



**PRODUCT DATA SHEET**

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PNEUMATICALLY PLACED CONCRETE

# SikaRepair®-225

## ONE-COMPONENT, CEMENTITIOUS, FIBER-REINFORCED SPRAYABLE MORTAR FOR STRUCTURAL REPAIRS

<b>Description</b>	SikaRepair®-225 is a one-component, pre-packaged, ready-to-use, cementitious, silica fume, fibre-reinforced, high-strength, shrinkage-compensated mortar. Formulated for application by low pressure spray. It is designed especially for repair of overhead and vertical surfaces.
<b>Where to Use</b>	<ul style="list-style-type: none"> <li>▪ A high performance repair mortar for wet spray application. Suitable for new construction, repairs and maintenance work.</li> <li>▪ Above and below grade on concrete and mortar.</li> <li>▪ Vertical and overhead surfaces.</li> <li>▪ Structural repair material for parking structures, industrial plants, walkways, bridges, tunnels, ramps, and dams etc.</li> </ul>
<b>Advantages</b>	<ul style="list-style-type: none"> <li>▪ Ready-to-use, one-component material.</li> <li>▪ Easy to prepare, just add water.</li> <li>▪ Sprayable system.</li> <li>▪ Superior workability. Can be troweled and screeded after application.</li> <li>▪ Labour-saving system.</li> <li>▪ Superior abrasion resistance over conventional cement mortar.</li> <li>▪ Bond strength ensures superior adhesion.</li> <li>▪ Not a vapour barrier.</li> <li>▪ Compatible with coefficient of thermal expansion of concrete.</li> <li>▪ Increased resistance to de-icing salts.</li> <li>▪ Good freeze/thaw resistance.</li> <li>▪ Very low shrinkage.</li> <li>▪ Silica fume enhanced.</li> <li>▪ Fibre reinforced.</li> <li>▪ Formulated with inert, non-reactive aggregates to eliminate potential Alkali-Aggregate Reactivity (AAR).</li> <li>▪ Compatible modulus of elasticity to concrete generally used for building/facade construction.</li> </ul>

**Technical Data**

<b>Packaging</b>	25 kg (55 lb) unit
<b>Colour</b>	Concrete Grey
<b>Yield</b>	Approx. 13 L (0.459 ft <sup>3</sup> ) General guide: Allow 22 - 25 kg/m <sup>2</sup> (4.5 - 5 lb/ft <sup>2</sup> ) per 12 mm (1/2 in) applied thickness.
<b>Shelf Life</b>	12 months in original, unopened packaging. Store dry, ensuring that product is not exposed to rain, condensation or high humidity. For best results, condition product between 18 and 29 °C (65 and 84 °F) before using.
<b>Mix Ratio</b>	Mix mortar with approx. 3.5 - 3.9 L (0.9-1.0 US gal.) of water per 25 kg (55 lb) bag.

**Properties at 23 °C (73 °F) and 50 % R.H.**

**Compressive Strength ASTM C109, Mixing Ratio 1:6.4**

1 day	23 MPa (3335 psi)
7 days	35 MPa (5076 psi)
28 days	55 MPa (7977 psi)

**\*Compressive Strength ASTM C109, MPa (psi) (tested with Sikacem® Accelerator)**

Temperature	Dosage	12 hours	1 day	3 days	28 days
23 °C (73 °F)	1 bottle (150 mL)	3 (435)	24 (3480)	28 (4060)	54(7830)
23 °C (73 °F)	2 bottles (300 mL)	5 (728)	29 (4205)	31 (4495)	56 (8208)

\*All moulds, mixing tools and powder components were pre-conditioned to the test temperatures. Prepared test specimens were cast and then cured at the indicated test temperatures until the time of testing.  
Sikacem® Accelerator added to mix water (water content = 3.32 L (0.87 US gal.) + 1 bottle of Sikacem® Accelerator; water content = 3.14 L (0.82 US gal.) + 2 bottles of Sikacem® Accelerator).

**Flexural Strength ASTM C348**

28 days	7 MPa (1015 psi)
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**Splitting Tensile ASTM C496**

28 days	5.2 MPa (754 psi)
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**Slant Shear ASTM C882 modified**

28 days 14.2 MPa (2060 psi)

**Bond Strength CAN A23.2-6B**

28 days Greater than concrete

**Freeze/Thaw Durability Test ASTM C666 (Procedure A)**

Relative dynamic modulus greater than 100 % after 336 cycles.

**Scaling Resistance to De-Icing Chemicals NQ2621-900**

After 56 cycles at a rating of 0, the surface showed no scaling.

**Setting Time ASTM C266**

Initial 2 - 3 hrs

Final 5 hrs - 6 hrs 30 min

*Product properties are typically averages, obtained under laboratory conditions. Reasonable variations can be expected on-site due to local factors, including environment, preparation, application, curing and test methods.***HOW TO USE****Surface****Preparation**

Remove all deteriorated concrete, dirt, oil, grease, other bond inhibiting materials from surface. Preparation work should be done by chipping, high-pressure waterblasting or other appropriate mechanical means. Obtain substrate aggregate fracture with a minimum surface profile of  $\pm 3$  mm (1/8 in) (CSP 6-10 as per ICRI). Dampen surface to be repaired with clean water. Substrate should be saturated surface dry (SSD) with no standing water during application.

**Mixing**

Conventional wet-process shotcreting equipment such as the low-pressure Moyno spray or screw type machine should be used. Set up wet-process shotcrete equipment; then add the water directly into mixer. Start the mixer in motion and add SikaRepair-225 mortar while continuing to mix. Mix to uniform consistency (approx. three (3) minutes after all ingredients are added).

**Application**

At time of application, surfaces should be saturated surface dry (SSD) but hold no standing water. Apply SikaRepair®-225 powder by low pressure spraying to repair vertical or overhead surfaces. Shoot SikaRepair®-225 perpendicular to the surface. This minimizes rebound, creates the smoothest pattern (reduces "bumps") and properly encases the rebars. The velocity of SikaRepair®-225 is sufficient if, at a distance of 450 - 600 mm (18 - 24 in), SikaRepair®-225 pattern flattens out on contact with the surface and the rebars are encased. After applying SikaRepair®-225, allow it to stiffen sufficiently before shaving or finishing. Before applying the next layer, allow SikaRepair®-225 to set sufficiently so as not to disturb the preceding layer. This will take anywhere from 45 minutes to several hours, depending on mix consistency, and ambient temperature, wind conditions and humidity. Begin and finish a given patch on the same day.

**Curing**

As per ACI 308 recommendations for cement concrete, curing is required. To achieve performance consistent with Technical Data, curing must be provided by recognized curing methods, such as wet burlap covered with white polyethylene film or approved water-based curing compound, such as Sika® Florseal WB-18 & -25. Alternatively, the use of Sika® Ultracure DOT™ or NCF™ wet curing blankets is strongly recommended. Curing must commence immediately after placing and finishing. Moist-curing must be maintained for the first 24 hours only. Protect freshly applied mortar from direct sunlight, wind, rain and frost.

**Clean Up**

Clean all tools and equipment after use with water. Once hardened, the product can only be removed manually or mechanically. Wash soiled hands and skin thoroughly in hot soapy water or use Sika® Hand Cleaner towels.

**Limitations**

- Important: protect stored material from exposure to rain, condensation and high humidity as moisture may penetrate packaging, causing lumps.
- For best results, condition product to 18 to 29 °C (65 to 84 °F) prior to mixing and installation. Lower temperatures may result in slower strength development and longer cure times.
- Vertical applications: SikaRepair®-225 can be spray applied up to 50 mm (2 in) thickness in one lift.
- Overhead applications: Thickness should be no more than 25 - 38 mm (1 - 1 1/2 in) per pass.
- If repair requires several lifts [over 38 mm (1 1/2 in)], each lift must be applied as soon as the previous lift will support it.
- Minimum application thickness: 10 mm (3/8 in).
- Maximum total applied thickness should not exceed 76 mm (3 in) without additional reinforcing support.
- Minimum ambient and surface temperature: 7 °C (44 °F) and rising at time of application.
- Protect newly applied mortar from rain and freezing.
- Use only potable water.

**Health and Safety Information**

For information and advice on the safe handling, storage and disposal of chemical products, users should refer to the most recent SAFETY DATA SHEET containing physical, ecological, toxicological and other safety-related data.

KEEP OUT OF REACH OF CHILDREN  
FOR INDUSTRIAL USE ONLY

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 shelflife. 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 recommendations, or from any other advice offered. The information contained herein does not relieve the user of the products from testing them for the intended application and purpose. 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 or may be downloaded from our website at: [www.sika.ca](http://www.sika.ca)

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