SikaTop® 123 PLUS
Two-component, polymer-modified, cementitious, non-sag mortar plus FerroGard 901 penetrating corrosion inhibitor

Description
SikaTop 123 PLUS is a two-component, polymer-modified, portland cement, fast-setting, non-sag mortar. It is a high performance repair mortar for vertical and overhead surfaces, and offers the additional benefit of FerroGard 901, a penetrating corrosion inhibitor.

Where to Use
- On grade, above, and below grade on concrete and mortar.
- On vertical and overhead surfaces.
- As a structural repair material for paving structures, industrial plants, water/waste water treatment facilities, roads, walkways, bridges, tunnels, dams, ramps, etc.
- Approved for repairs over cathodic protection systems.

Advantages
- High compressive and flexural strengths.
- High early strengths.
- Increased freeze/thaw durability and resistance to de-icing salts.
- Compatible with coefficient of thermal expansion of concrete to Passes ASTM C-884 (modified).
- Increased density - improved carbon dioxide resistance (carbonation) without adversely affecting vapor transmission (not a vapor barrier).
- Enhanced with FerroGard 901, a penetrating corrosion inhibitor - reduces corrosion even in the adjacent concrete.
- Not flammable, non-toxic.
- Conforms to ECA/USPHS standards for surface contact with potable water.
- USDA approved.
- ANSI/NSF Standard 61 potable water approved.

Yield
0.39 cu. ft./unit.

Packaging

Typical Data (Material and curing conditions @ 73°F (23°C) and 60% R.H.)

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Color</td>
<td>Concrete gray when mixed</td>
</tr>
<tr>
<td>Mixing Ratio</td>
<td>Plant-proportioned kit</td>
</tr>
<tr>
<td>Application Time</td>
<td>Approximately 18 min. after adding Component 'B' to Component 'A'. Application time is dependent on temperature and relative humidity.</td>
</tr>
<tr>
<td>Finishing Time</td>
<td>20 to 90 min after combining components; depends on temperature, relative humidity, and type of finish desired.</td>
</tr>
<tr>
<td>Density (wet Mix)</td>
<td>132 lbs/cu. ft. (2.2 kg/l)</td>
</tr>
<tr>
<td>Flexural Strength (ASTM C-293)</td>
<td>28 days 2,000 psi (13.6 MPa)</td>
</tr>
<tr>
<td>Shrinkage Strength (ASTM C-496)</td>
<td>28 days 700 psi (6.2 MPa)</td>
</tr>
<tr>
<td>Bond Strength (ASTM C-882 modified)</td>
<td>28 days 2,200 psi (15.2 MPa)</td>
</tr>
<tr>
<td>Compressive Strength (ASTM C-109)</td>
<td>1 day 4,500 psi (24.1 MPa)</td>
</tr>
<tr>
<td></td>
<td>7 days 5,000 psi (28.1 MPa)</td>
</tr>
<tr>
<td></td>
<td>28 days 7,000 psi (40.3 MPa)</td>
</tr>
<tr>
<td>Permeability (ASTM C-777)</td>
<td>28 days Approximately 500 Coulombs. Electrical resistivity (ohm-cm) 27,000</td>
</tr>
<tr>
<td>Freeze/Thaw Resistance (ASTM C-666)</td>
<td>300 cycles 98%</td>
</tr>
<tr>
<td>Corrosion Testing for FerroGard 901</td>
<td></td>
</tr>
<tr>
<td>Corrosion Resistance Test:</td>
<td></td>
</tr>
<tr>
<td>Reduced corrosion rates 63% versus control specimens. ASTM G109 modified after 400 days</td>
<td></td>
</tr>
</tbody>
</table>

How to Use
- Substrate: Concrete, mortar, and masonry products.
- Surface Preparation: Concrete/Mortar: Remove all deteriorated concrete, dirt, oil, grease, and all bond-inhibiting materials from surface. Be sure repair area is not less than 1/8 inch in depth. Preparation work should be done by high pressure water blast, scabbler, or other appropriate mechanical means to...
obtain an exposed aggregate surface with a minimum surface profile of 11/16 in. (0.69 cm) by saw cutting. Clean water shall be saturated surface dry (SSD) with no standing water during application.

Reinforcing Steel: Stabilization of the reinforcing steel should be thoroughly prepared by mechanical cleaning to remove all traces of rust. Where corrosion is present due to the presence of chlorides, the steel shall be treated with a high-pressure wash with clean water after all mechanical cleaning. For priming of reinforcing steel use Sikre Armatec 110 EpoCem (consult Technical Data Sheet).

Priming
Concrete Substrate: Primed the prepared substrate with a brush or roller applied coat of Sikre Armatec 110 EpoCem (consult Technical Data Sheet). Alternately, a 2 coat of Sikre Top 123 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
Four Component 'A' into mixing container. Add Component 'B' while mixing continuously. Mix mechanically with a low-speed drill (400 - 600 rpm) and mixing paddle or motor mixer. Mix to a uniform consistency for about 5 minutes. Mortar mixers can be stored for up to 24 hours. Thorough mixing and proper proportioning of the two components is necessary.

Application & Finish
SikreTop 123 FL US must be scrubbed into the substrate, filling all pores and voids. Force material against edge of repair, working toward center. After filling and vibrating, consolidate, then screed. Material may be applied in multiple lifts. The thickness of each lift, not to be less than 1/2 in. (13 mm) and not more than 1-1/2 in. (38 mm). Where multiple lifts are required, use a top surface of each lift to produce a roughened surface for the next lift. Allow preceding lift to reach final set, 30 minutes minimum, before applying fresh material. Saturate surface of the lift with clean water, Bond fresh mortar into preceding lift. Allow mortar or concrete to set to desired stiffness, then finish with wood or trowel tamped smooth or finished with a trowel. Mortar curing should commence immediately after finishing. If necessary, protect newly applied material from direct sunlight, wind, rain and frost.

Curing
As per ACI recommendations for Portland cement concrete, curing is required. Moisten cure with wet burlap and polystyrene, a fine mist of water or a wet burlap blanket, compatible curing compound. Curing compounds adversely affect the adhesion of following lifts of mortar, leveling mortar or protective coatings. Mortar curing should commence immediately after finishing. If necessary, protect newly applied material from direct sunlight, wind, rain and frost.

*Melting of curing compound is recommended.

Limitations
- Application thickness: Minimum 1/8 in. (3 mm), Maximum 1 in. - 1-1/2 in. (25 - 38 mm).
- Minimum ambient and surface temperatures 40°F (7°C) at time of application.
- Do not use solvent-based curing compound.
- Size, shape and depth of repair must be carefully considered and with best practices as recommended by ACI. For additional information, contact Technical Service.
- For additional information on substrate preparation, refer to ICRI Guidelines No. 03732 Coatings, and Polymer Overlays a.
- If aggressive means of substrate preparation is employed, substrate strength should be tested in accordance with ACI 605 Appendix A prior to the repair application.
- As with all cement-based materials, avoid contact with aluminum to prevent adverse chemical reaction and possible product failure. Protect potential areas of contact by coating aluminum bars, rails, posts, etc., with an appropriate epoxy such as Sikacur Hi-Mo 32.

Caution
Component 'A' - Irritant - May cause edema/inflammation/Irritation. Avoid breathing vapors. Use with adequate ventilation. Avoid skin and eye contact. Safety goggles and rubber gloves are recommended.

Component 'B' - Irritant, suspect carcinogen. Contains Portland cement and sand (crystalline silica). Skin and eye irritant. Avoid contact. Dust may cause respiratory tract irritation. Avoid breathing dust. Use with adequate ventilation. May cause delayed lung injury (silicosis). IARC lists crystalline silica as having sufficient evidence of carcinogenicity in laboratory animals and limited evidence of carcinogenicity in humans. TBP also lists crystalline silica as a suspect carcinogen. Use of safety goggles and chemical resistant gloves is recommended. If PPE are exceeded, an appropriate, NIOSH approved respirator is required. Remove contaminated clothing.

First Aid
In case of skin contact, wash thoroughly with soap and water. For eye contact, flush immediately with plenty of water for at least 15 minutes, and consult a physician. For respiratory problems, remove patient to fresh air.

Clean Up
In case of spillage, sweep or vacuum into appropriate container, and dispose of in accordance with current, applicable local, state and federal regulations. Keep container tightly sealed and in an upright position to prevent spillage and leakage.

Mixed components: Uncured material can be removed with water. Cured material can only be removed mechanically.

KEEPC CONTAINER TIGHTLY CLOSED. KEEP OUT OF REACH OF CHILDREN. NOT FOR INTERNAL CONSUMPTION. FOR INDUSTRIAL USE ONLY.

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Regional Information and Sales Center: For the location of your nearest Sikre sales office, contact your regional center.

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Fax: 514-597-2260
Sikre Mexico S.A. de C.V.
Calle Luis Bello No. 65
Fracc. Industrial Bicentenario
Corporativo, Queretaro
C.P. 76020
Phone: 800-442-2220
Fax: 512-442-2220273

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**SikaTop® 122 PLUS**

Two-component, polymer-modified, cementitious, trowel-grade mortar plus Sika FerroGard® 901 penetrating corrosion inhibitor

### Description
- SikaTop® 122 PLUS is a two-component, polymer-modified, Portland cement based, fast-setting, trowel-grade mortar. It is a high performance repair mortar for horizontal and vertical surfaces and offers the additional benefit of the Sika FerroGard® 901 penetrating corrosion inhibitor.

### Where to Use
- On grout, above and below grade, on concrete and mortar.
- On horizontal surfaces.
- As a structural repair material for parking structures, industrial plants, walkways, bridges, tunnels, dams, ramps, floods, etc.
- On level concrete surfaces.
- As an overlay system on topping/concrete that have been primed.

### Advantages
- Extremely low shrinkage proven by four industry standard test methods.
- High compressive and tensile strength.
- High abrasion resistance.
- Increased freeze/thaw durability and resistance to delining salts.
- Compatible with most concrete expansion joints.
- Improved durability to chloride ion penetration (without adversely affecting the curing and setting of the concrete).
- Sika FerroGard® 901, a penetrating corrosion inhibitor - reduces corrosion even in the adjacent concrete.
- USDA certified for the food industry.
- AHJ approved for use with potable water compliance.

### Coverage
- 0.51 cu ft/40-lb unit; 0.75 cu ft/60-lb unit (mix dry cement + 42 lbs. 30 lbs gravel)

### Packaging
- Component 'A' - 1-gal plastic pail; 4-lb box, Component 'B' - 61.5-lb multi-wall bag.

### Typical Data (Material and curing conditions @ 73°F (23°C) and 40% R.H.)

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Density (wet basis)</td>
<td>130 lb/ft³ (2.18 kg/l)</td>
</tr>
<tr>
<td>Flexural Strength</td>
<td>ASTM C 126</td>
</tr>
<tr>
<td>Tensile Strength</td>
<td>ASTM C 406</td>
</tr>
<tr>
<td>Bond Strength</td>
<td>ASTM C 822 (modified)</td>
</tr>
<tr>
<td>Compressive Strength</td>
<td>ASTM C 10B</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Shrinkage</td>
<td>ASTM C 147</td>
</tr>
<tr>
<td>Specimen 1”x1”x1-1/4”</td>
<td>28 days</td>
</tr>
<tr>
<td>Specimen 3”x3”x1-1/4”</td>
<td>28 days</td>
</tr>
<tr>
<td>Ring Test (days)</td>
<td>ASTM C 126</td>
</tr>
<tr>
<td>Ring Test - Average Max Strain</td>
<td>ASTM C 1581</td>
</tr>
<tr>
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<tr>
<td>Bending Block</td>
<td>ASTM C 666</td>
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<tr>
<td>Freeze/Thaw Durability (308 cycles)</td>
<td>ASTM C 1222</td>
</tr>
<tr>
<td>OCP Performance</td>
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</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Modulus of Elasticity</td>
<td>ASTM C 531</td>
</tr>
<tr>
<td>Initial Set Time (min)</td>
<td>ASTM C 1493</td>
</tr>
</tbody>
</table>

**Prior to each use of any Sika Product, the user must always read and follow the warnings and instructions on the product`s most current product data sheet, product label and safety data sheet which are available online at http://usa.sika.com or by calling Sika's technical service department at 800.933.7452. Nothing contained in any Sika 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 data sheet, product label and safety data sheet prior to product use.**

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**Sika Data Sheet**

**Edition 4.10.2015**

**PRODUCT:** SikaTop® 122 PLUS

**APPLICATION:**
- On grout, above and below grade, on concrete and mortar.
- On horizontal surfaces.
- As a structural repair material for parking structures, industrial plants, walkways, bridges, tunnels, dams, ramps, floods, etc.
- On level concrete surfaces.
- As an overlay system on topping/concrete that have been primed.

**ADVANTAGES:**
- Extremely low shrinkage proven by four industry standard test methods.
- High compressive and tensile strength.
- High abrasion resistance.
- Increased freeze/thaw durability and resistance to delining salts.
- Compatible with most concrete expansion joints.
- Improved durability to chloride ion penetration (without adversely affecting the curing and setting of the concrete).
- Sika FerroGard® 901, a penetrating corrosion inhibitor - reduces corrosion even in the adjacent concrete.
- USDA certified for the food industry.
- AHJ approved for use with potable water compliance.

**COVERAGE:**
- 0.51 cu ft/40-lb unit; 0.75 cu ft/60-lb unit (mix dry cement + 42 lbs. 30 lbs gravel)

**PACKAGING:**
- Component 'A' - 1-gal plastic pail; 4-lb box, Component 'B' - 61.5-lb multi-wall bag.

**TYPICAL DATA (Material and curing conditions @ 73°F (23°C) and 40% R.H.):**

<table>
<thead>
<tr>
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<th>Value</th>
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</thead>
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<td>ASTM C 10B</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**SHRINKAGE:**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specimen 1”x1”x1-1/4”</td>
<td>28 days</td>
</tr>
<tr>
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<td>Ring Test (days)</td>
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</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Modulus of Elasticity</td>
<td>ASTM C 531</td>
</tr>
<tr>
<td>Initial Set Time (min)</td>
<td>ASTM C 1493</td>
</tr>
</tbody>
</table>
## How to Use

<table>
<thead>
<tr>
<th>Product</th>
<th>Substrates</th>
<th>Concrete, mortar, and masonry products.</th>
</tr>
</thead>
</table>

### Surface Preparation
Remove all loose concrete, dirt, oil, grease and all bonding materials from surface. Be sure any repair area is not less than 1/8 inch in depth. Preparation work should be done by high pressure water blast, sandblasting, or other appropriate mechanical means to disclose an exposed aggregate surface with a minimum surface profile of +1/16 inch (CS-2) to -1/16 inch (CS-4). Substrate surface with clean water. Substrate should be external surface dry (SSD) with no standing water during application.

Reinforcing Steel: Steel reinforcement should be thorougly cleaned by mechanical cleaning to remove all coats 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 pressing reinforcing steel use Sika® Aeroset® 110 EpoCem (Consult Product Data Sheet).

Priming Concrete Substrate: Prima the prepared substrate with a brush or spray applied coat of Sika® Aeroset® 110 EpoCem (consult Product Data Sheet). Alternatively, a prep wash of Sikadur® 122 PLUS can be applied prior to placement of the mortar. The repair patch has to be applied into the wet substrate before it dries.

### Mixing
Four approximately 7/8 of Component 'A' into the mixing container. Add Component 'B' (powder) while mixing continuously. Mix mechanically with a low-speed drill (600-800 rpm) and mixing paddle or mixer mixer. Add remaining Component 'A' (liquid) to mix if a more loose consistency is desired. Mix to a uniform consistency, maximum 3 minutes. Thorough mixing and proper proportioning of the two components is necessary.

For Sikadur® 122 PLUS concrete: Four out of all Component 'A' into mixing container. Add all of Component 'B' while mixing, then introduce 3/8 inch aggregate at desired quantity. Mix to uniform consistency, maximum 3 minutes. Addition rate is 42 lbs per cubic yard (approx. 3 to 3.5 gal by volume). The aggregate content must be non-reactive (reference ASTM C 1292), C 227 and C 296), clean, well-graded, spot welded surface mix, have low abrasion and high density, and comply with ASTM C 33 size number 8 to Table 2. Note: Variance in the quality of the aggregate will affect the physical properties of Sikadur® 122 PLUS. The yield is increased to 0.78 cu. ft/100 lb of the aggregate (47 lbs). Do not use lime-stabilized aggregate.

### Application
Sikadur® 122 PLUS must be scrubbed into the substrate, filling all pores and voids. Force material against edge of repair, working toward center. After filling repair, consolidate, then crease. Allow mortar or concrete to set to desired stiffness, then finish with wood or sponge float for a smooth surface, or broom or trowel-brig for a rough finish.

### Tooling & Finishing
As per ACI recommendations for portland cement concrete, curing is required. Marked cured with wet burlap and polyethylene, a fine mist of water or a water-based "wet" concrete curing compound (ASTM C 309 compliant). Curing compound will prevent wind and water from affecting the adhesion of following layers of mortar, leveling mortar or protective coatings. Most curing should commence immediately after finishing. Post-cured newly applied material from direct sunlight, wind, rain, and frost.

### Limitations

<table>
<thead>
<tr>
<th>Application thickness</th>
<th>Min.</th>
<th>Max. in one coat</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neat</td>
<td>1/8 inch (3 mm)</td>
<td>1 inch (25 mm)</td>
</tr>
<tr>
<td>Extended</td>
<td>1 inch (25 mm)</td>
<td>4 inches (100 mm)</td>
</tr>
</tbody>
</table>

- Minimum ambient and surface temperatures 45°F (7°C) and curing at time of application.
- Addition of coarse aggregate may result in variations of the physical properties of the mortar.
- Do not use solvent-based curing compound.
- Site, shape and depth of repair must be carefully considered and consistent with procedures recommended by ACI or ICRI. For additional information, contact Technical Service.
- For additional information on substrate preparation, refer to ICRI Guideline No. 319.2R, Coatings, Polymer Overlays, and Corrosive Repair.
- If aggressive media of substrate preparation is employed, substrate strength should be tested in accordance with ACI 503 Appendix A prior to the repair application.
- As with all cement-based materials, avoid contact with aluminum to prevent adverse chemical reaction and possible product failure. Insulate potable areas of contact with brick, aluminum bars, rails, poles or steel, with an appropriate epoxy such as Sikadur® 32, Hi-Bond.
Sikadur® 32, Hi-Mod
High-modulus, high-strength, epoxy bonding/grouting adhesive

Description
Sikadur® 32, Hi-Mod, is a multi-purpose, 2-component, 100% solids, moisture-tolerant structural epoxy adhesive. It conforms to the current ASTM C-811, Types I, II, and V, Grade 2, Class C and AASHTO M-285 specifications.

Where to Use
- Bond fresh, plastic concrete to hardened concrete and steel.
- Grout horizontal cracks in structural concrete and wood by gravity feed.
- Machinery and "robotic" base-plate grout.
- Structural adhesive for concrete, masonry, metal, wood, etc.

Advantages
- High-strength bonding/grouting adhesive.
- Tolerant to moisture before, during and after cure.
- Excellent adhesion to most structural materials.
- Convenient easy-to-eric ratio A:B = 1:1 by volume.
- Easy-to-use for bonding/grouting applications.
- Fast Initial set, rapid gain to ultimate strengths.
- USDA-certified for use in food plants.

Coverage
Bonding Adhesive - 1 gal. covers approximately 80 ft² on smooth surface.
Base Plate Grout - 1 gal. mixed with 1.5 parts oven-dried aggregate by loose volume yields approximately 420 cu. in. of grout.
Anchoring grout - 1 gal. yields 231 cu. in. of grout.

Packaging
1, 2 and 4 gal. units.

Typical Data (Material and curing conditions @ 73°F (23°C) and 50% R.H.)

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shelf Life</td>
<td>2 years in original, unopened containers.</td>
</tr>
<tr>
<td>Storage Conditions</td>
<td>Store dry at 40°-85°F (4°-30°C). Condition material to 65°-70°F (18°-24°C) before using.</td>
</tr>
<tr>
<td>Color</td>
<td>Concrete gray</td>
</tr>
<tr>
<td>Mixing Ratio</td>
<td>Component 'A': Component 'B' = 1:1 by volume.</td>
</tr>
<tr>
<td>Viscosity</td>
<td>Approximately 3,000 cps.</td>
</tr>
<tr>
<td>Put Time</td>
<td>Approximately 30 minutes. (60 gram mass), Approximately 22 minutes. (360 gram mass, 8 oz.)</td>
</tr>
<tr>
<td>Contact Time</td>
<td>40°F (<em>A°)</em>: 12 hrs. 70°F (<em>B°)</em>: 5-4.5 hrs. 90°F (<em>C°)</em>: 1.5-2 hrs</td>
</tr>
<tr>
<td>Compressive Modulus, psi</td>
<td>7 day: 2,1 X 10^6 psi (1,446 MPa)</td>
</tr>
<tr>
<td>Flexural Properties (ASTM D-886)</td>
<td>7 day: Tensile Strength: 6,900 psi (48 MPa) 14 day: Modulus of Elasticity: 6,4 X 10^6 psi (3,726 MPa)</td>
</tr>
<tr>
<td>Flexural Properties (ASTM D-790)</td>
<td>14 day: Flexural Strength (Modulus of Rupture): 7,000 psi (48.3 MPa) 14 day: Tangent Modulus of Elasticity in Bending: 6.9 X 10^6 psi (4,800 MPa)</td>
</tr>
<tr>
<td>Shear Strength (ASTM D-732)</td>
<td>14 day: Shear Strength: 8,200 psi (43 MPa)</td>
</tr>
<tr>
<td>Water Absorption (ASTM D-870)</td>
<td>7 day: Water stress loading 264 psi (1.9 MPa) (22°F (50°C))</td>
</tr>
<tr>
<td>Heat Deflection Temperature (ASTM D-846)</td>
<td>7 day: Heat deflection temperature 122°F (50°C)</td>
</tr>
<tr>
<td>Bond Strength (ASTM C-842)</td>
<td>2 day (moist cure): Plastic Concrete to Hardened Concrete: 1,700 psi (11.7 MPa) 14 day (moist cure): Plastic Concrete to Hardened Concrete: 2,000 psi (13.6 MPa) 14 day (moist cure): Plastic Concrete to Steel: 1,900 psi (13.1 MPa) 14 day (moist cure): Plastic Concrete to Hardened Concrete: 2,000 psi (13.6 MPa) 14 day (moist cure): Plastic Concrete to Steel: 2,000 psi (13.6 MPa) 14 day (moist cure): Hardened Concrete to Hardened Concrete: 2,000 psi (13.6 MPa) 14 day (moist cure): Hardened Concrete to Steel: 2,000 psi (13.6 MPa)</td>
</tr>
</tbody>
</table>

Prior to each use of any Sika® product, the user must always read and follow the warnings and instructions on the product's most current product data sheet, product label and safety data sheet which are available online at http://www.sika.com or by calling Sika's technical service department at 800.933.7422. Nothing contained in any Sika® materials releases the user of the obligation to read and follow the warnings and instructions for each Sika® product as set forth in the current product data sheet, product label and safety data sheet prior to product use.
### Compressive Properties (ASTM D-656)
**Compressive Strength, psf (MPa):**

<table>
<thead>
<tr>
<th></th>
<th>40°F (4°C)</th>
<th>73°F (23°C)</th>
<th>90°F (32°C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>8 hour</td>
<td>140 (1.0)</td>
<td>1,700 (11.7)</td>
<td>7,300 (50.2)</td>
</tr>
<tr>
<td>16 hour</td>
<td>4,000 (35.1)</td>
<td>7,200 (50.2)</td>
<td>7,500 (50.2)</td>
</tr>
<tr>
<td>1 day</td>
<td>300 (0.2)</td>
<td>6,700 (50.2)</td>
<td>7,500 (50.2)</td>
</tr>
<tr>
<td>3 day</td>
<td>6,000 (88.5)</td>
<td>11,300 (77.0)</td>
<td>10,400 (71.7)</td>
</tr>
<tr>
<td>7 day</td>
<td>6,000 (88.5)</td>
<td>11,800 (84.1)</td>
<td>10,400 (71.7)</td>
</tr>
<tr>
<td>14 day</td>
<td>11,000 (82.1)</td>
<td>12,200 (84.1)</td>
<td>10,400 (71.7)</td>
</tr>
<tr>
<td>28 day</td>
<td>12,000 (86.8)</td>
<td>12,200 (84.1)</td>
<td>10,600 (72.4)</td>
</tr>
</tbody>
</table>
*Note: Curved and tested at the temperatures indicated.

### How to Use

#### Surface Preparation
- Surface must be clean and sound. It may be dry or damp, but free of standing water. Remove dust, laitance, grease, curative compounds, impregnations, waxes and any other contaminates.
- Preparation Work: Concrete - Should be cleaned and prepared to balance a laitance and contaminant free, open textured surface by blast-cleaning or other equivalent mechanical means.
- Steel - Should be cleaned and prepared thoroughly by blast-cleaning or other equivalent mechanical means.

#### Mixing
- Pre-mix each component. Proportion equal parts by volume of Component A and Component B into clean pail. Mix thoroughly for 3 minutes with Sika paddle on low speed (400-800 rpm) drill until blend is a uniform color. Mix only that quantity that can be applied within 1 hr. pail life.

#### Application
- To bond fresh concrete to hardened concrete - Apply by brush, roller, broom or spray. Place fresh concrete while Sikadur® 32, Hi-Mod, is still tacky. If coating becomes glossy and loose to the touch, remove any surface contaminants then recoat with additional Sikadur® 32 Hi-Mod, and proceed.
- To grout baseplates - Add up to 1/2 parts of over-dried aggregate to 1 part of mixed Sikadur® 32, Hi-Mod, by volume. Place grout under baseplate. Avoid contact with the underside of the plate. A 1/4 to 3/8 in. (6 to 10 mm) space should remain between the top of the grout and the bottom of the plate.
- Maximum thickness of grout per lift is 1.5 in. (38 mm) if multiple lifts are needed, allow preceding layer to cool to touch before applying additional layer. The remaining 1/4 to 3/8 in. (6 to 10 mm) space should be filled with neat Sikadur® 32 Hi-Mod. Pour a sufficient quantity of neat epoxy to allow the level to rise slightly higher than the under side of the bearing plate.
- To gravity feed cracks - Pour neat material into un-notched crack. Continue placement until completely filled. Seal underside of slab prior to filling if cracks reflux through.

#### Limitations
- Minimum substrate and ambient temperature 40°F (4°C).
- For spray applications, consult Technical Service at 800-583-7452.
- Use only over-dry aggregate.
- Material is a vapor barrier after cure.
- For applicators on exterior, on-grade substrates, consult Technical Services at 800-583-7452.
- Do not apply over wet, glistening surfaces.
- Not an aesthetic product. Color may alter due to variations in lighting and/or UV exposure.

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**Sika warrants this product for one year from date of delivery to be free from manufacturing defects and to meet the technical properties on the current Product Data Sheet in a material within itself. Each user, however, must be informed of the possible inherent risk in the use of any product. Sika's warranty is intended to protect the user from direct, ordinary and ordinary expenses associated with the use of the product. No other warranties expressed or implied shall be applicable. Sika shall not be liable for any incidental, special or consequential damages. Sika is not responsible for the use of this product in a manner to infringe on any patent or any other intellectual property right held by others. Sale of Sika Products is subject to Sika's terms and conditions of sale available at http://usa.sika.com or by calling 1-800-925-8600.**

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**Regional Information and Sales Centers.** For the location of your nearest Sika sales office, contact your regional center.

---

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Sika® Armatec® 110 EpoCem
Bonding Agent and Reinforcement Protection

Description
Sika® Armatec® 110 EpoCem is a 3-component, solvent-free, moisture-tolerant, epoxy-modified, cementitious product specifically formulated as a bonding agent and anti-corrosion coating.

Where to Use
- As an anti-corrosion coating for reinforcing steel in concrete restoration.
- As added protection to reinforcing steel in areas of thin concrete cover.
- As a bonding agent for repairs to concrete and steel.
- As a bonding agent for placing fresh, plastic concrete to oxidizing hardened concrete.

Advantages
- Excellent adhesion to concrete and steel.
- Acts as an effective barrier against penetration of water and chlorides.
- Long open time - up to 16 hours.
- Not a vapor barrier.
- Can be used exterior on-grade.
- Contains corrosion inhibitors.
- Excellent bonding bridge for cement or epoxy based repair mortars.
- High strength, unaffected by moisture when cured.
- Spray, brush or roller application.
- Non-flammable, solvent free.

Coverage
Bonding agent: minimum theoretical on smooth, even substrate 80 ft²/gal. (+20 m²/litre thickness). Coverage will vary depending on substrate profile and porosity.
Reinforcement Protection: 40 ft²/gal. (+20 m²/litre thickness) (2 coat application).

Packaging
3.9 gal. unit (1.6 ltr, Comp. A + 122.1 fl. oz, Comp. B + 46.32 lb, Comp. C) Comp. A + B (in carton, Comp. C in multi-wall bag).
1.59 gal. unit (22.7 fl. oz, A + 57.9 fl. oz, B + 4 bags @ 5.5 lb.) Factory-proportioned units in a pallet.

Typical Data (Material and curing conditions @ 73°F and 50% R.H.)

RESULTS MAY DIFFER BASED UPON STATISTICAL VARIATIONS DEPENDING UPON MIXING METHODS AND EQUIPMENT, TEMPERATURE, APPLICATION METHODS, TEST METHODS, ACTUAL SITE CONDITIONS AND CURING CONDITIONS.

Sheel Life: 1 year in original, unopened packaging.
Storage: Store dry at 40°F-95°F (4°C-35°C). Condition material to 65°-75°F (18°-24°C) before using. If components A and B are frozen, discard. Protect Component C from humidity.

Color: Concrete gray
Density (Mixed): 125 lb./ft³ (2.0 kg)
Pot Life: Approximately 90 minutes

Compressive Strength (ASTM C-109) 3 days: 4500 psi (31.0 MPa)
7 days: 6500 psi (44.8 MPa)
28 days: 8500 psi (58.8 MPa)

Flexural Strength (ASTM C-348) 28 days: 1250 psi (8.6 MPa)

Splitting Tensile Strength (ASTM C-496) 28 days: 600 psi (4.1 MPa)

Important Data for Sika Armatec 110 as a Corrosion Protective Coating

Control: 7.32 x 10^-14 ft/sec.
Water vapor diffusion coefficient μ H₂O: 1.10
Carbon Dioxide: Carbon dioxide diffusion coefficient μ CO₂: 14000

TEST DATA: Time-to-Corrosion Study
- Sika® Armatec® 110 more than tripled the time to corrosion
- Reduced corrosion rate by over 40%
Important Data for Sikaflex® 110 as a Bonding Agent

Bond Strength (ASTM C662)
- Wet on Wet: 2800 psi (19.4 MPa)
- 24 hr. Open Time: 2800 psi (17.0 MPa)

Bond of Steel Reinforcement to Concrete (Pullout Test):
- Sikaflex® 110 Coated: 625 psi (4.3 MPa)
- Epoxy Coated: 503 psi (3.4 MPa)
- Plain Reinforcement: 573 psi (3.9 MPa)

How to Use

Surface Preparation
- Cementitious substrates: Should be cleaned and prepared to achieve a suitable and compatible surface prepared in accordance with the requirements specified by the overlay or repair material by blast cleaning or equivalent mechanical means.
- Substrate shall be saturated surface dry (SSD) with no standing water.
- Steel: Should be cleaned and prepared thoroughly by blast cleaning.

Mixing
- Shake contents of both Component 'A' and Component 'B'. Empty entire contents of both Component 'A' and Component 'B' into a clean, dry mixing bowl. Mix thoroughly for 20 seconds with a Sikaflex paddle or low speed (400-600 rpm) drill. Slowly add the entire contents of Component 'C' while continuing to mix for 3 minutes until bleed is uniform and free of lumps. Mix only that quantity that can be applied within its pot life.

Application
- As a bonding agent - Apply by stiff-bristle brush or broom. Saturate with Sikaflex Epoxy Primer or equal equipment. For best results, work the bonding slurry well into the substrate to ensure complete coverage of all surface irregularities. Apply the freshly mixed patching mortar or concrete wet on wet, or up to the maximum recommended open time, onto the bonding slurry.
- Maximum recommended open time between application of Sikaflex® 110 and patching mortar or concrete:
  - 80°-85°F (26°-30°C): 6 hours
  - 65°-70°F (18°-21°C): 12 hours
  - 50°-64°F (10°-17°C): 18 hours
  - 40°-49°F (5°-9°C): wet-on-wet
- For corrosion protection only - Apply by stiff-bristle brush or spray at 80 ft²/gal. (20 liters/100 ft²).

Limitations
- Substrate and ambient temperature: Minimum 40°F (5°C).
- Maximum 93°F (35°C).
- Minimum thickness: As a bonding agent 5 mm. For reinforcement protection 40 mm.
- (2 coats, 20 mm each)
- Not recommended for use with expansive grouts.
- Use of semi-dry mortars onto Sikaflex® 110-100 EpoCoat must be applied wet on wet.
- When used in overhead applications with hand placed patching mortars, use wet on wet for maximum mortar built thickness.
- Substrate profile as specified by the overlay or repair material is still required.
- As with all cement based materials, avoid contact with aluminum to prevent adverse chemical reaction and possible product failure. Isolate potential areas of contact by coating aluminum bays, rails, posts etc. with an appropriate epoxy such as Sikadur® 22 Mod 32.
Sikadur® Crack Weld
Crack Injection Kit

Description: Two-component, low viscosity, fast curing epoxy sealing system for repair to cracks in concrete and solid masonry. Conforms to ASTM C-681.

Where to Use:
- Low pressure injection of cracks in structural concrete and solid masonry.
- Gravity feed cracks in horizontal concrete and horizontal solid masonry.

Advantages:
- As strong as concrete.
- Convenient mix in the nozzle cartridge system.
- Conforms to standard caulking guns.

Coverage: Capsule will yield approx. 300 mL. Injection units will yield approx. 250 mL.
(Since charts for specific coverage rates)

Packaging:
- Capsule (x2) 300 mL
- Injection Resin (x2) 250 mL
- Capsule mixer nozzles (x2)
- Capsule applicator fun (x2)
- Cartridge flow restrictor (x1)
- Injection resin mixers with extended tube (x2)
- Push fit connector (x1)
- Injection ports (x10)
- Pair of gloves (x2)
- Wooden applicator (Tungsten Depressor) (x2)
- Instructional DVD (x1)

Typical Data [Material and curing conditions @ 72°F (22°C) and 50% R.H.]

RESULTS MAY DIFFER BASED UPON STATISTICAL VARIATIONS DEPENDING UPON MIXING METHODS AND EQUIPMENT, TEMPERATURE APPLICATION METHOD, TEST METHODS, ACTUAL SITE CONDITIONS AND CURING CONDITIONS.

Sheel Life: 10 months in original, unopened containers.

Storage Conditions: Store dry at 40°-70°F (5°-24°C)

Product Conditioning: Condition dry at 60°-70°F (15°-24°C)

For Sikadur Injection Resin:
- Compression Strength (ASTM D-486), psi (MPa)
  - 4 hours: 2000 (14.1)
  - 6 hours: 3000 (21.1)
  - 16 hours: 4000 (28.1)
  - 24 hours: 5000 (35.4)
  - 1 day: 5000 (35.4)
  - 3 days: 1500 (10.3)
  - 7 days: 4000 (28.1)
  - 14 days: 7000 (49.3)
  - 28 days: 10,000 (69.9)

- Tensile strength (ASTM D-638)
  - 2000 (14.1)

- Flexural strength (ASTM D-732)
  - 10,000 (69.9)

- Bond strength (ASTM D-897)
  - 10,000 psi

- Viscosity Mixed (ASTM D-493)
  - 600 cP

- Hardness (ASTM C-881)
  - 25-30 min. (60°F mass)

- Water Absorption (ASTM D-570)
  - 0.24%

- Heat Distillation Temp. (ASTM D-444)
  - 100°F

VOC:
- Capsule: 30 g/L
- Inj. Resin: 5 g/L

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For Sikadur Capscel:  

<table>
<thead>
<tr>
<th>Temp. [°F]</th>
<th>Gel Time (min)</th>
<th>Ready for Injection (min)</th>
</tr>
</thead>
<tbody>
<tr>
<td>40</td>
<td>10</td>
<td>145</td>
</tr>
<tr>
<td>60</td>
<td>10</td>
<td>80</td>
</tr>
<tr>
<td>65</td>
<td>6</td>
<td>50</td>
</tr>
<tr>
<td>77</td>
<td>6</td>
<td>40</td>
</tr>
<tr>
<td>86</td>
<td>4</td>
<td>36</td>
</tr>
</tbody>
</table>

Coverage Rates:

### Consumption of Crack Injection Resin in a Crack

<table>
<thead>
<tr>
<th>Length (in)</th>
<th>Width (in)</th>
<th>Depth (in)</th>
<th>Gu. Inches</th>
<th># of Tubes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/16&quot; wide crack - 1&quot; deep and 10 ft. Long</td>
<td>120</td>
<td>0.082</td>
<td>1</td>
<td>7.44</td>
</tr>
<tr>
<td>1/16&quot; wide crack - 1.5&quot; deep and 10 ft. Long</td>
<td>120</td>
<td>0.082</td>
<td>1.5</td>
<td>11.16</td>
</tr>
<tr>
<td>1/16&quot; wide crack - 2&quot; deep and 10 ft. Long</td>
<td>120</td>
<td>0.082</td>
<td>2</td>
<td>14.68</td>
</tr>
<tr>
<td>1/8&quot; wide crack - 1&quot; deep and 10 ft. Long</td>
<td>120</td>
<td>0.125</td>
<td>1</td>
<td>10</td>
</tr>
<tr>
<td>1/8&quot; wide crack - 1.5&quot; deep and 10 ft. Long</td>
<td>120</td>
<td>0.125</td>
<td>1.5</td>
<td>20.1</td>
</tr>
<tr>
<td>1/8&quot; wide crack - 2&quot; deep and 10 ft. Long</td>
<td>120</td>
<td>0.125</td>
<td>2</td>
<td>30</td>
</tr>
<tr>
<td>1/4&quot; wide crack - 1&quot; deep and 10 ft. Long</td>
<td>120</td>
<td>0.25</td>
<td>1</td>
<td>20</td>
</tr>
<tr>
<td>1/4&quot; wide crack - 1.5&quot; deep and 10 ft. Long</td>
<td>120</td>
<td>0.25</td>
<td>1.5</td>
<td>40</td>
</tr>
<tr>
<td>1/4&quot; wide crack - 2&quot; deep and 10 ft. Long</td>
<td>120</td>
<td>0.25</td>
<td>2</td>
<td>60</td>
</tr>
</tbody>
</table>

### Consumption of Crack Injection Paste on a Crack

<table>
<thead>
<tr>
<th>Length (in)</th>
<th>Width (in)</th>
<th>Depth (in)</th>
<th>Gu. Inches</th>
<th># of Tubes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1&quot; Wide Strip - 10 ft. Long and 8&quot; thick</td>
<td>120</td>
<td>1</td>
<td>0.125</td>
<td>15</td>
</tr>
<tr>
<td>1&quot; Wide Strip - 10 ft. Long and 1/4&quot; thick</td>
<td>120</td>
<td>1</td>
<td>0.25</td>
<td>30</td>
</tr>
<tr>
<td>1.5&quot; Wide Strip - 10 ft. Long and 8&quot; thick</td>
<td>120</td>
<td>1.5</td>
<td>0.125</td>
<td>22.5</td>
</tr>
<tr>
<td>1.5&quot; Wide Strip - 10 ft. Long and 1/4&quot; thick</td>
<td>120</td>
<td>1.5</td>
<td>0.25</td>
<td>45</td>
</tr>
<tr>
<td>2.0&quot; Wide Strip - 10 ft. Long and 8&quot; thick</td>
<td>120</td>
<td>2</td>
<td>0.125</td>
<td>30</td>
</tr>
<tr>
<td>2.0&quot; Wide Strip - 10 ft. Long and 1/4&quot; thick</td>
<td>120</td>
<td>2</td>
<td>0.25</td>
<td>60</td>
</tr>
</tbody>
</table>

How to Use

### Surface Preparation
Substrate Preparation - For a successful application, thorough preparation is a must. The crack to be treated must be dry and free of oils, greases, dust and other contaminants. Any loose material must be blown or brushed clear.

For Vertical Cracks (walls, columns, beams) - The surface of the crack should be sealed with the fast setting Sikadur Capscel supplied. The Capscel should also be used to affix the injection ports. The distance between the injection ports should be greater than the estimated depth of the crack (typically 1.5 times the depth is not known, consult technical services).

For Horizontal Cracks (slabs, slabs, etc.) - The Sikadur Capscel and injection ports may not be required as the resin may be introduced into the crack by gravity.

### Mixing
Cartridge Gel Up:
Sikadur Capscel - Open screw cap, cut film to remove metal clip and attach nozzle, extrude waste until a uniform color is achieved.
Sikadur Injection Resin - Remove screw cap, insert outlet plugs, attach mixer nozzle with extension tube.* Extrude waste to form a homogeneous mix. Use the push fit connector to connect to injection port.

*For horizontal cracks (floor, slab, etc.), remove the extension tube.

### Application
For Vertical Cracks (walls, columns, beams) - The resin should be injected into the first (lower) port. When the resin begins to flow from the adjacent port, close off the first port and disconnect the hose. Reconnect in the second port and inject until resin starts to flow from the third, this process is repeated until the whole crack has been injected. After the resin has been allowed to cure, the injection ports and capscel should be removed and any holes or voids should be filled.

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For Horizontal cracks (floors, slabs, etc.) - To gravity-fed cracks, seal the underside of the substrate prior to filling if the crack reflect through. Dispense the injection resin slowly into the vee-notched crack. Continue injecting until the vee completely filled.

Removal
After the resin has been allowed to cure, the injection port and caps should be mechanically removed and any holes or voids should be filled.

Limitations
- Minimum substrate and ambient temperature 40°F (5°C), Maximum substrate temperature 95°F (35°C).
- Minimum age of concrete must be 21-28 days, depending on curing and drying conditions.
- Do not apply over wet, glossy or treated surfaces.
- Not for injection of cracks subjected to osmotic or hydrostatic pressure during application.
- Do not inject cracks greater than 1/4 in (6mm). Consult Sika Technical Services.
- Not as an aesthetic product. Color may alter due to variations in lighting and/or UV exposure.
- NOT FOR USE AS AN ANCHORING ADHESIVE.
Sikadur® 31, Hi-Mod Gel (1:1 Mix Ratio)

High-modulus, high-strength, structural, epoxy paste adhesive

Description
Sikadur® 31, Hi-Mod Gel, is a 2-component, 100% solids, solvent-free, moisture-tolerant, high-modulus, high-strength, structural epoxy paste adhesive. It conforms to the current ASTM C-881, Type I and IV, Grade-3, Class-B/C and AASHTO M-235 specifications.

Where to Use
- Structural bonding of concrete, masonry, metals, wood, etc. to a minimum glue line of 1/8 in. (3 mm).
- Grout bolts, dowels, and pilasters.
- Seals cracks and around injection ports prior to pressure-injection grouting.
- Interior, vertical, and overhead repair of concrete on an epoxy mortar binder.
- As a leak-proof sealant around windows, doors, lock-ups etc. inside constructional facilities.

Advantages
- Meets physical requirements of ASTM C-881 Type I, II & IV, Grade 3, Classes B & C.
- Suitable for potable water contact, meets NSF/ANSI Standard 61.
- Excellent adhesion to concrete, masonry, metal, wood, and most structural materials.
- Paste consistency lends for vertical and overhead repair of concrete.
- Fast-setting and strength-producing adhesive.
- Convenient easy mix ratio A:B = 1:1 by volume.

Coverage
1 gal. yields 231 cu. in. (3,785 cm³) of epoxy paste adhesive. 1 gal. (3.8 L) mixed with 1 gal. (3.8 L) by loose volume of oven-dried aggregate yields approximately 346 cu. in. (5,697 cm³) of epoxy mortar.

Packaging
1 gal. and 3 gal. (11.4 L) units.

Typical Data (Material and curing conditions at 77°F (25°C) and 50% RH)

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shelf Life</td>
<td>2 yrs. in original, unopened container</td>
</tr>
<tr>
<td>Storage Conditions</td>
<td>Store at 40°-60°F (~4°C-16°C), Condition material to 65°-70°F (~18°C-21°C) before using.</td>
</tr>
<tr>
<td>Color</td>
<td>Concrete grey</td>
</tr>
<tr>
<td>Mixing Ratio</td>
<td>Component 'A' : Component 'B' = 1 : 1 by volume</td>
</tr>
<tr>
<td>Consistency</td>
<td>Non-set pease</td>
</tr>
<tr>
<td>Pot Life</td>
<td>Approximately 60 minutes at 77°F (25°C), (600 gram mass)</td>
</tr>
<tr>
<td>Tensile Properties (ASTM D-4596)</td>
<td></td>
</tr>
<tr>
<td>7 day</td>
<td></td>
</tr>
<tr>
<td>Elongation at Break</td>
<td></td>
</tr>
<tr>
<td>Flexural Properties (ASTM D-790)</td>
<td></td>
</tr>
<tr>
<td>7 day</td>
<td></td>
</tr>
<tr>
<td>Flexural Strength (Modulus of Rupture)</td>
<td></td>
</tr>
<tr>
<td>Shear Strength (ASTM D-732)</td>
<td></td>
</tr>
<tr>
<td>7 day</td>
<td></td>
</tr>
<tr>
<td>Bond Strength (ASTM C-692)</td>
<td></td>
</tr>
<tr>
<td>Hightened Concrete to Hardened Concrete</td>
<td></td>
</tr>
<tr>
<td>2 day (dry cure)</td>
<td>2,200 psi (15.2 MPa)</td>
</tr>
<tr>
<td>3 day (moisture cure)</td>
<td>2,400 psi (16.5 MPa)</td>
</tr>
<tr>
<td>14 day (curing)</td>
<td>2,900 psi (20.1 MPa)</td>
</tr>
<tr>
<td>Hardened Concrete to Steel</td>
<td></td>
</tr>
<tr>
<td>2 day (dry cure)</td>
<td>2,900 psi (20.1 MPa)</td>
</tr>
<tr>
<td>Tensile Bond Strength (Full-off Method, Dyna, ASTM C-1583-04)</td>
<td></td>
</tr>
<tr>
<td>2 day</td>
<td>420 psi (2.9 MPa)</td>
</tr>
<tr>
<td>Heat Deflection Temperature (ASTM D-444)</td>
<td></td>
</tr>
<tr>
<td>7 day (Fiber Stress Loading = 484 psi)</td>
<td></td>
</tr>
<tr>
<td>Water Absorption (ASTM D-570)</td>
<td></td>
</tr>
<tr>
<td>24 hour</td>
<td>0.97%</td>
</tr>
<tr>
<td>Compressive Strength (ASTM D-698)</td>
<td></td>
</tr>
<tr>
<td>2 hour</td>
<td></td>
</tr>
<tr>
<td>4 hour</td>
<td></td>
</tr>
<tr>
<td>8 hour</td>
<td></td>
</tr>
<tr>
<td>16 hour</td>
<td></td>
</tr>
<tr>
<td>1 day</td>
<td>700 (1.4)</td>
</tr>
<tr>
<td>3 day</td>
<td>11,000 (75.8)</td>
</tr>
<tr>
<td>7 day</td>
<td>13,500 (80.9)</td>
</tr>
<tr>
<td>14 day</td>
<td>14,000 (90.5)</td>
</tr>
<tr>
<td>28 day</td>
<td>14,000 (90.5)</td>
</tr>
</tbody>
</table>

Prior to each use of any Sika product, the user must always read and follow the warnings and instructions on the product's most current product data sheet, product label and safety data sheet which are available online at http://usa.sika.com or by calling Sika's Technical Service Department at 800.953.7452. Nothing contained in any Sika 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 data sheet, product label and safety data sheet prior to product use.

REVIEWED AND ACCEPTED
THE WILSON'S BALLARD CO.
OCT 09 2017
Compressive Modulus of Elasticity (ASTM D-695) 7 day 7.95 X 10^6 psi (5,465 MPa)

VOC Content 4.0 g/l (Av 3)

* Material cured and tested at temperatures indicated.
** See Limitations section for further information.

How to Use

Surface Preparation
Surface must be clean and sound. It may be dry or damp, but free of standing water. Remove dust, laliance, grease, scale, coating compounds, impregnations, waxes, and any other contaminants.
Preparation Work: Concrete - Should be cleaned and prepared to achieve a laliance and contamination free, open textured surface by blast cleaning or equivalent mechanical means.
Steel - Should be cleaned and prepared thoroughly by blast cleaning or other equivalent mechanical means.

Mixing
Pre-mix each component. Proportion 1 part Component 'B' to 1 part Component 'A' by volume into a clean pail or appropriately sized mixing container. Mix thoroughly for 3 minutes with Sika paddle on low-speed (400-600 rpm) drill until uniform in color. Mix only that quantity which can be used within its pot life. Prior to mixing, material should be conditioned to 65-67°F (18-20°C). To prepare an epoxy mortar, slowly add up to 1 part, by loose volume of an oven dried aggregate, to 1 part of the mixed Sikadur® 31, Hi-Mod Gel, and mix until uniform in consistency.

Application
As a structural adhesive - Apply the neat mixed Sikadur® 31, Hi-Mod Gel to the prepared substrates. Work into the substrate for positive adhesion. Ensure the bonded unit firmly is in place until the adhesive has cured. Glue line should not exceed 1/4-in. (3 mm).
To seal cracks for injection grouting - Place the neat mixed material over the crack to be pressure injected and around each injection point. Allow sufficient time to set before pressure injecting. For interior vertical and overhead patching - Place the prepared mortar in void, working the material into the prepared substrate, filling the cavity. Stir off level. Lifts should not exceed 1-in (25 mm).

As a plug-proof sealant - Use automated or manual method. Apply an appropriate size bead of mortar around the area being sealed. Seal with neat Sikadur® 31, Hi-Mod Gel.

Limitations
- THE NTSB HAS STATED THAT THIS PRODUCT IS APPROVED FOR SHORT TERM LOADS ONLY AND SHOULD NOT BE USED IN SUSTAINED TENSILE LOAD ADHESIVE ANCHoring APPLICATIONS WHERE ADHESIVE FAILURE COULD RESULT IN A PUBLIC SAFETY RISK. CONSULT A DESIGN PROFESSIONAL PRIOR TO USE.
- Components of original 2:1 mix ratio formulation of Sikadur® 31, Hi-Mod Gel cannot be re-use with components of Sikadur® 31, Hi-Mod Gel (NEW 1:1 Mix Ratio) formulation.
- Minimum substrate and ambient temperature 40°F (4°C).
- Do not thin Solvents will prevent proper cure.
- When preparing an epoxy mortar, use oven-dried aggregate only.
- Maximum epoxy mortar thickness is 1 in. (25 mm) per lift.
- Epoxy mortars for interior use only. Material is a vapor barrier after cure.
- Minimum age of concrete must be 21-28 days, depending upon curing and drying conditions, for mortar applications.
- Porous substrates must be tested for moisture-vapor transmission prior to mortar applications.
- Not for sealing cracks under hydrostatic pressure.
- Not an aesthetic product. Color may alter due to variations in lighting and/or UV exposure.

PRIOR TO EACH USE OF ANY Sika Product, the User MUST ALWAYS READ AND FOLLOW THE WARNINGS AND INSTRUCTIONS ON THE PRODUCT'S MOST CURRENT PRODUCT DATA SHEET, PRODUCT LABEL AND SAFETY DATA SHEET WHICH ARE AVAILABLE ONLINE AT HTTP://USA.SIKA.COM OR BY CALLING Sika's TECHNICAL SERVICE DEPARTMENT AT 800.653.7458. NOTHING CONTAINED IN ANY Sika 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 DATA SHEET, PRODUCT LABEL AND SAFETY DATA SHEET PRIOR TO PRODUCT USE.

Keep container tightly closed, keep out of reach of children. Not for internal combustion. 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 current Safety Data Sheet containing physical, chemical, technological and other safety-related data. Read the current Sika Safety Data Sheet before using the product. In case of emergency, call CHEMTREC at 1-800-424-9300, International 705-251-8267.

Prior to each use of any Sika product, the user must always read and follow the warnings and instructions on the product’s current Product Data Sheet which are available online at http://usa.sika.com or by calling Sika’s Technical Service Department at 800-653-7458. Nothing contained in any Sika material relieves the user of their obligation to read and follow the warnings and instructions for each Sika product as set forth in the current Product Data Sheet, product label and Safety Data Sheet prior to product use.

Sika warrants this product for one year from date of installation to be free from manufacturing defects and to meet the technical specifications on the current Product Data Sheet. This limited warranty does not affect statutory rights of the Seller and the Manufacturer. In rare cases, damage may arise due to the purchase price or replacement of products, sales, labor costs, or damage caused by circumstances beyond the Seller’s control. To the extent that Sika offers a warranty, the warranty shall not benefit the User. Sika shall not be liable under any legal theory for special, consequential or incidental damages.

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