

Sonneborn®**Concrete
Repair
Systems****SONOCRETE®****RAPID GEL****Rapid-setting nonsag epoxy adhesive****Where to Use
Rapid Gel**

- Concrete
- Masonry
- Sealing cracks and setting ports for pressure injection
- Grouting bolts and pins
- Grouting static cracks
- Structural adhesive
- Interior and exterior

Features

- High flexural, tensile, and compressive strength...
- High bonding strength...
- 1 to 1 mixing ratio...
- Fast setting...
- Moisture insensitive...
- Nonsag paste consistency...
- ICBO acceptance (ER#5353) and City of Los Angeles Research Report #RR 25306...

Benefits

- Strong, permanent applications
- Tenacious bond to substrates
- Easy to mix
- Minimizes downtime
- Bonds to dry or damp substrates
- Excellent for vertical and overhead use
- Specified code compliance

How to Apply Rapid Gel

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 Shotblast concrete to provide a fractured aggregate profile.
- 4 Sandblast or wire brush steel to a white metal finish.

Mixing

- 1 Precondition material to 70°F ± 5° (21°C ± 3).
- 2 Premix Part A and Part B separately before mixing together.
- 3 Rapid Gel 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 7 minutes at 77°F (25°C). Mix only enough material that can be placed within gel time. Increased temperatures will dramatically reduce the pot life.

Application

Surface sealing before pressure injection

- 1 Apply the neat mixed Rapid Gel 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 Rapid Gel to cure before pressure injection. Because of its quick cure, cracks can be pressure injected the same day. Application temperatures in the 40° to 50°F (4° to 10°C) range will result in slower cure time.

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 Rapid Gel mixture into hole, filling it approximately half full. Place the bolt, dowel or rebar and force it to the bottom until the Rapid Gel flows from the cavity. Twist the bolt to ensure good contact and bond.

- 5 Because of its rapid set, dowels can be set and concrete poured on the same day.

Structural Adhesive

- 1 Apply a neat mixture of Rapid Gel to the clean, prepared surface by trowel or spatula.
- 2 Work the Rapid Gel into the substrate to secure bond 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 the Rapid Gel is still tacky. If Rapid Gel loses tackiness or cures before bonding, material must be mechanically abraded.

Side-by-Side cartridges

- 1 Insert cartridges filled with Rapid Gel into pneumatic or manual 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 rate and dispense 1 to 2 inches (25 - 51 mm) of material before proceeding with the application. Make certain the mixed epoxy is a uniform gray color.

Clean Up

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

For Best Performance

- Will discolor when exposed to UV light.
- Always apply slow, even pressure with side-by-side cartridges; excessive pressure may cause improper mixing or damage to cartridges resulting in seepage of material.
- Do not thin; solvents will prevent proper curing.
- Application temperatures must be above 40°F (4°C).
- Only mix sufficient material that can be placed within 7 minute pot life.
- Allow 10 - 14 days cure before immersion in water.
- Keep from freezing.
- Not for use in dynamic (moving) cracks.
- 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 and IV, Grade 3
- Most State D.O.T.s
- Meets USDA specifications for use in food processing plants
- California General Approval Research Report
- ICBO acceptance (ER #5353)
- City of Los Angeles Research Report #RR 25306

Test Data

Typical Properties	
Consistency	Smooth nonsag paste
Pot life, at 77°F (25°C), minutes	7
Compressive Strength, psi (MPa) ASTM D 695	
2 hours	7,500 (51.7)
24 hours	10,000 (69.0)
7 days	11,000 (75.8)
Modulus of Elasticity, psi (MPa) ASTM D 695	
7 days	5.8 x 10 ⁵ (3,999)
Tensile Properties ASTM D 638 (at 7 days)	
Tensile strength, psi (MPa)	4,300 (29.6)
Elongation at break, %	1.0
Modulus of elasticity, psi (MPa)	5.0 x 10 ⁵ (3,447)
Flexural Properties, psi (MPa) ASTM D 790 (at 14 days)	
Flexural strength	6,800 (46.9)
Tangent modulus of elasticity in bending	8.4 x 10 ⁵ (5,792)
Bond Strength, psi (MPa) ASTM C 882 (hardened concrete to hardened concrete)	
2 days (dry cure)	2,800 (19.3)
14 days (dry cure)	3,000 (20.7)
Bond Strength, psi (MPa) ASTM C 882 (hardened concrete to hardened concrete)	
24 hours (wet cure)	2,800 (19.3)
Water Absorption ASTM D 570	
Total Water Absorption, % (24 hour immersion)	0.84
Heat Deflection Temperature ASTM D 648	
126°F (52°C)	Passes
Linear Coefficient of Shrinkage ASTM D 2566	
0.0009	Passes

Material values assume 73°F (23°C) and 50% relative humidity.

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

Order Information

Packaging

Rapid Gel

- 2 gallon kit 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 mL by 300 mL) cartridges and (946 by 946) kits

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

Color

- Part A: white
- Part B: gray
- Mixed A and B: gray

Coverage

- 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 or anchoring grout 231 cubic inches per gallon (0.001 m³/L)

Estimating Guide for Rapid Gel Side-by-Side Cartridges

Estimated number of anchors which can be installed per cartridge. The number of anchors may vary from job to job, depending upon waste and on-site procedures.

Rebar size	Hole size (inches)	Hole depth (inches)																	
		4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
# 3	1/2	82	66	55															
# 4	5/8		51	43	37	32													
# 5	3/4				30	26	23	21											
# 6	7/8					21	19	17	15	14									
# 7	1						16	15	13	12	11	11							
# 8	1-1/8							13	12	11	10	9	9						
# 9	1-3/8									6	5	5	4	4	4				
# 10	1-1/2										5	5	4	4	4	4	4	4	3

Warning

Rapid Gel Part A contains proprietary resin

Risks

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

Precautions

KEEP OUT OF THE REACH OF CHILDREN. Keep container closed when not in use. Use only with adequate ventilation. Prevent contact with skin, eyes and clothing. DO NOT take internally. Wash thoroughly after handling. Use impervious gloves, eye protection 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 affected areas with soap and water. If irritation persists, SEEK MEDICAL ATTENTION. Remove and wash contaminated clothing. 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

Rapid Gel Part B contains proprietary amine mixture

Risks

Contact with skin or eyes may cause burns. Potential skin and/or respiratory sensitizer. Respiratory irritant. Ingestion may cause burns or other harm. 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. DO NOT breathe vapors. Wash thoroughly after handling. Use only with adequate ventilation. DO NOT take internally. Use impervious gloves, eye protection and if the TLV is exceeded or if used in a poorly ventilated area, use NIOSH/MSHA approved respiratory protection in accordance with applicable federal, state and local regulations. Empty container may contain hazardous residues. All label warnings must be observed until container is commercially cleaned or reconditioned.

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 affected areas 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 does not knowingly contain materials listed by the state of California as known to cause cancer and 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 coating.

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.



Sonneborn®

ChemRex®

Corporate Office:

889 Valley Park Drive; Shakopee, MN 55379

Customer Service: 1/800/433-9517

Technical Services: 1/800/ChemRex (1/800/243-6739)

Web Site: www.chemrex.com