

Sonneborn®

Concrete Repair Systems



SONOCRETE® **EPOGEL™**

High-strength, high-modulus, nonsag epoxy gel adhesive



Where to Use EpoGel™

- Sealing cracks and setting injection ports before pressure injection
- Grouting bolts and pins in horizontal and overhead applications
- Grouting horizontal, vertical, and overhead cracks in static (non-moving) structural concrete
- Structural adhesive for concrete and masonry
- As a pickproof material around windows, doors, lock-ups in prisons and detention centers
- Interior and exterior

Features

- Pickproof...
- High-strength bonding characteristics...
- Insensitive to moisture...
- Paste consistency...
- Available in side-by-side cartridges...
- Pumpable...
- ICBO acceptance (ER #5353) and City of Los Angeles Research Report #RR 25306...
- 1 to 1 mixing ratio...

Benefits

- Use inside correctional facilities
- Excellent adhesion to most structural materials
- Bonds to dry and damp substrates
- Ideal for vertical and overhead applications
- Fast and easy to use
- Does not wear out dispensing equipment
- Fast placement for production work, e.g., pavement dowel setting
- Specified code compliance
- Easy to measure and mix

How to Apply EpoGel™

Surface Preparation

- 1 Surfaces must be clean and structurally sound and fully cured (28 days). They can be dry or damp, but must be free of standing water.
- 2 Surface must be free from dust, grease, curing compounds, waxes, laitance, loose deteriorated concrete, and other unsound materials.
- 3 When bonding to concrete, create a sound, fractural aggregate profile.
- 4 Clean steel to a white metal finish.

Mixing

- 1 Precondition material to 70°F ± 5° (21°C ± 3°).
- 2 Premix each component of EpoGel™ separately before mixing together.
- 3 EpoGel™ is packaged in a 1 to 1 (A:B) ratio for easy mixing. Add equal parts by volume of Part A and Part B in a clean mixing pail.
- 4 Mix thoroughly for approximately 2 minutes using a low-speed (400 to 500 rpm) drill and paddle mixer.

5 Thoroughly scrape the sides of the mixing container, then mix for an additional 1 minute to ensure a uniform, homogeneous mixture.

6 Pot life is approximately 30 minutes at 77°F (25°C).

Increased temperatures will dramatically reduce the pot life.

Application

Surface sealing before pressure injection

1 Apply the neat mixed EpoGel™ to the cracks to be pressure injected and around each injection port. Using a margin trowel or putty knife, force the material against the concrete and around the injection ports, sealing the cracks.

2 Allow the EpoGel™ to cure 24 hours at 70°F (21°C) before pressure injection.

As a pick-proof sealant

Apply an appropriate size bead of neat, mixed EpoGel™ to the area being sealed.

Anchor bolts, dowels, and rebar

1 The anchor-bolt hole must be no more than 1/4" (6 mm) larger than the diameter of the bolt, dowel, or rebar.

2 Depth of the hole is typically 10 - 15 times the diameter of the bolt, dowel, or rebar.

3 Scrub the bolt cavity with a stiff bristle brush to remove all dust, dirt, or bond-inhibiting material. Blow the cavity clean with oil-free compressed air.

4 Apply EpoGel™ mixture into hole, filling it approximately half full. Butter the bolt, dowel, or rebar with mixed EpoGel™, then force it to the bottom until EpoGel™ flows from the cavity. Twist the bolt to ensure good contact and bond.

Structural adhesive

1 Apply a neat mixture of EpoGel™ to the clean, prepared surface by trowel or spatula.

2 Work the EpoGel™ into the substrate for positive adhesion. The glue line should be kept as thin as possible and must not exceed 1/4" (6 mm).

3 Carefully secure the bonded unit in place while EpoGel™ is still tacky. If EpoGel™ loses tackiness or cures before bonding, material must be mechanically abraded.

Side-by-side cartridges

1 Insert cartridges filled with EpoGel™ into pneumatic dispense gun, making sure that the properly sized piston head is inserted into each cartridge seal. Connect air lines with pressure regulator set at 90 psi (0.62 MPa).

2 Point dispenser without mixer tip into waste container. Advance pistons forward until material flows from both sides of the cartridge. Immediately install the static mixer with retaining nut.

3 Increase air pressure to desired flow rates and dispense 1 to 2 inches (25 - 51 mm) of material to establish a uniform mixed color before proceeding with the application.

Preparing an epoxy mortar

1 Slowly add 1 part by loose volume of clean dry sand to 1 part of premixed EpoGel™. Mix combined epoxy and aggregate until uniform in consistency and color.

Clean Up

Clean tools with Reducer 990 or xylene before epoxy cures. Avoid solvent contact with skin. Cured material must be removed mechanically.

For Best Performance

- Application temperatures must be above 40 °F (4°C).
- Keep from freezing.
- Do not thin; solvents will prevent proper curing.
- Maximum lift recommendation for EpoGel™ mortar is one inch (25 mm).
- As a pickproof sealant, use only in nonmoving joints and openings. For moving joints and openings, use Ultra Sealant (see Form No. 1017894).
- Will discolor when exposed to UV light.
- Allow 10 - 14 days cure before immersion in water.
- For epoxy mortar mix, use clean dry sand only.
- Always apply slow even pressure with side-by-side cartridges; excessive pressure may cause improper mixing or damage to cartridges resulting in seeping of material.
- Make certain the most current version of this data guide is being used; call Customer Service (1-800-433-9517) to verify the most current version.
- Proper application is the responsibility of the user. Field visits by ChemRex® personnel are for the purpose of making technical recommendations only and are not for supervising or providing quality control on the jobsite.

Technical Data

Compliances

- ASTM C 881, Type I, II, IV and V, Grade 3, Class B and C
- Meets USDA specifications for use in food processing plants
- ICBO acceptance (ER# 5353)
- City of Los Angeles Research Report #RR 25306

Test Data

Property and Test Method	Result	Specifications
Consistency	0 (no flow)	
Shore D	>90	ASTM D 2240
Pot life, minutes ASTM C 881	35	30 _{1,2,4,5} minimum
Bond strength, psi (MPa) ASTM C 882, (2 day cure)	2,232 (15.4)	1,000 _{1,4} minimum (6.9)
Bond strength, psi (MPa) ASTM C 882, (14 day cure)	2,460 (17.0)	1,500 _{1,2,4,5} minimum (10.3)
Water absorption, % ASTM D 570	0.63	1.0 _{1,2,4,5} maximum
Linear coefficient of shrinkage ASTM D 2566	0.0007	0.005 _{1,2,4,5} maximum
Compressive strength, psi (MPa) ASTM D 695	11,236 (77.5)	5,000 ₂ minimum (34.5) 8,000 _{1,5} (55.2) 10,000 ₄ (69.0)
Compressive modulus, psi (MPa) ASTM D 695	250,100 (1,724)	90,000 ₂ minimum (620) 150,000 _{1,5} (1,034) 200,000 ₄ (1,379)
Elongation at break, % ASTM D 638	2.56	1.0 _{1,2,4,5} minimum
Shear strength, psi (MPa) ASTM D 732	3,550 (24.5)	NA
Flexural strength, psi (MPa) ASTM D 790	5,582 (38.5)	NA
Shrinkage ASTM C 884	Pass	NA
Thermal compatibility ASTM C 884	Pass	NA

1: ASTM C 881 Type I, 2: ASTM C 881 Type II, 4: ASTM C 881 Type IV, 5: ASTM C 881 Type V

Average Ultimate Loads for EpoGel™ Rebar Pull-out Tests in Accordance with ASTM E 488

Rebar size	Hole diameter (inches)	Embedment depth ₁ (inches)	Total load (lbs.)
#4	5/8	6	16,000
#5	3/4	6-3/4	26,000
#6	7/8	7-1/2	36,000
#7	1-1/8	8-1/4	51,000
#8	1-1/4	9	64,000

1: Shallower embedment depth may be used, but values may vary. Job site testing is required.

Test results are averages obtained under laboratory conditions. Reasonable variations can be expected.

Order Information

Packaging

EpoGel™

- 2 gallon kits consisting of 1 gallon (3.8 L) Part A and 1 gallon (3.8 L) Part B
- 1 quart kit consisting of 1 pint (0.47 L) Part A and 1 pint (0.47 L) Part B
- Side-by-side (300 by 300 mL) cartridges and (946 by 946) kits

Shelf life is 2 years when stored in unopened containers under normal conditions.

Color

- Gray

Coverage

- Neat bonding adhesive
Approximately 80 sq. ft. per gallon (2 m²/L) at 20 mils (0.5 mm) on a smooth surface. Coverage varies with substrate conditions.
- Adhesive
231 cubic inches per gallon (0.001 m³/L).

- Mortar
One gallon (3.8 L) with 1 part clean, dry sand produces approximately 0.2 ft.³.

Danger—Corrosive

EpoGel™ Part A contains trade secret resin

Risks

May cause eye, skin or respiratory irritation. Ingestion may cause irritation. Repeated or prolonged contact with skin may cause sensitization. Potential skin and respiratory sensitizer. INTENTIONAL MISUSE BY DELIBERATELY INHALING THE CONTENTS MAY BE HARMFUL OR FATAL.

Precautions

KEEP OUT OF THE REACH OF CHILDREN. Prevent contact with skin, eyes and clothing. Avoid breathing vapors. Use only with adequate ventilation. DO NOT take internally. Use impervious gloves, goggles and if the TLV is exceeded or used in a poorly ventilated area, use NIOSH/MSHA approved respiratory protection in accordance with applicable federal, state and local regulations.

First Aid

In case of eye contact, flush thoroughly with water for at least 15 minutes. SEEK IMMEDIATE MEDICAL ATTENTION. In case of skin contact, wash with soap and water. If irritation persists, SEEK MEDICAL ATTENTION. If inhalation causes physical discomfort, remove to fresh air. If discomfort persists or any breathing difficulty occurs or if swallowed, SEEK IMMEDIATE MEDICAL ATTENTION.

Refer to Material Safety Data Sheet (MSDS) for further information.

Proposition 65

This product contains material listed by the state of California as known to cause cancer, birth defects or other reproductive harm.

VOC Content

When components are mixed, this product contains 0 g/L or 0 lbs. of VOC per gallon of material.

Danger—Corrosive

EpoGel™ Part B contains trade secret

Risks

Contact with skin or eyes may cause burns. May be absorbed through skin in harmful amounts. Potential skin and/or respiratory sensitizer. Respiratory irritant. Ingestion may cause burns or other harm. Repeated exposure may cause injury to the kidneys or liver.

Precautions

KEEP OUT OF THE REACH OF CHILDREN. Prevent contact with skin, eyes and clothing. Avoid breathing vapors. Use only with adequate ventilation. DO NOT take internally. Use impervious gloves, goggles and if the TLV is exceeded or used in a poorly ventilated area, use NIOSH/MSHA approved respiratory protection in accordance with applicable federal, state and local regulations.

First Aid

In case of eye contact, flush thoroughly with water for at least 15 minutes. SEEK IMMEDIATE MEDICAL ATTENTION. In case of skin contact, wash with soap and water. If irritation persists, SEEK MEDICAL ATTENTION. If inhalation causes physical discomfort, remove to fresh air. If discomfort persists or any breathing difficulty occurs or if swallowed, SEEK IMMEDIATE MEDICAL ATTENTION.

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VOC Content

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For medical emergencies only, call ChemTrec (1/800/424-9300)

Limited Warranty Notice

Every reasonable effort is made to apply ChemRex® exacting standards both in the manufacture of our products and in the information which we issue concerning these products and their use. We warrant our products to be of good quality and will replace or, at our election, refund the purchase price of any products proved defective. Satisfactory results depend not only upon quality products, but also upon many factors beyond our control. Therefore, except for such replacement or refund, CHEMREX® MAKES NO WARRANTY OR GUARANTEE, EXPRESS OR IMPLIED, INCLUDING WARRANTIES OF FITNESS FOR A PARTICULAR PURPOSE OR MERCHANTABILITY, RESPECTING ITS PRODUCTS, and CHEMREX® shall have no other liability with respect thereto. Any claim regarding product defect must be received in writing within one (1) year from the date of shipment. No claim will be considered without such written notice or after the specified time interval. User shall determine the suitability of the products for the intended use and assume all risks and liability in connection therewith. Any authorized change in the printed recommendations concerning the use of our products must bear the signature of the ChemRex® Technical Manager.



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ChemRex®

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