



PRODUCT DATA SHEET

Sikadur[®]-59 EPC

Epoxy Polymer concrete system

PRODUCT DESCRIPTION

Sikadur[®]-59 EPC is an epoxy polymer-based overlay, nosing, and patching material that is designed to be used in durable bridge deck and roadway repair systems.

USES

Sikadur[®]-59 EPC may only be used by experienced professionals.

- Above grade concrete conditions
- Highway overlay and repairs
- Structural repair material for concrete roadways, highways, and bridges
- Nosing, patching, or overlay material

CHARACTERISTICS / ADVANTAGES

- High early strength
- Fast curing: Return to traffic in as little as 3 hours
- Low viscosity resin for easy mixing
- Convenient and easy Sikadur[®]-59 EPC resin mix ratio A:B = 2:1 by volume
- Customizable resin load range of 12-14% by weight
- 100% solids/reactive formula
- Resistant to chlorides
- Excellent finishing and sealing characteristics
- Superior abrasion resistance to vehicular traffic
- Superior adhesion to Portland cement concrete, latex modified concrete, and silica fume concrete
- Improved friction values
- Excellent bauxite embedment at 14% resin load for high friction surface treatment (HFST) applications

PRODUCT INFORMATION

| Packaging | Component | Packaging |
|------------|----------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------|
| | Sikadur [®] -59 EPC Resin (2A+B) | 3 gal kit 150 gal drum kit 990 gal tote kit |
| | Sikadur [®] -59 EPC Sand Blend | 50 lb bag, 2000 lb super sack, 3000 lb super sack, 4000 lb super sack |
| | Sikadur [®] -59 EPC Stone Blend | 50 lb bag, 2000 lb super sack, 3000 lb super sack, 4000 lb super sack |
| | Sikadur [®] -59 EPC Broadcast Sand | 50 lb bag |
| Color | Sikadur [®] -59 EPC Resin mixed (2A+B) | Amber |
| | Sikadur [®] -59 EPC Aggregate | Tan |
| Shelf Life | 24 months in original, unopened packaging. At elevated temperatures, shelf life will be greatly reduced. | |

| | | | |
|-----------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|--------------------------------------------------|
| Storage Conditions | Sikadur®-59 EPC components should be stored in a cool, dry location at temperatures between 40°-95°F(4-35°C). Keep components in their original, unopened containers. Keep out of direct sunlight, away from moisture, and protect from freezing. Condition material to 65-85°F(18-29°C) before use. | | |
| Density | Specific Gravity (Mixed @ 12% resin) | 1.04 g/ml | (ASTM D-1475) |
| | Specific Gravity (Resin 2A+B) | 8.98 lb/gal | |
| Viscosity | Approximately 140 cps | | (ASTM D-2196) Resin only |
| Shore D Hardness | 7 days | 71 | (ASTM D-2240) 73°F(23°C), 50% RH |
| Compressive Strength | 2 days | > 8,000 psi (55.2 MPa) | (ASTM C-579) |
| | 14 days | > 10,000 psi (69.0 MPa) | 73°F(23°C), 50% RH |
| Flexural Strength | 7 days | > 3,000 psi (20.7 MPa) | (ASTM C-580) 73°F(23°C), 50% RH |
| Modulus of Elasticity in Flexure | 7 days | > 800,000 psi (5.52 GPa) | (ASTM C-580) 73°F(23°C), 50% RH |
| Tensile Strength | 7 days | > 2,800 psi (19.3 MPa) | (ASTM D-638) Resin only 73°F(23°C), 50% RH |
| Elongation at Break | 7 days | ~35% | (ASTM D-638) Resin only 73°F(23°C), 50% RH |
| Tensile Adhesion Strength | 7 days | > 700 psi (4.82 MPa) | (CTM-551) 73°F(23°C), 50% RH |
| | Adhesion to Concrete 24 hrs | > 400 psi (2.76 MPa) 100% substrate failure | (ASTM D-4541) 73°F(23°C), 50% RH |
| | Adhesion to Steel 7 days | > 800 psi (5.52 MPa) | |
| Slant Shear Strength | 2 day | > 2,000 psi (13.8 MPa) | Slant Shear (ASTM C-882) |
| | 14 day | > 2,300 psi (15.9 MPa) | 73°F(23°C), 50% RH |
| Shrinkage | < 0.005 in. | | (ASTM D-2566) 73°F(23°C), 50% RH |
| Water Absorption | 24 hr immersion | < 1% | (ASTM D-570) |
| Design Considerations | Patches can be filled to 3" depth and more. Deep areas up to 5' x 5' can be applied without normally impacting stiffness of the bridge deck. Design engineers should consider the semi-rigid nature of Epoxy Polymer Concrete in those calculations. If design factors require a rigid patch system, utilize high alumina concrete patch systems. Properly placed high alumina concrete patch systems may be overlaid with Sikadur®-59 EPC 24 hours after placement. | | |
| Mixing Ratio | Sikadur®-59 EPC Component 'A' : Component 'B'= 2:1 by volume Resin with Aggregate: 12-14% by weight* | | |

Example Batch @ 13% Resin

| | |
|------------------------------|---------------------|
| Sikadur®-59 EPC Resin (2A+B) | 3 gallons (11.3 L) |
| Sikadur®-59 EPC Sand Blend | ~ 150 lbs (68.2 kg) |
| Sikadur®-59 EPC Stone Blend | ~ 75 lbs (34.1 kg) |

*While resin to aggregate ratio can range from 12-14%, 13% is recommended for optimal handling and finishing characteristics

| | | |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------|
| Coverage | Sikadur®-59 EPC @ 12% resin | 0.63 ft ³ /gal |
| | Sikadur®-59 EPC @ 13% resin | 0.57 ft ³ /gal |
| | Sikadur®-59 EPC @ 14% resin | 0.53 ft ³ /gal |
| Yield is dependent on resin load. Allowance must be made for surface profile, unavoidable variation in applied film thickness, loss, and waste. Tined concrete, cracks, spalls, and pop offs will consume more material. | | |
| Layer Thickness | 3/4" minimum. Contact Sika Technical services for deep pours greater than 6". | |
| Ambient Air Temperature | Minimum ambient air temperature of 40°F(4°C). Maximum ambient air temperature of 110°F(43°C). | |
| Substrate Temperature | Minimum substrate temperature of 40°F(4°C). Maximum substrate temperature of 110°F(43°C). | |
| Pot Life | 30 minutes (60 g mass) | (ASTM C-881) Resin only 73°F(23°C), 50% RH |
| Applied Product Ready for Use | Sikadur®-59 EPC has a return to traffic time of approximately 3 hours. Traffic time will differ slightly depending on temperature and humidity conditions. | |

SUBSTRATE QUALITY

Concrete Overlay: Surface must be clean, sound, and dry prior to application. Remove dust, laitance, grease, asphalt, curing compounds, impregnations, and waxes to expose the aggregate of the concrete deck surface. Shot-blasting, sandblasting, scarifying, chipping, or other cleaning processes (ICRI CSP 5-9) are required to provide proper surface preparation for polymer overlay. Unsound concrete areas should be located and repaired prior to application.

Patching/Nosing: Surface must be clean, sound, and dry prior to application. Remove dust, laitance, grease, asphalt, curing compounds, impregnations, and waxes to expose the aggregate of the concrete deck surface. Shot-blasting, sandblasting, scarifying, chipping, or other cleaning processes are required to provide proper surface preparation for polymer overlay. Unsound concrete areas should be located and repaired prior to application.

SUBSTRATE PREPARATION

Concrete - Should be cleaned and prepared to achieve a laitance and contaminant free, open textured surface CSP 5-9 by blast cleaning or equivalent mechanical means.

Steel - Should be cleaned and prepared thoroughly by blast cleaning to white metal finish

MIXING

Mixing can be performed using a mortar mixer or volumetric mixing truck. For a 9 cubic foot mortar mixer, add 2 gallons of Sikadur®-59 EPC Part A and 1 gallon of Sikadur®-59 EPC Part B to maintain a ratio of 2:1 by volume for Sikadur®-59 EPC resin. Allow to mix for approximately 3 min. Once resin is sufficiently mixed and mortar mixer is turning, add 3 X 50 lb bags of Sikadur®-59 EPC Sand Blend and approximately 1.5 X 50 lb bags of Sikadur®-59 EPC Stone Blend to the mixed resin to maintain an aggregate ratio of 2:1 sand to stone blend by weight. While the resin to aggregate ratio can be anywhere from 12-14% resin, 13% resin is recommended for optimal finishing characteristics of overlay. Mix until aggregate is fully wet out. Dump mixed overlay/patching compound into a wheelbarrow to transport to application area. Immediately recharge mixer with proper volume of Sikadur®-59 EPC. Continue mixing procedure ONLY if crew is ready for another mix.

Temperature and application timing have a definite effect upon set time of the epoxy concrete and the ultimate return to service. For any alterations to the mix design please consult Sika Technical Services.

Volumetric mixers may also be utilized for high output applications. The utilization of volumetric equipment is highly recommended for large overlay projects requiring rapid return to service.

APPLICATION METHOD / TOOLS

Once the Sikadur®-59 EPC is mixed it should be immediately placed onto the bridge deck. For 12% resin loads, the use of Sikadur®-57 Lo-Mod LV as a primer is recommended. If primer is needed, apply Sikadur®-57 Lo-Mod LV as a neat resin prior to application. Refer to the Sikadur®-57 Lo-Mod LV product data sheet for use. Sikadur®-59 EPC should only be applied onto primed substrates while the primer is still wet. For large areas, a vibratory screed or slip form paving machine can be used while hand finishing concrete tools can be utilized for smaller patches. After the Sikadur®-59 EPC is compacted and finished, broadcast topping sand at a rate of 1-1.5 lbs/ sq.ft. and provide mechanical texture using spring steel tines. Typically, tines are 1/8" deep at a frequency of 3/4"-1". Typical working time is approximately 30-45 minutes.

CLEANING OF TOOLS

Once application is complete, mixers can be cleaned using appropriate solvents (e.g. Acetone, MEK, or Xylene) prior to cure. Adding additional stone to solvent will aid in cleaning of any hardening material. Hardened epoxy can only be removed using mechanical means.

LIMITATIONS

- Minimum substrate and ambient temperature 40°F (4°C) and rising.
- At elevated temperatures, shelf life of Sikadur®-59 EPC resin will be greatly reduced. Consider a night time application for warmer climate regions.
- Minimum age of concrete prior to the application is 14 days, depending on curing and drying conditions.
- Moisture content must be below 5%.
- Do not use Sikadur®-59 EPC at relative humidity > 90% or if rain is forecasted within the specified rain resistance period.
- Provide supplemental heat and protection from precipitation as needed.
- Allow substrate sufficient time to dry after rain or other inclement conditions.
- Product must be protected from freezing, if frozen discard.
- Use only on surfaces that are sound, clean, dry, and free from any residue that might affect the ability of the Sikadur®-59 EPC to bond to the substrate.
- For overlay depths over 6", contact Sika Technical Services.
- Refer to Sikadur®-57 Lo-Mod LV product data sheet for

- use as an epoxy primer.
- It is recommended to perform a small-scale mock up of Sikadur®-59 EPC prior to installation.
- Do not thin. Addition of solvents will prevent proper cure.
- Material is a vapor barrier after cure.
- Not recommended for use on asphalt.
- Not recommended for roofing.
- For horizontal applications only.

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.

OTHER RESTRICTIONS

See Legal Disclaimer.

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.

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 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.**

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 1-800-933-7452.

Sika Corporation

201 Polito Avenue
Lyndhurst, NJ 07071
Phone: +1-800-933-7452
Fax: +1-201-933-6225
usa.sika.com

Sika Mexicana S.A. de C.V.

Carretera Libre Celaya Km. 8.5
Fracc. Industrial Balvanera
Corregidora, Queretaro
C.P. 76920
Phone: 52 442 2385800
Fax: 52 442 2250537



Product Data Sheet

Sikadur®-59 EPC
May 2020, Version 01.01
020202010010000088

Sikadur-59EPC-en-US-(05-2020)-1-1.pdf

