



# PRODUCT DATA SHEET

## SikaCem<sup>®</sup>-226 CI

### HIGH PERFORMANCE REPAIR MORTAR FOR WET SPRAY APPLICATION

#### PRODUCT DESCRIPTION

SikaCem<sup>®</sup>-226 CI is a one-component, pre-packaged, ready-to-use, cementitious, silica fume, fiber reinforced, high strength shrinkage-compensated mortar. Formulated for application by trowel or low pressure spray. It is designed especially for repair of overhead and vertical surfaces.

#### USES

- Structural repair material for water and waste water treatment plants, parking structures, industrial plants, bridges tunnels and dams, etc.
- Vertical and overhead surfaces
- On grade, above grade, and below grade on concrete and mortar

#### CHARACTERISTICS / ADVANTAGES

- Ready-for-use, one-component material
- Easy to use; just add water
- Sprayable system
- Superior workability. Can be trowelled and screeded after application
- Labor-saving system
- Superior abrasion resistance over conventional Portland cement mortar
- Bond strength ensures superior adhesion
- Compatible with coefficient of thermal expansion of concrete
- Increased resistance to de-icing salts
- Good freeze/thaw resistance
- High early strengths
- Very low shrinkage
- Silica Fume enhanced
- Fiber reinforced
- Contains an integral corrosion inhibitor

#### PRODUCT INFORMATION

|                           |   |
|---------------------------|---|
| <b>Packaging</b>          | 50 lb (22.7 kg) bag   |
| <b>Appearance / Color</b> | Gray powder   |
| <b>Shelf Life</b>         | 12 months from date of production if stored properly in original, unopened and undamaged sealed packaging |
| <b>Storage Conditions</b> | Store dry at 40–95 °F (4–35 °C)<br>Protect from moisture. If damp, discard material                       |

## TECHNICAL INFORMATION

|                                  |                             |                                 |                                      |
|----------------------------------|-----------------------------|---------------------------------|--------------------------------------|
| <b>Compressive Strength</b>      | <u>28 days</u>              | <u>7,000 psi (48.3 MPa)</u>     | (ASTM C-39)                          |
|                                  | <u>28 days</u>              | <u>8,000 psi (55.2 MPa)</u>     | (ASTM C-109)                         |
|                                  | 73 °F (23 °C) and 50 % R.H. |                                 |                                      |
| <b>Tensile Adhesion Strength</b> | <u>3 days</u>               | <u>&gt;2,000 psi (13.8 MPa)</u> | (ASTM C-469)                         |
|                                  | 73 °F (23 °C)<br>50 % R.H.  |                                 |                                      |
| <b>Shrinkage</b>                 | <u>28 days</u>              | <u>&lt; 0.07 %</u>              | (ASTM C-157 modified per ASTM C-928) |
|                                  | 73 °F (23 °C) and 50 % R.H. |                                 |                                      |

## APPLICATION INFORMATION

|   |   |                    |                                 |
|---|---|--------------------|---------------------------------|
| <b>Mixing Ratio</b>   | 6 - 7 pints (2.8 - 3.3 L) per bag   |                    |                                 |
| <b>Fresh Mortar Density</b>   | 25 lb/ft <sup>2</sup>   | (ASTM C-138)       |                                 |
| <b>Coverage</b>   | 0.40 ft <sup>3</sup> (0.01 m <sup>3</sup> ) per bag<br>(Coverage figures do not include allowance for surface profile and porosity or material waste) |                    |                                 |
| <b>Layer Thickness</b>  |   | <b>Min.</b>        | <b>Max. in one lift</b>         |
|   | <u>Overhead</u>   | <u>3/8" (9 mm)</u> | <u>1 - 1.5"* (25.4 - 38 mm)</u> |
|   | <u>Vertical</u>   | <u>3/8" (9 mm)</u> | <u>2" (51 mm)</u>               |
| *If > 1.5", each lift should be applied as soon as the previous lift will support it. |   |                    |                                 |
| <b>Product Temperature</b>  | 65–75 °F (18–24 °C)   |                    |                                 |
| <b>Ambient Air Temperature</b>  | > 40 °F (4 °C)  |                    |                                 |
| <b>Substrate Temperature</b>  | > 40 °F (4 °C)  |                    |                                 |
| <b>Set Time</b>   | 2–3 h   | (ASTM C-266)       |                                 |
| <b>Final Set Time</b>   | 5–6.5 h   | (ASTM C-266)       |                                 |

## APPLICATION INSTRUCTIONS

### SURFACE PREPARATION

- Surface must be clean and sound. Remove all deteriorated concrete, dirt, oil, grease, and other bond-inhibiting materials from the area to be repaired.
- Be sure repair area is not less than 3/8" (9.5 mm) in depth.
- For vertical or overhead placement, temporary support of the material is required.
- Preparation work should be done by high pressure water blast, scabbler or other appropriate mechanical means to obtain an exposed aggregate surface profile of ±1/8" (3.2 mm) (CSP-6).
- To ensure optimum repair results, the effectiveness of decontamination and preparation should be assessed by a pull-off test
- Substrate should be Saturated Surface Dry (SSD) with clean water prior to application. No standing water should remain during application.

### PRIMING

- **Reinforcing steel:** Steel reinforcement should be thoroughly prepared by mechanical cleaning to remove all traces of rust. Where corrosion has occurred due to the presence of chlorides, the steel should be high pressure washed with clean water after mechanical cleaning. For priming of reinforcing steel use Sika® Armatec® 110 EpoCem (consult PDS).
- **Concrete Substrate:** Prime the prepared substrate with a brush or sprayed applied coat of Sika® Armatec® 110 EpoCem (consult PDS). Alternately, a scrub coat of SikaCem®-226 CI can be applied prior to placement of the mortar. The repair mortar has to be applied into the wet scrub coat before it dries.

## MIXING

- **With water:** Pour 6.0 pints (2.8 L) of clean potable water (approx 70 °F) into a suitably sized and clean mixing container, using a calibrated measuring jug, or similar, to ensure strict control of the water content (do not over-water). Add 1 bag while continuing to mix with a low-speed drill (400-600 rpm) and mixing paddle or in an appropriate mortar mixer. Once all the powder has been added, mix for approximately 3 minutes, until a lump-free and uniform consistency is achieved. Add up to another 1 pints (0.47 L) of water to achieve desired consistency. Do not over-water.
- **With SikaLatex® R:** Pour 6 up to 7 pints (2.8 - 3.3 L) of SikaLatex® R into the mixing container. Slowly add powder, mix and adjust as above.
- **With diluted SikaLatex® R:** SikaLatex® R may be diluted up to 5:1 (water: SikaLatex® R) for projects requiring minimal polymer modification. Pour 6 up to 7 pints (2.8 - 3.3 L) of the mixture into the mixing container. Slowly add powder, mix and adjust as above.

## EXTENSION WITH AGGREGATES

- For applications greater than 1" (25 mm) in depth, add 3/8" (9.5 mm) coarse aggregate.
- The aggregate must be non-reactive (reference ASTM C-1260, C-227 and C-289), clean, well graded, Saturated Surface Dry (SSD), have low absorption and high density, and comply with ASTM C-33 size number 8 per Table 2.
- Variances in aggregate may result in different strengths.
- The addition rate is 25 lb. (11.4 kg) of aggregate per bag. It is approximately 2.0 gallons (7.6 L) by loose volume of aggregate.
- Consult Sika Corporation's Technical Service Department for recommendations.

## APPLICATION

- Conventional wet-process shotcreting equipment such as a low-pressure machine should be used.
- At the time of application, surfaces should be SSD but hold no standing water.
- Apply SikaCem®-226 CI by low pressure spraying or trowelling for repairing vertical or overhead surfaces.
- This minimizes rebound, creates the smoothest pattern (reduces 'bumps') and properly encases the re-bars.
- After application, allow it to stiffen for about 10 minutes before removing bumpy areas with a trowel.
- Before applying the next layer, allow the shotcrete to reach initial set.
- This will take anywhere from 45 minutes to several hours, depending on mix consistency, mix and ambient temperature, wind conditions and humidity.
- Begin and finish a given patch on the same day.

## CURING TREATMENT

- As per ACI recommendations for Portland cement concrete, curing is required.
- Moist cure with wet burlap and polyethylene, a fine mist of water or a water based\* compatible curing compound.
- Curing compounds adversely affect the adhesion of following lifts of mortar, leveling mortar or protective coatings.
- Moist curing should commence immediately after finishing. Protect freshly applied mortar from direct sunlight, wind, rain and frost.

\* Pretesting of curing compound is recommended.

## LIMITATIONS

- As with all cement based materials, avoid contact with aluminum to prevent adverse chemical reaction and possible product failure. Insulate potential areas of contact by coating aluminum bars, rails, posts etc. with an appropriate epoxy such as Sikadur Hi-Mod 32.

## BASIS OF PRODUCT DATA

Results may differ based upon statistical variations depending upon mixing methods and equipment, temperature, application methods, test methods, actual site conditions and curing conditions.

## 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 the exact product data and uses.

## ECOLOGY, HEALTH AND SAFETY

Keep container tightly closed. Keep out of reach of children. Not for internal consumption. For industrial use only. For professional use only. For further information and advice regarding transportation, handling, storage and disposal of chemical products, users should refer to the actual Safety Data Sheets containing physical, ecological, toxicological and other safety related data. Read the current actual Safety Data Sheet before using the product. In case of emergency, call CHEMTREC at 1-800-424-9300, International 703-527-3887.

## DIRECTIVE 2004/42/CE - LIMITATION OF EMISSIONS OF VOC

0 g/l

(EPA method 24)

## LEGAL DISCLAIMER

**KEEP CONTAINER TIGHTLY CLOSED •KEEP OUT OF REACH OF CHILDREN •NOT FOR INTERNAL CONSUMPTION •FOR INDUSTRIAL USE ONLY •FOR PROFESSIONAL USE ONLY**

Prior to each use of any product of Sika Corporation, its subsidiaries or affiliates ("SIKA"), the user must always read and follow the warnings and instructions on the product's most current product label, Product Data Sheet and Safety Data Sheet which are available at [usa.sika.com](http://usa.sika.com) or by calling SIKA's Technical Service Department at 800-933-7452. Nothing contained in any SIKA literature or materials relieves the user of the obligation to read and follow the warnings and instructions for each SIKA product as set forth in the current product label, Product Data Sheet and Safety Data Sheet prior to use of the SIKA product.

For further information and advice regarding transportation, handling, storage and disposal of chemical products, user should refer to the actual Safety Data Sheets containing physical, ecological, toxicological and other safety related data. User must read the current actual Safety Data Sheets before using any products. In case of an emergency, call CHEMTREC at 1-800-424-9300, International 703-527-3887.

SIKA warrants this product for one year from date of installation to be free from manufacturing defects and to meet the technical properties on the current Product Data Sheet if used as directed within the product's shelf life. User determines suitability of product for intended use and assumes all risks. User's and/or buyer's sole remedy shall be limited to the purchase price or replacement of this product exclusive of any labor costs. **NO OTHER WARRANTIES EXPRESS OR IMPLIED SHALL APPLY INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. SIKA SHALL NOT BE LIABLE UNDER ANY LEGAL THEORY FOR SPECIAL OR CONSEQUENTIAL DAMAGES. SIKA SHALL NOT BE RESPONSIBLE FOR THE USE OF THIS PRODUCT IN A MANNER TO INFRINGE ON ANY PATENT OR ANY OTHER INTELLECTUAL PROPERTY RIGHTS HELD BY OTHERS.** Sale of SIKA products are subject to the Terms and Conditions of Sale which are available at <https://usa.sika.com/en/group/SikaCorp/termsandconditions.html> or by calling 201-933-8300.

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