



EUCLID CHEMICAL

# DURAL INJECTION GEL

## HIGH MODULUS STRUCTURAL INJECTION ADHESIVE

### PACKAGING

4 gal (15 L) unit

Code: 051DI 04

10 gal (38 L) unit

Code: 051DI 10

### CLEAN UP

Clean tools and application equipment immediately with acetone, xylene, or MEK. Clean spills or drips with the same solvents while still wet. Hardened DURAL INJECTION GEL will require mechanical abrasion for removal.

### SHELF LIFE

2 years in original, unopened package

### SPECIFICATIONS AND COMPLIANCES

- Complies with ASTM C881 Types I, II, IV and V, Grade 3, Class C
- Meets the requirements of AASHTO M 235

### DESCRIPTION

DURAL INJECTION GEL is a two-component, 100% solids, moisture insensitive, high strength epoxy adhesive designed for crack sealing projects. This high modulus, non-abrasive, epoxy resin is formulated to be injected into cracks and remain there, when the back of the crack can't be sealed. Ideal for automated injection equipment.

### PRODUCT CHARACTERISTICS

#### FEATURES/BENEFITS

- Exceptional adhesion to concrete
- Easy to use 1:1 mix ratio
- Moisture insensitive for cracks that "can't dry"
- All-in-one product: sets ports, seals, injects
- Formulated with lubricity additives, to allow easier injection and deeper penetration than typical gel epoxies - making it ideal for injection of cracks where the back side cannot be accessed and sealed.

#### PRIMARY APPLICATIONS

- Unique injection gel for cracked, structural substrates
- Seals cracks and sets ports prior to injection
- Anchoring bolts, dowels, or pins
- General adhesive for concrete, masonry, steel, and wood
- Mix with dried silica sand to create a repair mortar

### APPEARANCE

Part A liquid is gray in color and Part B liquid is black in color.

### COVERAGE

For injection, 1 neat gal (3.8 L) yields 231 in<sup>3</sup> (3,785 cm<sup>3</sup>) of epoxy. 1 gal (3.8 L) of neat DURAL INJECTION GEL epoxy mixed with 1 gal (3.8 L) of dry 20/40 mesh silica sand will yield approximately 368 in<sup>3</sup> (6,030 cm<sup>3</sup>) of mortar.

**Note:** Coverage rates are approximate. Actual coverage depends on temperature, texture, and substrate porosity.

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## TECHNICAL INFORMATION

The following are typical values obtained under laboratory conditions. Expect reasonable variation under field conditions.

Test Method	Test Property	Result
ASTM C881	Consistency	1/16" (1.6 mm)
ASTM C881	Gel Time	33 minutes
ASTM C882	Bond Strength	2 days: 2,500 psi (17.2 MPa) 14 days: 2,500 psi (17.2 MPa)
ASTM D570	Water Absorption	24 hours: 0.2%
ASTM D648	Heat Deflection Temperature	145 °F (62 °C)
ASTM D2566	Linear Coefficient of Shrinkage	0.001
ASTM D695	Compressive Yield	7 days: 10,000 psi (68.9 MPa)
ASTM D695	Compressive Modulus	7 days: 400,000 psi (2,758 MPa)

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## DIRECTIONS FOR USE

**Surface Preparation:** The surface must be structurally sound, dry, clean and free of grease, oil, curing compounds, soil, dust and other contaminants. Surface laitance must be removed. Concrete surfaces must be roughened and made absorptive, preferably by mechanical means, and then thoroughly cleaned of all dust and debris. If the surface was prepared by chemical means (acid etching), a water/baking soda or water/ammonia mixture, followed by a clean water rinse, must be used for cleaning, in order to neutralize the substrate. Allow substrate to dry before application. Route cracks and blow dust/debris from them with oil-free compressed air. Following surface preparation, the strength of the surface can be tested if quantitative results are required by project specifications. An elcometer or similar tensile pull tester may be used in accordance with ASTM D4541, and the tensile pull-off strength should be at least 250 psi (1.7 MPa). When DURAL INJECTION GEL is being mixed to a mortar consistency and then used to perform patching and repairs, provide a CSP of 3 to 5 in accordance with ICRI 310.2. When coating steel, all contamination should be removed and the steel surface prepared to a "near white" finish (SSPC SP10) using clean, dry blasting media.

**Mixing:** Mix DURAL INJECTION GEL using a low-speed drill and a mixing paddle. Pre-mix Part A and Part B separately for approximately 1 minute each. Combine Part A and Part B in a 1:1 ratio by volume, then mix thoroughly for 3 to 5 minutes. To make DURAL INJECTION GEL mortar, gradually add clean, dry, 20/40 mesh silica sand to previously mixed DURAL INJECTION GEL epoxy and mix thoroughly for 3 to 5 minutes. The mix ratio of aggregate to mixed epoxy is approximately 1:1 by volume, but can be modified depending on the desired consistency of the mortar.

Scrape the bottom and sides of the containers at least once during mixing. Do not scrape bottom or sides of the container once mixing operations have ceased; doing so may result in unmixed resin or hardener being applied to the substrate. Unmixed resin or hardener will not cure properly. Do not aerate the material during mixing. To keep aeration to a minimum, the recommended mixing paddles are #P1 or #P2 as found in ICRI Guideline 320.5R-2014.

**Application: Setting ports & sealing cracks:** Place a small amount of mixed DURAL INJECTION GEL on the back of the port and carefully place it centered over the crack. Be careful to not fill the hole of the injection port. Place neat DURAL INJECTION GEL over the face of the cracks to be pressure injected, and around each injection port. Allow DURAL INJECTION GEL to sufficiently harden before injecting, to prevent blowouts. **Pressure injecting cracks:** Attach injection ports and seal the face of the crack according to the above instructions. Allow the sealing gel to sufficiently harden before injecting, to prevent blowouts. Pump DURAL INJECTION GEL into the crack via the injection ports, using two-component pressure injection equipment. Start at the bottom of the crack and work upwards from port to port. Cap off ports as you proceed up the crack to ensure that DURAL INJECTION GEL is kept contained within the crack. DO NOT INJECT IF WATER IS LEAKING FROM THE CRACK. **Bonding fresh concrete to hardened concrete:** Apply by brush, roller, or squeegee to the prepared, existing concrete substrate. Place fresh concrete onto the DURAL INJECTION GEL while it is still tacky. The open time is typically 3 to 4 hours at 75°F (24°C). The open time is reduced at warmer temperatures. If the DURAL INJECTION GEL loses tackiness or exceeds open time, abrade the surface of the epoxy, wipe surface clean, re-apply DURAL INJECTION GEL, and proceed. DO NOT PLACE CONCRETE OVER DRIED EPOXY. **Bonding hardened concrete to hardened concrete:** Apply by spatula, brush, or trowel. Ensure the surfaces to be joined have uniform coatings of DURAL INJECTION GEL. For optimum results, the bond line should not exceed 1/8" (3.2 mm). Join surfaces and hold or clamp firmly until the epoxy gels. Ideally, a small amount of adhesive should exude from the joint. Surfaces must be mated while the adhesive is still tacky. **Anchoring bolts, dowels, pins:** DURAL INJECTION GEL can be used neat or as a mortar to grout vertically-aligned anchors (into a horizontal substrate) or horizontally-aligned anchors (into a vertical substrate). The anchor hole should be free of all debris before grouting. The optimum hole size is 1/16" (1.6 mm) annular space (1/8" (3.2 mm) larger diameter than anchor diameter). Depth of embedment is typically 10 to 15 times anchor diameter. **Patching and repairs:** Apply DURAL INJECTION GEL neat as a primer coat to the prepared concrete surface. Mix the DURAL INJECTION GEL into an epoxy mortar and apply to the area by trowel or spatula in lifts of 1" to 1-1/2" (25 to 38 mm) before the neat primer coat becomes tack free. Allow each lift to reach initial set before applying subsequent lifts.

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## PRECAUTIONS/LIMITATIONS

- Store DURAL INJECTION GEL indoors, protected from moisture, at temperatures between 50 °F and 90 °F (10 °C and 32 °C)
- Surface and ambient temperature during applications should be between 50 °F and 90 °F (10 °C and 32 °C)
- Material temperatures should be at least 50 °F (10 °C) and rising
- Working time and cure time will decrease as the temperature increases, and will increase as the temperature decreases
- Do not thin DURAL INJECTION GEL
- DURAL INJECTION GEL will discolor upon prolonged exposure to ultraviolet light and high-intensity artificial lighting.
- DURAL INJECTION GEL is not to be used as a finished/aesthetic coating
- Do not use DURAL INJECTION GEL for overhead anchoring
- Maximum application thickness of DURAL INJECTION GEL mortar is 1.5" (38 mm) per lift.
- In all cases, consult the product Safety Data Sheet before use

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