

## Technical Data Sheet

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SikaRep® Power

# SikaRep® Power

Sulphate-resistant one-component cement mortar for concrete structural repair, layers in thickness, with accelerate hardening

## Product Description

### General Information

SikaRep® Power is a one component cement mortar with low hydraulic shrinkage, containing sulphate-resistant cements, pozzolanic additives, synthetic microfibers, water reducers admixtures and new generation resins for improving of workability and adhesion on several substrates..

### EN 1504

■ SikaRep® Power meets the requirements for the performance characteristics of class R4 of EN 1504-3 standards.

### Areas of application

- Suitable for restoration work (Principle 3, method 3.1 & 3.3 of EN 1504-9). Repair of spalling and damaged concrete in buildings, bridges, infrastructure and super-structure works.
- Suitable for structural strenghtening: Principle 4 (SS), Method 4.4 of 1504-9. Increasing the bearing capacity of the concrete structure by adding mortar.
- Suitable for works of preservation and repair of passivity by means of realization of a layer covering the steel reinforcing bars or substitution of existing covering os steel reinforcing bars: Principle 7 (RP), Methods 7.1 and 7.2 of EN 1504-9.
- Regularization of damaged concrete surfaces.
- Increase of durability of reinforced concrete structures

### Advantages

- Sulphate-resistant.
- Applicable both by hand and spraied.
- Applicable in thickness from 0.5 to 5 cm in only one layer.
- Excellent workability.
- Very good adhesion on concrete substrates.
- Low hydraulic shrinkage.
- High mechanical resistances.
- Very good resistance against freeze-thaw cicles and de-icing salts.
- SikaRep® Power does not need adhesive bridges to improve adhesion to substrates.

## Product Data

**Appearance/Colour** Grey powder

**Packaging** 25 kg bags

**Shelf life/Storage** 12 months from the date of production, if stored properly in undamaged original sealed packaging, in dry and cool conditions.

## Technical Data

**Chemical Base** Sulphate resistant cement, pozzolanic admixtures, selected aggregates, fibres and additives.

**Specific gravity** Fresh mortar density: ~ 2.05-2.15 kg/L

**Aggregate Grading** D<sub>max</sub>: 2.5 mm

Construction



Flow 160 mm (with shakes)

## Mechanical Properties

<b>Compression strenghts</b> (EN 196-1)	1 day: ≥ 20 MPa	7 days: ≥ 49 MPa	28 days ≥ 58 MPa
<b>Flexural strenghts</b> (EN 196-1)	1 day: ≥ 4.0 MPa	7 days: ≥ 6.0 MPa	28 days ≥ 7.0 MPa

## Requirements as per EN 1504-3 Class R4 (admixed only with water, 15% w/p ratio)

	Test Method	Results	Requirements (R4)
<b>Compressive strength</b>	EN 12190	≥ 64 MPa	≥ 45 MPa
<b>Chloride Ion content</b>	EN 1015-17	≤ 0.01%	≤ 0.05%
<b>Adhesive Bond</b>	EN 1542	≥ 3.0 MPa	≥ 2 MPa
<b>Carbonation resistance</b>	EN 13295	no penetration	lower than control (MC 0.45)
<b>Elastic Modulus</b>	EN 13412	26 GPa	≥ 20 GPa
<b>Thermal Compatibility part 1: Freeze-thaw</b>	EN 13687-1	≥ 2.2 MPa	adhesion after 50 cycles ≥ 2 MPa
<b>Capillary absorption</b>	EN 13057	0.11 kg m <sup>-2</sup> h <sup>-0.5</sup>	≤ 0.5 kg m <sup>-2</sup> h <sup>-0.5</sup>
<b>Dangerous substances (Chromium VI)</b>	EN 196-10	< 0.0002%	< 0.0002%
<b>Reaction to fire</b>	EN 13501-1	A1	Euroclass

## Application Details

**Consumption** as a guide, 19 kg/m<sup>2</sup>/cm.

### Substrate quality

*Concrete:*

The substrate must be structurally sound and free from dust, dirt, loose material, surface contamination as oil or grease, cement laitance.  
The concrete "Pull off" (tensile) strength must be > 1.5 MPa

### Substrate preparation/ Priming

*Concrete:*

The substrate should be prepared by suitable mechanical preparation techniques, such as high water pressure or grit blasting, mechanical or manual breakers. Non impact/vibrating cleaning methods are preferred.

Aggregates should be clearly visible on the surface of the prepared area.

The edges of the repair area must be cutvertically (90° degree angle) to a minimum depth of 5 mm.

Pre-wet the surface up to saturation. The wetted surface should achieve a dark matt appearance, without glistening; no liquid water must be present on the surface.

*Steel reinforcement:*

Surfaces must be prepared using approved abrasive blast cleaning techniques, to a minimum standard of SA 2½ .

When the reinforcement is contaminated by chlorides or other materials which may cause corrosion, the reinforcement shall be cleaned by low pressure waterblasting.

*Reinforcement coating:*

If required, apply around the whole exposed circumference two coats of Sika MonoTop 610 (refer to the Product Data Sheet)


<b>Application Conditions / Limits</b>	
<b>Substrate Temperature</b>	min. + 5°C; max. + 35°C
<b>Ambient Temperature</b>	min. + 5°C; max. + 35°C
<b>Application Instructions</b>	
<b>Mixing ratio</b>	~ 3.5 - 4.0 L of water for 25 kg powder bag, in compliance with desired consistency.
<b>Mixing</b>	<p>SikaRep® Power can be mixed with a low speed (~ 500 r.p.m.) electric drill mixer. In small quantities, the mortar can also be manually mixed. Pour the water in the correct proportion into a suitable mixing container. While stirring slowly, add the powder to the water.</p> <p>Mix thoroughly at least for 3 minutes, until the homogeneous lump-free required consistency is reached.</p>
<b>Application Method</b>	<p>SikaRep® Power can be applied either manually using traditional techniques, or mechanically using wet spray equipment.</p> <p>Apply SikaRep® Power by means of a trowel onto the subgrade dampened up to saturation, exerting a good pressure and compacting well on the subgrade. For the covering of large surfaces the application can be executed also by spraying by means of standard spraying machines (e.g. Turbosol, Putzmeister).</p> <p>The application thickness layer must be comprised between 0.5 and 5.0 cm. Higher thickness must be built in subsequent layers when the mortar starts setting (tack free).</p> <p>A good surface finishing can be achieved making use of a sponge trowel, to be used some minutes after application.</p> <p>If a smooth finishing is requested use Sika MonoTop 621 Evolution, SikaTop Seal 107 or SikaLastic 1K (see corresponding Technical Data Sheets).</p>
<b>Cleaning of tools</b>	Clean all tools and application equipment with water immediately after use. Hardened material can only be mechanically removed.
<b>Pot Life @ 20° C</b>	~ 30 min.
<b>Curing treatment</b>	protect the fresh mortar from early dehydration using the relevant curing methods.
<b>Notes of application / Limits</b>	<ul style="list-style-type: none"> <li>■ Protect from rain for 6 h after application.</li> <li>■ Do not add water over recommended dosage.</li> <li>■ Do not add cement or other substances that could affect the properties of the mortar.</li> <li>■ Do not add water or fresh mortar to a mortar mix which has already started setting.</li> <li>■ Avoid application in direct sun and/or strong wind.</li> <li>■ Apply only to sound, adequately prepared substrate.</li> <li>■ Protect freshly applied material from freezing</li> </ul>
<b>Health and safety Information</b>	
<b>Precautions</b>	<p>For further information and advices regarding safety rules, uses and storage of the chemical product users should refer to the latest Safety Data Sheet, in which are explained physical, toxicological and environmental information along with safety behaviours.</p> <p>Eyes and hands should be protected. In case of accidental contact with skin or eyes, rinse with plenty water.</p>
<b>Ecology</b>	Do not dispose unused product and empty packaging into the environment. See the latest Safety Data Sheet for further information.

## CE Labelling

The harmonized European Standard EN 1504-3, "Products and systems for the protection and repair of concrete structures - Definitions, requirements, quality control and evaluation of conformity - Part 3: Structural and non-structural repair" gives specifications for products and systems used as methods for the various principles presented under EN 1504-9.

Products which fall under this specification have to be CE labelled as per Annex ZA1, according to the scope and relevant clauses there indicated, and fulfil the requirements of the given mandate of the Construction Products Directive (89/106):

Here below indicated are the minimum performance requirements set by the standard. For the specific performance results of the product to the specific tests, please see the actual values above in the PDS.

	
1305	
Sika Italia S.p.A. via Einaudi 6 20068 Peschiera Borromeo (MI)	
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1305 - CPD - 0807	
EN 1504-3	
Concrete repair product for structural repair PCC mortar (based on hydraulic cement)	
Compressive strength:	≥ 64 N/mm <sup>2</sup>
Chloride ion content:	≤ 0.01%
Adhesive Bond:	≥ 3.0 N/mm <sup>2</sup>
Carbonation resistance	lower than control
Elastic modulus	26 GPa
Thermal compatibility part 1 freeze-thaw cycles	≥ 2.2 N/mm <sup>2</sup>
Capillary absorption	≤ 0.11 kg m <sup>-2</sup> h <sup>-0.5</sup>
Dangerous substances (Chromium VI)	< 0.0002% according to 5.4
Reaction to fire	A1

### 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 within their shelf life. 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 proprietary rights of third parties must be observed. All orders are accepted subject to our current terms of sale and delivery. Users should always refer to the most recent issue of the Technical Data Sheet for the product concerned, copies of which will be supplied on request.



**Sika Italia S.p.A.**  
Via L. Einaudi 6 - 20068 Peschiera Borromeo (MI)  
Tel. +39 02 54778.111 - Fax +39 02 54778.119  
**Como Factory:**  
Via G. Garrè 9 - 22100 Como (CO)  
www.sika.it - info@sika.it

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SYSTEM CERTIFIED BY DNV  
= ISO 9001:2008 =

Certified Plant: Como Factory  
COMPANY WITH ENVIRONMENTAL  
MANAGEMENT SYSTEM CERTIFIED BY DNV  
= ISO 14001:2004 =