BUILDING TRUST

PRODUCT DATA SHEET

Sikadur® Crack Repair Kit

Concrete crack repair system

PRODUCT DESCRIPTION

Sikadur® Crack Repair Kit is a two multicomponent, low viscosity, fast curing, epoxy sealing system for the repair of cracks that occur in solid concrete and solid masonry substrates.

USES

Sikadur® Crack Repair Kit may only be used by experienced professionals.

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- For manual, low pressure injection of horizontal flat and/or vertical static cracksin solid concrete, solid masonry, wood, etc.
- For gravity feed of static cracks (using the Sikadur® Injection Resin component only) in horizontal flat concrete, solid masonry, wood, etc.
- For the sealing of minor, static surface cracks, voids or gaps (using the Sikadur® Capseal component only) in horizontal flat, vertical and/or overhead surfaces in concrete, masonry, wood, etc.
- As a flowable, liquid epoxy grout to fill thin voids below baseplates

CHARACTERISTICS / ADVANTAGES

- Convenient easy to use, single tube cartridges that fit standard caulk guns
- Easily mixed when dispensed through flow restrictor (needed for the Sikadur® Injection Resin component only) and static mixers
- Up to three times stronger than existing concrete when cured
- Penetrating and bonding of cracks in concrete when injected (reference: ACI Rap Bulletin 1)
- Excellent for notch and fill, isolated crack repair by gravity feed method using the Sikadur® Injection Resin component (reference: ACI Rap Bulletin 2)
- Early strength developing adhesives for “can’t dry” surfaces (i.e. tolerates dampness with no standing water present)
- Excellent chemical resistance; prevents chloride ion intrusion and further water absorption when cured
- Prolongs life of cracked concrete elements

APPROVALS / STANDARDS

Sikadur® Injection Resin conforms to the current requirements of ASTM C881 / M 235, Types I and II, Grade 1, Class C.*
* except for Gel Time and Slant Shear (Bond) Strength

PRODUCT INFORMATION

Packaging

Kit contents:
- Sikadur® Capseal 300 ml cartridge (2 pcs)
- Sikadur® Injection Resin 250 ml cartridge (2 pcs)
- Sikadur® Capsealr mixer nozzle (2 pcs)
- Sikadur® Capseal applicator fan (2 pcs)
- Cartridge flow restrictor (2 pcs)
- Sikadur® Injection Resin mixer nozzle with extended tube (2 pcs)
- Push fit connector (1 pc)

- Injection ports (16 pcs)
- Pair of gloves (2 pcs)
- Wooden applicator (Spatula) (2 pcs)

Shelf Life	18 months from date of production if stored properly in original, unopened and undamaged, sealed packaging.
Storage Conditions	Store in cool, dry, well ventilated conditions, out of direct sunlight at 40 - 75°F (4 - 24 °C).

Color	Sikadur® Capseal (Parts A+B mixed)	Concrete grey
	Sikadur® Injection Resin (Parts A+B mixed)	Transparent / Amber
Density	Sikadur® Capseal (A+B mixed)	~1.6 g/cm³
	Sikadur® Injection Resin (A+B mixed)	~1.1 g/cm³
Viscosity	Sikadur® Capseal (A+B mixed)	Non-sag Consistency
	Sikadur® Injection Resin (A+B mixed)	~500 cps (0.500 Pa-sec)

TECHNICAL INFORMATION

Compressive Strength

Sikadur® Injection Resin (ASTM D695)

Time	Temperature		
	+40°F (5°C)	+68°F (20°C)	+95°F (35°C)
4 hours			500 psi (3.4 MPa)
8 hours			2000 psi (13.7 MPa)
16 hours		2000 psi (13.7 MPa)	3500 psi (24.1 MPa)
1 day		3000 psi (20.7 MPa)	5000 psi (34.5 MPa)
3 days	1500 psi (10.3 MPa)	8500 psi (58.6 MPa)	5500 psi (37.9 MPa)
7 days	6500 psi (44.8 MPa)	9000 psi (62.1 MPa)	7000 psi (48.3 MPa)
14 days	7500 psi (51.7 MPa)	9500 psi (65.5 MPa)	7500 psi (57.7 MPa)
28 days	9000 psi (62.1 MPa)	10,000 psi (68.9 MPa)	10,000 psi (68.9 MPa)

Product cured and tested at temperatures indicated in table. Test specimen size: 1/2" × 1/2" × 1"

Modulus of Elasticity in Compression	200,000 psi	(ASTM D 695)
Tensile Strength	6,000 psi	(ASTM D 638)
Elongation at Break	25 %	(ASTM D 638)
Heat deflection temperature	~110 ° F (~43 °C)	(ASTM D 648)
Water Absorption	0.24 %	(ASTM D 570)

APPLICATION INFORMATION

Mixing Ratio	Sikadur® Capseal	Part A : Part B = 10:1
	Sikadur® Injection Resin	Part A : Part B = 1:1

Coverage	Sikadur® Capseal: Placed at 1 inch (25 mm) wide x 1/8 inch (3 mm) thick yields approximately 10 linear feet (3 linear meters) per cartridge* Sikadur® Injection Resin: Injected or gravity fed into a 1/8 inch (3 mm) wide (3 mm) wide x 1 inch (25 mm) deep crack yields approximately 10 linear feet (3 linear meters) per cartridge* (1) Sikadur® Crack Repair Kit kit typically repairs approximately 15 to 20 linear feet (4.5 to 6.0 linear meters) of cracked concrete.* * Estimates based on theoretical calculation. Actual field coverage rates may vary based on actual concrete conditions.

Layer Thickness	Sikadur® Capseal	5/16" (8 mm)
	Sikadur® Injection Resin	1/32" - 1/4" (0.1–6 mm)

Sag Flow	Sikadur® Capseal (A+B mixed)	Non-sag, including overhead
	Sikadur® Injection Resin (A+B mixed)	Liquid

Product Temperature	Condition cartridges to 65 - 75 °F (18 - 24 °C) before set-up and mixing / dispensing.
Ambient Air Temperature	40 °F (4 °C) minimum / 95 °F (35 °C) maximum
Dew Point	Beware of surface condensation! To avoid dew point conditions during application, substrate temperature must be at least 5 °F (3 °C) above measured dew point temperature.
Substrate Temperature	40 °F (4 °C) minimum / 95 °F (35 °C) maximum

Cure Time

Sikadur® Capseal

Temperature	Open time - T_{gel}	Curing time - T_{cur} (Injection Time)
+86 °F (30 °C)	4 minutes	30 minutes
+77 °F (25 °C)	5 minutes	40 minutes
+68 °F (20 °C)	6 minutes	50 minutes
+50 °F (10 °C)	10 minutes	85 minutes
+41 °F (5 °C)	18 minutes	145 minutes

Sikadur® Injection Resin

Temperature	Open time - T_{gel}	Peel-off time (Capseal removal)	Curing time - T_{cur}
+86 °F (30 °C)	20 minutes	3 hours	12 hours
+68 °F (20 °C)	30 minutes	6 hours	24 hours
+41 °F (5 °C)	2 hours	18 hours	72 hours

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.

LIMITATIONS

- Minimum recommended ambient and substrate temperature is 40 °F (4 °C).
- Maximum recommended ambient and substrate temperature is 95 °F (35 °C).
- Avoid application in direct sunlight, during precipitation and/or when high winds prevail.
- Not for treating cracks under hydrostatic pressure (i.e. actively leaking or with the presence of standing water) at time of installation. Do not apply over wet, glistening surfaces.
- Do not gravity feed or inject cracks greater than 1/4 inch (6 mm) wide. Contact Sika's Technical Services Department.
- Preferred minimum age of concrete is 21 - 28

days, depending on curing and drying conditions.
- Use fine oven dried aggregate only for filling cracks greater than 1/8 inch (3 mm) wide prior to gravityfeed, and to seed (i.e. broadcast). When following up with another construction product or creating slip resistance, sprinkle or broadcast fine oven dried aggregate only.
- Not for use in dynamic (i.e. moving; expanding and contracting) cracks or joints.
- Not an aesthetic product. Blotchy and hazy appearances may develop. Color may alter due to variations in lighting and/or UV exposure.
- The Sikadur® Injection Resin cartridge is a uniquely designed package. It stores two liquid epoxy components withina single tube and fits standard caulk gun dispensers. Be aware this cartridge does not behave identically totypical sealant caulk tubes. As the installer dispenses the mixed epoxy, there will be a point approximately half way into the length of the cartridge where the caulk gun will no longer advance. At this point, the contents of the cartridge have been exhausted. To avoid damage to the caulk gun, make no
further attempt to force additional epoxy out.
- Occasionally actual concrete crack conditions will result in an imbalance where the Sikadur® Crack Repair Kit kit does not include enough Sikadur® Injection Resin to complete the installation. It is permissible to use cartridges of Sikadur® Crack Fix [PRO SELECT) to continue an injection procedure provided the tip of the static mixer is pressed directly into the injection port. The static mixer for the Sikadur® Crack Fix [PRO SELECT] cartridge will not permit secure attachment to the Sikadur® Crack Repair Kit Push Fit Connector. For additional information, please consult the current Product Data Sheet for Sikadur® Crack Fix [PRO SELECT] cartridges.
- Beyond 48 hours of cure time and based on actual temperature and relative humidity conditions, the cured surfaces of Sikadur® Injection Resin and/or Sikadur® Capseal tend to develop an amine blush (i.e. a slight oily residue). Amine blush may prevent Sikadur®
Injection Resin and/or Sikadur® Capseal from bonding to itself, and/orprevent adhesion by a follow-up construction product (e.g. protective coating, cementitious mortar, etc.). To avoid additional Substrate Preparation, after a gravity feed installation of Sikadur Injection Resin, seed, sprinkle or broadcast oven dried aggregate onto the wetted surface while the adhesive is still tacky and uncured.
After cure, remove unadhered aggregate before proceeding with follow-up construction product installation. Otherwise, cured Sikadur® Injection Resin and/or Sikadur® Capseal surfaces may require light mechanical abrasion (e.g. sanding, screening, etc.) and/or a solvent wipe (i.e. dampening a clean, white cloth with an approved solvent mentioned in the Cleaning Equipment section of this document). Contact Sika's Technical Services Department for additional information.
- **NOT FOR USE AS AN ANCHORING ADHESIVE.**

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.

APPLICATION INSTRUCTIONS

General:

- Surfaces must be clean, sound, dust-free and as dry as possible. Surfaces may be damp, but freeof standing water and frost.
- Remove dust, laitance, grease, oil, tar, curing compounds, impregnations, waxes, loosely adhering bond inhibiting foreign particles, disintegrated materials and all other contaminants.
- If a wet method of substrate preparation is considered, allow surfaces to thoroughly dry for a minimum 24 to 48 hours.
- Mask off and protect any adjacent surfaces that should not receive contact with Sikadur® Capseal or Sikadur® Injection Resin.

Solid Concrete, Solid Masonry:

Pressure Injection of static (i.e. nonmoving) cracks

- Cracked substrate must be solid and not allow Sikadur® Injection Resin to pass through its thicknessand/or escape when injected.
- Mechanically prepare (i.e. roughen; profile to a minimum ICRI CSP-2 to CSP-3) surfaces using a wire brush, abrasive grinder or similar.
- Remove dust, standing water and obstructions visible within the crack void using brushes, a wet/dry vacuum and/or oil free compressed air.
- After injection ports are mounted and cap seal gel adhesive is sufficiently cured, use oil free compressed air to force any standing water that may be present out of the crack void. Start at injection port locatedat the highest elevation to force standing water downward and out of lower injection ports.

Gravity Feed of static (i.e. nonmoving) cracks

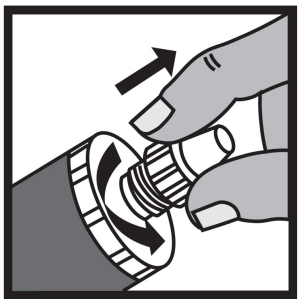
- Cracked substrate must be solid and not allow Sikadur® Injection Resin to pass through its thicknessand/or escape when gravity fed.
- Notch cracks open to approximately 1/8 inch (3 mm) wide by 1/8 inch (3 mm) deep minimum. Do not exceed 1/4 inch (6 mm) wide by 1/4 inch (6 mm) deep maximum.
- Remove dust, standing water and obstructions visible within the crack void using brushes,a wet/dry vacuum and/or oil free compressed air.

SUBSTRATE QUALITY

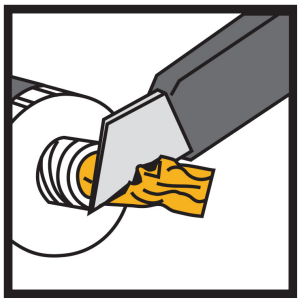
- Minimum age of concrete must be 21–28 days, depending on curing and drying conditions.
- Substrate surfaces along the line of the crack required for the Sikadur® Capseal, must be sound, clean and dry. Free from standing water, ice, dirt, oil, grease, coatings, laitance, efflorescence, old surface treatments, all loose particles and any other surface contaminants that could affect adhesion of the injection ports.
- Cracks must be clean. Horizontal cracks, which are filled by the 'gravity feed' technique, should be v-notched along the entire crack length with grinding equipment.

MIXING

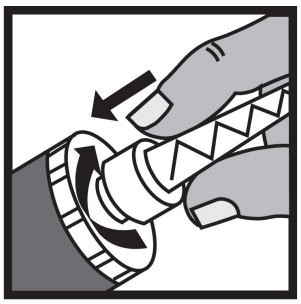
Preparing the Sikadur® Capseal Cartridge



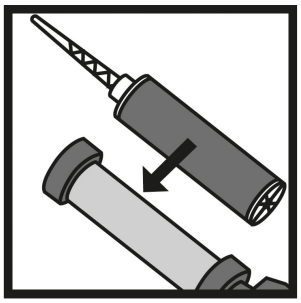
1. Unscrew and remove the cap



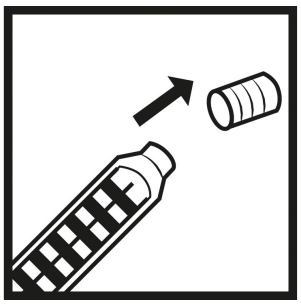
2. Cut the end off the protective film



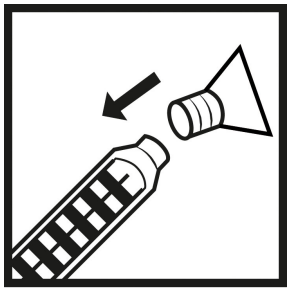
3. Screw on the square mixing nozzle



4. Place the cartridge into the application gun ready for use. Pump gun until both resin parts are extruded as one mixed consistent colour. Do not use unmixed material.



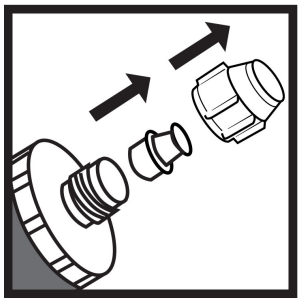
5. After bonding on the injection ports, remove the tip from the static mixing nozzle



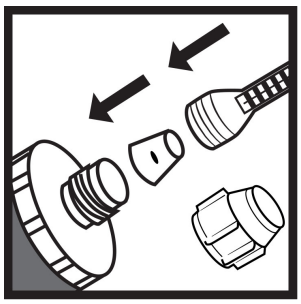
6. Fit the applicator fan onto the square mixing nozzle then start the crack sealing application.

Note: When the work is interrupted, the square mixing nozzle can remain on the cartridge after the gun pressure has been released. If the resin has hardened in the nozzle when work is resumed, a new square mixing nozzle must be attached.

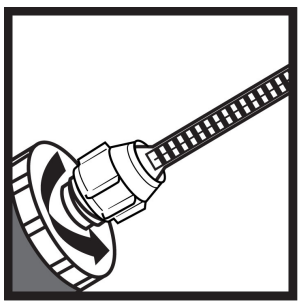
Preparing the Sikadur® Injection Resin cartridge



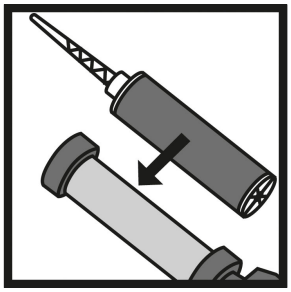
1. Unscrew the screwcap (do not throw away) and remove the plug from the cartridge outlet



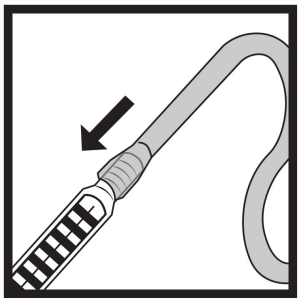
2. Fit the cartridge outlet plug into the cartridge then place injection resin mixer nozzle onto the cartridge



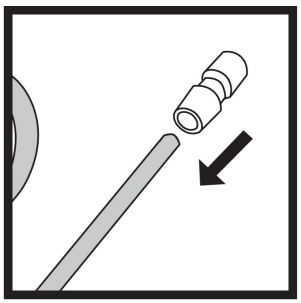
3. Slide the screwcap over the injection resin mixer nozzle and screw onto the cartridge



4. Place the Sikadur® Injection Resin cartridge into the application gun ready for use



5. Fit the flexible extension hose onto the injection resin mixer nozzle



6. Fit push fit connector onto the hose. Pump gun until both resin parts are extruded as one mixed consistent colour. Do not use unmixed material. Place connector over an injection port and start the injection application.

APPLICATION METHOD / TOOLS

Important: The Sikadur® Injection Resin is specially designed to flow into all areas of a crack and small fissures. When using the product in very porous substrates, it is likely to be absorbed by the substrate. This may result in a loss of volume of the resin in the crack, leading to an under filled crack.
Note: The distance between the injection ports is generally greater than the estimated depth of the crack (typically 1,5 times).

Vertical cracks (walls, columns, beams)

Crack sealing

1. Apply Sikadur® Capseal to the base of the injection ports. Perforations in the packaging box can be used to hold the injection ports.
2. Bond the injection ports onto the prepared substrate. Make sure the port positioning needle is inserted into the crack.
3. Apply the Sikadur® Capseal over the crack between the injection ports. Use wooden applicator to smooth surface and close any voids which could cause leaking of the resin during application.

Injection

1. Allow Sikadur® Capseal to cure. Refer to the curing table on the cartridge.
2. Inject resin into the first (lower) port. When resin begins to flow from the adjacent port, close off the first port and disconnect the injection cartridge hose.
3. Reconnect injection cartridge hose to the second port
4. Inject resin until resin starts to flow from the third port.
5. Repeat the process working along the length of the crack until the complete crack has been injected.
6. Allow Sikadur® Injection Resin to cure. Refer to the curing table.
7. If necessary, remove the injection ports and crack sealer with grinder or similar equipment.
8. Fill any holes or voids with Sikadur® or SikaQuick® repair products.

Horizontal cracks (floors, slabs etc)

Important: If the crack extends through the substrate, if possible, seal the underside of the substrate with Sikadur® Capseal before filling the crack with Sikadur® Injection Resin.
Note: The crack seal and injection ports may not be required for this application as the resin could be introduced into the crack by the 'gravity feed' technique.

Option 1: Injection

1. Allow Sikadur® Capseal to cure. Refer to the curing table.
2. Inject resin into the first port. When resin begins to flow from the adjacent port, close off the first port and disconnect the injection cartridge hose.
3. Reconnect injection cartridge hose to the second port
4. Inject resin until resin starts to flow from the third port.
5. Repeat the process working along the length of the crack until the complete crack has been injected.
6. Allow Sikadur® Injection Resin to cure. Refer to the curing table on the cartridge.
7. If necessary, remove the injection ports and crack sealer with grinder or similar equipment.
8. Fill any holes or voids with Sikadur® or SikaQuick® repair products.

Option 2: Gravity feed

1. Pour the injection resin slowly into the vee-notched crack.
2. Continue filling until crack is completely filled.
3. Fill the vee-notch if not completely filled with resin using Sikadur® or SikaQuick® repair products

OTHER RESTRICTIONS

See Legal Disclaimer.

LEGAL DISCLAIMER

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

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