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BUILDING TRUST



## PRODUCT DATA SHEET

# Sikacrete<sup>®</sup>-211

One-component, cementitious, pumpable and pourable concrete mix

### PRODUCT DESCRIPTION

Sikacrete<sup>®</sup>-211 is a one-component, Portland-cement concrete containing factory blended coarse aggregates.

### USES

- Full depth concrete repairs
- On grade, above grade, and below grade concrete
- Horizontal surfaces (e.g. for spall repairs on flat work, or as an overlay)
- Vertical and overhead surfaces when formed and poured, or formed and pumped with a concrete pump
- Structural repair material for parking facilities, industrial plants, walkways, bridges, tunnels, dams, abutments, floors and balconies
- Filler for voids and cavities
- Repair of substrates such as concrete, mortar, and masonry

### CHARACTERISTICS / ADVANTAGES

- Pre-packaged factory-blended formulation containing coarse aggregates:
  - Eliminates the need to extend material in the field
  - Eliminates the risk of extending with reactive aggregate
- High bond strength
- Compatible with the typical coefficient of thermal expansion of concrete
- Increased resistance to deicing salts
- Simple-to-use, labor-saving system
- Easily mixed with clean water
- Good freeze/thaw resistance
- Easily applied to a clean, sound and properly prepared substrate
- Maximum size aggregate included: typical 3/8 inch (10 mm)

### PRODUCT INFORMATION

<b>Packaging</b>	80 lb (36.3 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) Protect from moisture. If damp, discard material.

Product Data Sheet  
Sikacrete<sup>®</sup>-211  
November 2020, Version 01.04  
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## TECHNICAL INFORMATION

<b>Compressive Strength</b>	1 day	2,000 psi (13.8 MPa)	(ASTM C 39)
	7 days	4,500 psi (31.0 MPa)	73° F (23° C)
	28 days	5,000 psi (34.5 MPa)	50% R.H.
<b>Modulus of Elasticity in Compression</b>	7 days	3.38 x 10 <sup>6</sup> psi (23.3 GPa)	(ASTM C-469) 73° F (23° C)
	28 days	3.44 x 10 <sup>6</sup> psi (23.7 GPa)	50% R.H.
<b>Flexural Strength</b>	28 days	700 psi (4.8 MPa)	(ASTM C 293) 73° F (23° C) 50% R.H.
<b>Splitting tensile strength</b>	28 days	750 psi (5.2 MPa)	(ASTM C 496) 73° F (23° C) 50% R.H.
<b>Slant Shear Strength</b>	28 days	1,500 psi (10.3 MPa)	(ASTM C 882 modified)* 73° F (23° C), 50% R.H.
* Mortar scrubbed into mechanically prepared, saturated surface dry (SSD) substrate.			
<b>Shrinkage</b>	28 days	< 0.05 %	(ASTM C 157) 73° F (23° C) 50% R.H.
<b>Rapid Chloride Permeability</b>	28 days	< 1,500 Coloumbs	(ASTM C 1202, AASHTO T 277) 73° F (23° C), 50% R.H.

## APPLICATION INFORMATION

<b>Mixing Ratio</b>	0.8 - 1.0 gallon (3.0 - 3.8 liters) of clean water per bag (0.8 gallon = 103 fluid ounces)		
<b>Coverage</b>	0.65 ft <sup>3</sup> (0.02 m <sup>3</sup> ) per bag (Yield figures do not include allowance for surface profile and porosity or material waste)		
<b>Layer Thickness</b>	<b>Minimum</b>	<b>Maximum in one lift *</b>	
	1 inch (25 mm)	8 inches (203 mm)	
* If repair requires multiple lifts, each lift should be applied as soon as the previous lift has developed enough initial strength to support it.			
<b>Consistency</b>	Initial Slump	6 - 9 inches (152 - 229 mm)	(ASTM C 143)
	Slump at 30 minutes	> 4 inches (102 mm)	73° F (23° C), 50% R.H.
<b>Product Temperature</b>	65° - 75° F (18° - 24° C)		
<b>Ambient Air Temperature</b>	40° - 95° F (4° - 35° C)		
<b>Substrate Temperature</b>	40° - 95° F (4° - 35° C)		

**Waiting / Recoat Times**

Refer to Sika Tech Brief # 18-01 for minimum cure times prior to overcoating.

**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.

**ENVIRONMENTAL, HEALTH AND SAFETY**

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, environmental, 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.

**LIMITATIONS**

- Do not use solvent-based curing compound.
- Using SikaLatex®, SikaLatex® R or similar admixture products in lieu of some or all of the recommended amount of water per bag may result in loss of slump and slump retention. Mock-up trial mixes for suitability are strongly recommended.
- Do not use any other types of admixtures (e.g. plasticizers, accelerators, retarders, etc.) or add cement to Sikacrete®-211.
- Sikacrete®-211 does not form a vapor barrier.
- 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®-32 Hi-Mod.
- Elevated temperatures will decrease working time and slump.
- Rate of strength gain will be reduced at colder temperatures. On site testing is recommended.

**APPLICATION INSTRUCTIONS****SURFACE PREPARATION**

- Surfaces must be clean and sound. Remove all deteriorated concrete, dirt, dust, oil, grease, contaminants and other bond-inhibiting materials from the area to be repaired.
- Be sure the repair area is not less than 1 inch (25 mm) in depth.
- Preparation work should be done by high pressure water blasting, scabbling, or other appropriate mechanical means. Obtain an exposed aggregate

surface with a minimum surface profile of  $\pm 1/8$  inch (3 mm) [ICRI CSP-6 to CSP-7] on clean, sound concrete.

- To ensure optimum repair results, the effectiveness of decontamination and substrate preparation can be assessed by a Pull-Off test (i.e. a Tensile Adhesion test per ASTM C 1583).
- Saw cutting the perimeter edges of the repair area is recommended, preferably cut at a dovetail angle..
- Substrate should be saturated surface dry (SSD) with clean water prior to application. No standing water should remain during application.

**CORROSION PROTECTION**

- **Reinforcing Steel:** Should be thoroughly prepared by mechanical cleaning to remove all traces of rust and scale. Where corrosion has occurred, the steel should be high-pressure washed with clean water after mechanical cleaning. For the corrosion protection of reinforcing steel use Sika® Armatec® corrosion protection products (consult applicable current Product Data Sheets).

**PRIMING**

- Prime the prepared substrates with a brush or spray applied coat of Sika® Armatec® or Sikadur® bonding agent products (consult applicable current Product Data Sheets).
- Alternately in lieu of a bonding agent, a scrub coat of Sikacrete®-211 can be applied to the substrate. While the scrub coat is still wet, place the remaining thickness of Sikacrete®-211 needed to complete the repair.
- If a bonding agent or a scrub coat of Sikacrete®-211 are not possible, other suitable means should be employed such as vibration of the material or pumping under pressure to ensure good intimate contact with the prepared substrate is achieved.

**Product Data Sheet**

Sikacrete®-211

November 2020, Version 01.04

020302020010000015

## MIXING

- Pour 0.8 gallon (3.0 liters) of clean water into a suitably sized mixing container or concrete mixer.
- Add the entire bag's contents of Sikacrete®-211 to the container while continuously mixing with a low-speed rotary drill (400-600 rpm) and paddle or concrete mixer.
- Add up to an additional maximum 0.2 gallon (0.8 liter) of clean water if needed for the desired consistency.
- Do not overwater as excess water will cause segregation.
- Mix to a uniform consistency, maximum 3 minutes. Thorough mixing and proper proportioning are necessary.

## APPLICATION

- Ensure substrate is properly prepared and saturated surface dry (SSD) before application.
- Ensure good intimate contact with the substrate is achieved either through a bonding agent or a scrub coat application, or other suitable means such as vibration of the material or pumping under pressure.

### Form and Pour / Pump Installations:

- Vibrate form while pouring or pumping.
- Pump with a variable pressure concrete pump.
- Continue pumping until a 3 to 5 psi (20 - 34 Pa) increase in normal line pressure is evident then STOP pumping.
- Form should not deflect.
- Vent to be capped when steady flow is evident, and forms to be stripped when appropriate.

### Horizontal Installations:

- After filling repair area, screed the material.
- Allow Sikacrete®-211 to set to desired stiffness, then finish with wood or sponge float for a smooth surface or broom or burlap-drag for a rough finish.
- If a smoother finish is desired, a magnesium float should be used.
- To assist in the finishing process, use SikaFilm® finishing aid. Consult current Product Data Sheet.
- Begin and finish multiple lift repairs on the same day.

Refer to ACI 305 the "Guide to Hot Weather Concreting" or ACI 306 the "Guide to Cold Weather Concreting" when there is a need to place this product while either hot or cold temperatures prevail. Thinner placements will be more sensitive to the temperature conditions.

## CURING TREATMENT

- As per ACI recommendations for Portland-cement concrete, curing is required.
- Moist curing should commence immediately after finishing.
- Moist cure with wet burlap and polyethylene, a fine mist of water or a water-based, compatible\* curing compound meeting ASTM C 309.
- Curing compounds adversely affect the adhesion of following layers of mortar, leveling mortar or protective coatings.
- Protect newly applied material from direct sunlight, wind, rain and frost.
- To prevent from freezing, cover with insulating material (e.g. curing blanket).

\*Pretesting of curing compound for compatibility is recommended.

## OTHER RESTRICTIONS

See Legal Disclaimer.

### Product Data Sheet

Sikacrete®-211

November 2020, Version 01.04

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## 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 1-800-933-7452. 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.

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.**

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