerly SikaRep[®] Microcrete-3 UW)

DESCRIPTION

Sikacrete[®]-155 UW IN is a ready to use, pourable and pumpable, non-shrink, anti-wash repair micro-concrete with selected cement, aggregate and other chemicals for underwater applications. When applied underwater, it effectively displaces the water.

USES

Sikacrete[®]-155 UW IN is mainly recommended for the repair of damaged concrete structures for damp, wet, submerged condition or splash zones.

- Bridge columns
- Pier
- Pile caps
- Quay, pillars or jetties
- Retaining wall and sea walls
- Grouting of large gaps

CHARACTERISTICS / ADVANTAGES

- Shrinkage compensated
- Anti-wash
- Low porosity
- High bond strength
- High early strength
- Chloride free
- Good durability
- Non-corrosive to steel and iron
- Application by pouring or pumping

PRODUCT INFORMATION

Chemical base	Cement, selected fillers, aggregates and special additives
Packaging	30 kg bag
Shelf life	6 months from date of production
Storage conditions	The product must be 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.
Appearance / Colour	Grey powder

TECHNICAL INFORMATION

Compressive strength	Curing time	Compressive strength	(ASTM C109)
	1 day	~18 N/mm ²	
	3 days	~35 N/mm ²	
	7 days	~45 N/mm ²	
	28 days	~57 N/mm ²	
Values at water : powder = 0.18, cube size 70.6 mm, curing temperature +30 °C, underwater cured			
Flexural strength	Curing time	Flexural strength	(ASTM C293)
	7 days	~6 N/mm ²	
	28 days	~8 N/mm ²	
Values at water : powder = 0.18, curing temperature +30 °C, underwater cured			
Pull-out bond strength	~6 N/mm ² (water: powder = 0.18 at 0.025 mm slip, 28 days, (IS : 2770 Part 1-12mm diameter TMT bar)		(EN ISO 22811-1)

APPLICATION INFORMATION

Mixing ratio	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		
Fresh mortar density	~(2.2 ± 0.1) kg/L	(EN ISO 2811-1)	
Consumption	~1800 kg of powder per m ³		
Layer thickness	Application condition	Thickness	
	Above water	up to 80 mm single pour	
	Above water	up to 200 mm single pour with aggregates	
	Under water	up to 150 mm single pour	
	Under water	up to 400 mm single pour with aggregates	
Initial set time	~250 minutes		
Final set time	~450 minutes		

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.

ECOLOGY, HEALTH AND SAFETY

User must read the most recent corresponding Safety Data Sheets (SDS) before using any products. The SDS provides information and advice on the safe handling, storage and disposal of chemical products and contains physical, ecological, toxicological and other safety-related data.

APPLICATION INSTRUCTIONS

EQUIPMENT

Sikacrete®-155 UW IN can be mixed both in paddle type and slow speed (max. 500 rpm) grouting mixer or drum type concrete mixer.

SUBSTRATE QUALITY / PRE-TREATMENT

- Substrate must be clean and sound. All loose material must be removed.
- Substrate that is 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, scrubbing or bush hammering may be appropriate.

MIXING

IMPORTANT

Concrete can also be produced with addition of 8 mm down properly graded silt-free aggregate in proportion of 2 : 1 (Sikacrete®-155 UW IN : coarse aggregate) by weight, pre-wetted before addition.

IMPORTANT

Do not mix more material, which cannot be used with in pot life.

IMPORTANT

Do not add extra water.

IMPORTANT

Mix only full bags for best results.

1. Place about 80–90 % of the minimum recommended premeasured clean water into a clean container and gradually add the whole bag of Sikacrete®-155 UW IN into it while continuously mixing.
2. Add the remaining water and additional clean pre-wetted 2–8 mm aggregates (if needed as per design) while mixing until the desired consistency is obtained. Mix for minimum 5 minutes.
3. Add additional water, if necessary, to the maximum specified amount.

APPLICATION

IMPORTANT

Formwork

Ensure formwork is secure and watertight to prevent movement and leaking during placing and curing.

IMPORTANT

Working in thick sections

Do not pour more than specified layer thickness without addition of aggregates. Refer layer thickness section in Application Information.

Small localised repairs

Small volume mixing may be carried out with a suitable low-speed (500 rpm) drill and mixing paddle. After mixing, stir lightly with a spatula for a few seconds to release any entrapped air. The micro-concrete is then poured immediately into the prepared formwork.

Large repairs

When carrying out large scale repairs, ensure sufficient pressure head is maintained for uninterrupted concrete flow. When placing micro-concrete over large area, it is important to maintain a continuous flow throughout the process. Work sequence and equipment must be properly organised to ensure an uninterrupted flow of micro-concrete. For underwater applications, the material should be poured or pumped through a flexible tube, minimum diameter 50 mm, 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. In large areas, micro-concrete may be mixed and pumped using heavy duty screw feed and piston pumps. Equipment suitability should be tested and checked prior to actual grouting works. Unrestrained surface area should be kept to a minimum. The mixed material shall be placed within 20 minutes of mixing to gain full benefit of the expansion process.

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CURING TREATMENT

No curing is required in submerged situations. When applied above the water level, cure using suitable methods such as plastic sheeting, wet hessian, or Sika® Antisol® curing compounds.

CLEANING OF TOOLS

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

LOCAL RESTRICTIONS

Note that as a result of specific local regulations the declared data and recommended uses for this product may vary from country to country. Consult the local Product Data Sheet for exact product data and uses.

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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