Sikadur 31®, SBA

Segmental Bridge Adhesive, Normal Set
High-modulus, high-strength, moisture tolerant, epoxy paste adhesive

Description
Sikadur 31, SBA is a unique high-modulus 2-component, moisture-tolerant, solvent-free, epoxy resin system available in three application temperature ranges. A unique high-modulus, structural adhesive for bonding hardened concrete to hardened concrete for segmental bridge construction. The mixed material has the consistency of paste and is a concrete gray color. It conforms to the current ASTM C-881, Type VI requirements, and ASBI guidelines.

Where to Use
- Structural bonding of post-tensioned precast concrete bridge segments.
- Sealing joints between concrete segments.
- For use in segment-by-segment erection.
- Supplied in three temperature grades to meet project requirements. (For cold weather conditions, refer to separate technical data sheet on Sikadur 31, SBA [20°-45°F].)

Advantages
- Moisture tolerant before, during and after cure.
- High-modulus, high-strength, structural paste adhesive.
- Range of curing times to meet assembly and strength gain requirements.
- Easy to apply, non-sag paste for vertical applications.
- Excellent adhesion to concrete, steel and most construction materials.
- Color-coded components to ensure proper mixing control.

Coverage
Approximately 12 sq. ft./gal. or 36 sq. ft./3 gal. unit.

Packaging
3 gal. units.

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

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How to Use

Surface Preparation
Surface must be clean and sound. It may be dry or damp, but free of standing water and frost. Remove dust, laitance, grease, curing compounds, impregnations, waxes, foreign particles, disintegrated materials and any other contaminants.

Mixing
Pre-mix each component. Wear chemical resistant gloves and safety goggles. Mix all of Part 'A' with all of Part 'B'. Mix thoroughly for a minimum of 3 minutes with a low-speed (400-600 rpm) drill fitted with a mixing Sika paddle until a uniform gray color is achieved. Scrape down the sides of the mixing pail to ensure there are no streaks of unmixed epoxy before applying. Mix only that quantity which can be used within its pot life.

Application
Apply the neat mixed Sikadur 31, SBA to the concrete surface using a trowel, spatula or glove protected hand; work into surface, especially if it is damp. Spread to a thickness of 1/8" (3 mm) to one face or 1/16" (1.5 mm) on both faces, depending upon project requirements. Segments must be post-tensioned within the open time of the epoxy.

Limitations
- Do not thin Sikadur 31, SBA. Solvents will prevent proper cure.
- Use correct temperature range material for prevailing conditions.
- Use correct setting material (normal or slow) depending on method of erection.
- Not for use as an adhesive for fresh, plastic portland cement concrete or mortar.
- Lower temperatures will prolong cure time. Higher temperatures will rapidly accelerate cure time.
- Use of product outside of designated temperature range is not recommended.
- Not an aesthetic product. Color may alter due to variations in lighting and/or UV exposure.

Caution
Component 'B' - Irritant, Sensitizer: Contains amines. Contact with skin and eyes can cause severe burns. Respiratory irritant. Possible sensitization/allergic reaction with prolonged exposure. High concentrations of vapor may cause respiratory irritation. If product is sanded or abraded after curing, crystalline silica dust can be inhaled and cause delayed lung injury (silicosis). Harmful if swallowed.

The Normal Set 40°-60°F SBA contains nonylphenol. Chronic overexposure to nonylphenol may cause liver injury based on animal studies.

WARNING: THIS PRODUCT CONTAINS A CHEMICAL KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER. Deliberate concentration of vapors for inhalation is harmful and may prove fatal.

First Aid
Eyes: Hold eyelids apart and flush thoroughly with water for 15 minutes. Skin: Remove contaminated clothing. Wash skin thoroughly for 15 minutes with soap and water. Inhalation: Remove person to fresh air. Ingestion: Do not induce vomiting. In all cases, contact a physician immediately if symptoms persist.

Handling and Storage
Avoid direct contact. Wear protective equipment, chemical resistant gloves, goggles, and clothing to prevent direct contact with skin and eyes. Use with adequate general and local ventilation. In absence of adequate ventilation use properly fitted NIOSH respirator. Wash thoroughly after handling product. Remove contaminated clothing and launder before reuse. Store product in closed container in cool dry place.

Clean Up
Ventilate area. Confine spill. Collect with absorbent material, flush area with water. Dispose of in accordance with current, applicable local, state and federal regulations. Uncured material can be removed with approved solvent. Follow solvent manufacturer's instructions for use and warnings. Cured material (when combined with component 'B') can only be removed mechanically.

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

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LIMITED WARRANTY: 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 Technical Data Sheet if used as directed within shelf life. User determines suitability of product for intended use and assumes all the risks. Sika's sole remedy shall be limited to the repair or replacement of product exclusive of labor or cost of labor. NO OTHER WARRANTIES, EXPRESS OR IMPLIED SHALL APPLY, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, 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.

Regional Information and Sales Centers. For the location of your nearest Sika sales office, contact your regional center.
Sikadur® 31, SBA (20°-45°F)

Segmental Bridge Adhesive, Normal Set, Cold Weather
High-modulus, high-strength, moisture tolerant, epoxy paste adhesive

Description
Sikadur 31, SBA (20°-45°F) is a 2-component, cold weather, 100% solids, moisture-tolerant, high-modulus, high strength, structural epoxy paste adhesive for bonding hardened concrete to hardened concrete in segmental bridge construction. It conforms to the current ASTM C-881, Type VI requirements, and ASBI guidelines.

Where to Use
- Structural bonding of post-tensioned precast concrete bridge segments.
- Sealing joints between concrete segments.
- For use in segment-by-segment erection.
- Segmental bridges in cold weather temperatures 20°-45°F (-6°-7°C).

Advantages
- Moisture tolerant before, during and after cure.
- High-modulus, high-strength, structural paste adhesive.
- Curing times to meet assembly and strength gain requirements.
- Easy to apply, non-sag paste for vertical applications.
- Excellent adhesion to concrete, steel and most construction materials.
- Convenient easy to mix ratios, A:B=2:1 by volume.
- Color-coded components to ensure proper mixing control.

Coverage
Approximately 12 SF/gal. or 36 SF/3-gal. unit.

Packaging
3 gal. units.

Typical Data

| Shelf Life | 2 years in original, unopened containers |
| Storage Conditions | Store dry at 40°-95°F (4°-35°C). Condition material to 20°-45°F (-6°-7°C) before using. |
| Color | Concrete gray |
| Consistency | Non-sag paste |
| Product Name | Normal Set (20°-45°F) |
| Temp. Range | 20°-45°F (-6°-7°C) |
| Mix Ratio, A:B by volume | 2:1 |
| Pot Life (1 gallon mass) | Less than 3 minutes @ 73°F (23°C). Approximately 20 minutes @ 45°F (7°C). |
| Open Time | 60 minutes @ 45°F (7°C). |
| Compressive Strength (ASTM D-695) [conditioned at 45°F (7°C); cured at 20°F (-6°C)] | 3 day 2,000 psi, minimum (13.8 MPa) |
| | 7 day 6,000 psi, minimum (41.4 MPa) |
| Contact Strength (ASTM C-882) | 48 hours at 45°F (7°C) 1,000 psi, minimum (6.9 MPa) |
| Bond Strength (ASTM C-882): Hardened Concrete to Hardened Concrete | 2 day [moist cure @ 45°F (7°C)] 1,000 psi, minimum (6.9 MPa) |
| | 7 day [fiber stress loading = 264 psi (1.8 MPa)] 120°F (49°C), minimum |

Heat Deflection Temperature (ASTM D-648) @ 73°F (23°C) 7 day 120°F (49°C), minimum
How to Use

Surface Preparation
Surface must be clean and sound. It may be dry or damp, but free of standing water and frost. Remove dust, laitance, grease, curing compounds, impregnations, waxes, foreign particles, disintegrated materials, ice and any other contaminants.

Mixing
Pre-mix each component. Mix all of Part 'A' with all of Part 'B' until a uniform gray color is achieved. Mix thoroughly for a minimum of 3 minutes with a Sika paddle on low-speed (400-600 rpm) drill until uniform in color. Scrape down the sides of the mixing pail and ensure there are no streaks of unmixed epoxy before applying. Mix only that quantity which can be used within its pot life. Leaving the mixture of Component 'A' and 'B' in container longer than 20 minutes (pot life) will allow mixture to begin the curing process in the container. Spread mixture onto intended surface as soon as properly mixed. Leaving curing product in mixing container will affect the consistency and workability of the adhesive.

Application
Apply the neat mixed Sikadur 31, SBA to the concrete surface using a trowel, spatula or glove protected hand. Spread to a thickness of 1/8" (3 mm) to one face or 1/16" (1.5 mm) to both faces, depending upon project requirements. Segments must be post-tensioned within the open time of the epoxy.

Limitations
- Mixed material must be applied within the specified pot life.
- Do not thin Sikadur 31, SBA. Solvents will prevent proper cure.
- Use correct temperature range material for prevailing conditions.
- Use correct setting material (normal or slow) depending on method of erection.
- Not for use as an adhesive for fresh, plastic portland cement concrete or mortar.
- Not an aesthetic product. Color may alter due to variations in lighting and/or UV exposure.
- Do not apply onto concrete if frost is present.
- Do not use in temperatures greater than 45°F (7°C). Pot life, open time and consistency will be greatly affected.

Caution

Component 'A' - Irritant; Sensitizer - Contains epoxy resins. Can cause skin sensitization after prolonged or repeated contact. Skin and eye irritant. Avoid skin contact. High concentrations of vapor may cause respiratory irritation. Chronic overexposure to nonyl phenol may cause liver injury, based on animal studies. Use only with adequate ventilation. Use of safety goggles and chemical resistant gloves is recommended. Remove contaminated clothing.

Component 'B' - Corrosive; Sensitizer - Contains amines. Contact with eyes or skin may cause severe burns. Can cause skin and/or respiratory sensitization after prolonged or repeated contact. High concentrations of vapor may cause respiratory irritation. Avoid skin contact. Use only with adequate ventilation. Use of safety goggles and chemical resistant gloves is recommended. In case of exceedence of PELs, use an appropriate, properly fitted NIOSH approved respirator. Remove contaminated clothing.

First Aid

Eyes: Hold eyelids apart and flush thoroughly with water for 15 minutes. Skin: Remove contaminated clothing. Wash skin thoroughly for 15 minutes with soap and water. Inhalation: Remove person to fresh air. Ingestion: Do not induce vomiting. In all cases, contact a physician immediately if symptoms persist.

Clean Up
In case of spills or leaks, wear suitable protective equipment, contain spill, collect with absorbent material and transfer to suitable container. Ventilate area. Avoid contact. Dispose of in accordance with current, applicable local, state and federal regulations.

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Sikadur® 31, SBA Slow-Set

Segmental Bridge Adhesive
High-modulus, high-strength, moisture tolerant, epoxy paste adhesive

Description
Sikadur 31, SBA Slow-Set is a unique high-modulus 2-component, moisture-tolerant, solvent-free, epoxy-resin system available in three application temperature ranges. A unique high-modulus, structural adhesive for bonding hardened concrete to hardened concrete for segmental bridge construction. The mixed material has the consistency of paste and is a concrete gray color. It conforms to the current ASTM C-881, Type VII requirements, and ASBI guidelines.

Where to Use
- Structural bonding of post-tensioned precast concrete bridge segments.
- Sealing joints between concrete segments.
- Slow-set version for span-by-span erection.
- Supplied in three temperature grades to meet project requirements.

Advantages
- Moisture tolerant before, during and after cure.
- High-modulus, high-strength, structural paste adhesive.
- Range of curing times to meet assembly and strength gain requirements.
- Easy to apply, non-sag paste for vertical applications.
- Excellent adhesion to concrete, steel and most construction materials.
- Convenient easy to mix ratios.
- Color-coded components to ensure proper mixing control.

Coverage
Approximately 12 sq. ft./gal. or 36 sq. ft./3 gal. unit.

Packaging
3 gal. units.

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

| Shelf Life | 2 years in original, unopened containers. |
| Storage Conditions | Store dry at 40°-95°F (4°-35°C). Condition material to 70°-75°F (21°-24°C) before using. |
| Color | Concrete gray. |
| Consistency | Non-sag paste. |

| Product Name | Temp. Range | Mix Ratio, A:B by Volume |
| Slow Set (40°-61°F) | 40°-61°F (4°-16°C) | 2:1 |
| Slow Set (55°-75°F) | 55°-75°F (13°-24°C) | 2:1 |
| Slow Set (70°-90°F) | 70°-90°F (21°-32°C) | 2:1 |

| Property | SBA SS 40°-61°F | SBA SS 55°-75°F | SBA SS 70°-90°F |
| Pot life, 1 gallon | 2 hours | 2 hours | 2 hours |
| Compressive Strength 36 hr., psi | 2000 | 4000 | 8500 |
| 72 hr., psi | 7000 | 7000 | 9500 |
| Open Time Contact strength after open time, 14 day, psi | 8 hours - 2100 | 8 hours - 2250 | 8 hours - 2250 |
| Bond strength, 14 day, psi | 2000 | 2200 | 3000 |
| Heat deflection Temp., °F | 122 | 124 | 124 |
How to Use

Surface Preparation
Surface must be clean and sound. It may be dry or damp, but free of standing water and frost. Remove dust, laitance, grease, curing compounds, impregnations, waxes, foreign particles, disintegrated materials and any other contaminants.

Mixing
Pre-mix each component. Wear chemical resistant gloves and safety goggles. Mix all of Part 'A' with all of Part 'B'. Mix thoroughly for a minimum of 3 minutes with a low-speed (400-600 rpm) drill fitted with a mixing Sika paddle until a uniform gray color is achieved. Scrape down the sides of the mixing pail and ensure there are no streaks of unmixed epoxy before applying. Mix only that quantity which can be used within its pot life.

Application
Apply the neat mixed Sikadur 31, SBA Slow-Set to the concrete surface using a trowel, spatula, or glove protected hand; work into surface especially if it is damp. Spread to a thickness of 1/8” (3 mm) to one face or 1/16” (1.5 mm) on both faces, depending upon project requirements. Segments must be post-tensioned within the open time of the epoxy.

Limitations
- Do not thin Sikadur 31, SBA Slow-Set. Solvents will prevent proper cure.
- Use correct temperature range material for prevailing conditions.
- Use correct setting material (normal or slow) depending upon method of erection.
- Not for use as an adhesive for fresh, plastic, Portland cement concrete or mortar.
- Lower temperatures will prolong cure time. Higher temperatures will rapidly accelerate cure time.
- Use of product outside of designated temperature range is not recommended.
- Not an aesthetic product. Color may alter due to variations in lighting and/or UV exposure.

Caution
Component 'B' - Irritant, Sensitizer: Contains amines. Contact with skin and eyes can cause severe burns. Respiratory irritant. Possible sensitization/allergic reaction with prolonged exposure. High concentrations of vapor may cause respiratory irritation. If product is sanded or abraded after curing, crystalline silica dust can be inhaled and cause delayed lung injury (silicosis). Harmful if swallowed.

Slow Set 55-75F contains nonylphenol. Chronic overexposure to nonylphenol may cause liver injury based on animal studies.

WARNING: THIS PRODUCT CONTAINS A CHEMICAL KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER.
Deliberate concentration of vapors for inhalation is harmful and may prove fatal.

First Aid
Eyes: Hold eyelids apart and flush thoroughly with water for 15 minutes. Skin: Remove contaminated clothing. Wash skin thoroughly for 15 minutes with soap and water. Inhalation: Remove person to fresh air. Ingestion: Do not induce vomiting. In all cases, contact a physician immediately if symptoms persist.

Handling and Storage
Avoid direct contact. Wear protective equipment, chemical resistant gloves, goggles, and clothing to prevent direct contact with skin and eyes. Use with adequate general and local ventilation. In absence of adequate ventilation use properly fitted NIOSH respirator. Wash thoroughly after handling product. Remove contaminated clothing and launder before reuse. Store product in closed container in cool dry place.

Clean Up
(Material Spills). Ventilate area. Confine spill. Collect with absorbent material, flush area with water. Dispose of in accordance with current, applicable local, state, and federal regulations. Uncured material can be removed with approved solvent. Follow solvent manufacturer's instructions for use and warnings. Cured material (when combined with component 'B') can only be removed mechanically.