# DURAL FAST SET GEL

## Rapid-Setting, High Modulus Epoxy Adhesive

EUCLID CHEMICAL



## Description

**DURAL FAST SET GEL** is a two-component, 100% solids, moisture insensitive, rapid-setting epoxy adhesive and binder for numerous applications. This high modulus, structural gel is perfect for bonding applications that require a quick turn-around. DURAL FAST SET GEL can be used in temperatures as low as 2°C and rising.

## Primary Applications

- Bonding of concrete, masonry, steel, or wood
- Anchoring bolts, dowels, or pins
- Rapidly seal cracks and set ports prior to injection
- Mix with sand to create a repair mortar

## Features / Benefits

- Exceptional adhesion to construction materials
- Perfect for vertical and overhead applications
- Easy to use 1:1 mix ratio by volume
- Moisture insensitive
- Rapid strength gain in a wide temperature range
- DOT Not Regulated (non-corrosive)

## Technical Information

The following are typical properties obtained under laboratory conditions

| Property | Result |
|---|---|
| Mixed Viscosity | Consistency/Flow 0.32cm |
| Pot Life, minutes AASHTO T-237 | 9 |
| Compressive Strength, MPa ASTM D 109 | 7 days: 70.0 |
| Compressive Modulus, MPa ASTM D 695 | 7 days: 2 083 |
| Bond Strength, MPa ASTM C 882 | 14 days: 37.1 |
| Tensile Strength ASTM D 638 | 7 days: 47.4 |
| Water Absorption @ 24 hours, % ASTM D 570 | < 0.4 |
| Appearance/Colour | Light Grey |

| Reinforcing Steel | | | | Threaded Rod | | | |
|---|---|---|---|---|---|---|---|
| Rebar Diameter | Hole Diameter | Embedment Depth | Pull-Out Strength* | Rod Diameter | Hole Diameter | Embedment Depth | Pull-Out Strength* |
| 13 mm | 16 mm | 11.4 cm | 91 kN | 10 mm | 13 mm | 8.9 cm | 39 kN |
| 16 mm | 19 mm | 14.0 cm | 136kN | 13 mm | 16 mm | 11.4 cm | 93 kN |
| 19 mm | 22 mm | 16.5 cm | 191 kN | 16 mm | 19 mm | 14.0 cm | 147 kN |
| 22 mm | 25 mm | 19.1 cm | 245 kN | 19 mm | 22 mm | 16.5 cm | 187 kN |
| 25 mm | 29 mm | 22.9 cm | 300 kN | 22 mm | 25 mm | 19.1 cm | 265 kN |
| - | - | - | - | 25 mm | 29 mm | 24.1 cm | 316 kN |

* Direct tension pull-out strengths were obtained at 7 days, in accordance with ASTM E 488-10.





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## Packaging

**DURAL FAST SET GEL** is packaged in 15L and 38L units, and in cases of 650ml cartridges (12 per case), and 300ml (24 per case). The mix ratio is 1:1 by volume.

## Shelf Life

2 years in original, unopened packaging.

## Specifications/Compliances

Complies with ASTM C 881-10 Types I and IV, Grade 3, Classes A, B, and C

## Coverage

For anchoring, 3.8 L yields 3,785 $cm^3$ of epoxy. 3.8 L of neat DURAL FAST SET GEL epoxy mixed with 3.8 L of dry 20/40 mesh silica sand will yield approximately 6,030 $cm^3$ of mortar.
Note: Coverage rates are approximate. Actual coverage depends on temperature, texture, and substrate porosity.

## 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 D 4541, and the tensile pull-off strength should be at least 1.7 MPa.
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 bulk units of DURAL FAST SET 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 to 1 ratio by volume, then mix thoroughly for 3 minutes.
To make DURAL FAST SET GEL mortar, gradually add clean, dry, 20/40 mesh silica sand to previously mixed DURAL FAST SET GEL epoxy and mix thoroughly for 1 to 2 minutes. The mix ratio of aggregate to mixed epoxy is approximately 1 to 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 and #P2 as found in ICRI Guideline 320.5R-2014.
**Application: Bonding hardened concrete to hardened concrete**: Apply by spatula, brush, or trowel. Ensure the surfaces to be joined have uniform coatings of DURAL FAST SET GEL. For optimum results, the bond line should not exceed 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 FAST SET 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 1.6 mm annular space (3.2 mm larger diameter than anchor diameter). Depth of embedment is typically 10 to 15 times anchor diameter. **Patching and repairs:** Apply DURAL FAST SET GEL neat as a primer coat to the prepared concrete surface. Mix the DURAL FAST SET GEL into an epoxy mortar and apply to the area by trowel or spatula in lifts of 25 to 38 mm before the neat primer coat becomes tack free. Allow each lift to reach initial set before applying subsequent lifts.
**Setting ports & sealing cracks**: Place a small amount of mixed DURAL FAST SET 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 FAST SET GEL over the face of the cracks to be pressure injected, and around each injection port. Allow DURAL FAST SET GEL to sufficiently harden before injecting, to prevent blowouts. **Pick-proof sealant:** Apply a bead of DURAL FAST SET GEL to the joints and areas being sealed.
Strike off the epoxy with a rounded spatula, or similarly rounded tool, to finish.

## 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 FAST SET GEL will require mechanical abrasion for removal.

## Precautions / Limitations

- Store DURAL FAST SET GEL indoors, protected from moisture, at temperatures between 10°Cand 32°C.
- Surface and ambient temperature during applications should be between 2°C and 32°C.
- Material temperatures should be at least 2°C and rising.
- Install cartridges of DURAL FAST SET GEL with a high quality, professional grade gun with a gear ratio of at least 26:1 for ease of application and best results
- Working time and cure time will decrease as the temperature increases, and will increase as the temperature decreases.
- Do not thin DURAL FAST SET GEL
- DURAL FAST SET GEL will discolor upon prolonged exposure to ultraviolet light and high-intensity artificial lighting.
- DURAL FAST SET GEL is not to be used as a finished/aesthetic coating
- Do not use DURAL FAST SET GEL for overhead anchoring
- In all cases, consult the product Safety Data Sheet before use

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