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888-839-2661 | sales@vexcon.com | 7240 State Road | Philadelphia, PA 19135 [vexcon.com](http://vexcon.com)

## CERTI-VEX<sup>®</sup> CE 310

HI-MOD GEL • ASTM C-881 & AASHTO M-235 COMPLIANT

### DESCRIPTION

**Certi-Vex CE 310** is a two component, 100% solids, solvent free, moisture tolerant, high modulus structural construction multi purpose epoxy gel adhesive for anchoring, dowelling and bonding applications. Meets ASTM C881 types I, II, IV & V, Grade 3, Classes B&C and AASHTO M-235.

### BENEFITS

- 1:1 mix ratio by volume
- High strength
- Non Sag consistency
- Excellent adhesion
- Very low water absorption
- Meets requirements for USDA food plants

### RECOMMENDED FOR

- Anchor bolts, dowel bars, reinforcing steel and threaded rod
- Bonding fresh and hardened concrete
- Vertical and overhead structural bonding and patching
- Patching and repair mortar
- Pick proof sealant

### SPECIFICATIONS/COMPLIANCES

- ASTM D695 - Compressive Strength (yield)
  - @ 75°F @40°F
  - 9556 psi @ 24 hours -
  - 11702 psi @ 48 hours -
  - 12710 psi @ 7 day 11678 psi@ 7 day
- ASTM D695 - Compressive Modulus
  - @ 75°F @40°F
  - 385,177 psi @ 48 hour -
  - 476,855 psi @ 7 day 310,254psi @ 7day
- ASTM C882 - Bond Strength
  - 2928 psi @ 2 days Hardened to Hardened
  - 2986 psi @ 14 days Hardened to Hardened
  - 1531 psi @ 14 days Fresh to Hardened
- ASTM D638 - Tensile Strength
  - 7691 psi @ 7 days
- ASTM D638 - Tensile Elongation
  - 1.73% psi @ 7 days
  - Tensile Modules 82,732
- ASTM D570 - Water Absorption
  - 24 hour 0.09%
  - 7 day 0.06%
- ASTM D2566 – Linear Coefficient of Shrinkage
  - 5.0 x 10<sup>-5</sup> inch
- ASTM D648 - Heat Deflection 125.5°F(51.9°C)
- ASTM D790 – Flexural Strength
  - 11,280 psi @ 7 day
- Epoxy
  - Consistency 3 mins 0.180"
  - Consistency 5 mins 0.084"
- VOC – 0 grams/liter
- Laboratory results. Field application results can be affected by temperature and application methods.

### LOAD CAPACITIES

(4000 psi concrete) – ASTM E488

Anchors	Anchor Size	Hole Size	Hole Depth	Pull Out Strength
Rebar	1/2" (13mm)	5/8" (16mm)	4.5" (11.4cm)	10,200 avg. <sup>1</sup>
Rebar	3/4" (19mm)	7/8" (22mm)	6.5" (16.5cm)	11,830 <sup>1</sup>
Threaded Rod	3/4" (19mm)	7/8" (22mm)	6.5" (16.5cm)	12,793 <sup>1</sup>
Rebar	1" (29mm)	1 1/8" (25mm)	8.5" (21.6cm)	14,945 <sup>1</sup>
Threaded Rod	1" (29mm)	1 1/8" (25mm)	8.5" (21.6cm)	13,863 <sup>1</sup>

<sup>1</sup> Concrete Failure

### COVERAGE/ESTIMATING- REINFORCING STEEL

	Rebar Size	Hole Size	Hole Depth	Anchors Per/Gal
#4	1/2" (13mm)	5/8" (16mm)	4.5" (11.4cm)	251
#5	5/8" (16mm)	3/4" (19mm)	5.5" (14.0cm)	143
#6	3/4" (19mm)	7/8" (22mm)	6.5" (16.5cm)	89
#7	7/8" (22mm)	1" (25mm)	7.5" (19.1cm)	59
#8	1" (25mm)	1 1/8" (29mm)	5" (24.1cm)	37

For anchoring, one neat gal (3.8L) yields 231 in<sup>3</sup> (.004m<sup>3</sup>) of epoxy.

### PHYSICAL PROPERTIES

- Components Resin(A) & Hardener(B)
- Mix ratio - 1 to 1 by volume
  - Part A % by Wt 43.9%\*
  - Part B % by Wt. 56.1%
- Color Grey
- Mixed Viscosity Gel/Paste
- Gel Time @ 77°F 37 minutes
- Mix @ 77°F, Cure @ 40°F 65 minutes
- Pot life @ 75°F (500 grams) 23 – 26 minutes
- Pre-conditioned product can be applied to substrates from 40-95°F (4-35°C)<sup>2</sup>

\* Use weight or volume % to break down units

### MIXING

- Condition material to 65 - 75°F (18° - 24° C).
- Premix 1 part resin (part A) and 1 part hardener (Part B) for 3 minutes.
- Mix with a jiffy type mixer at slow speed (less than 400 rpm) to avoid air entrainment.
- Combine and mix the premixed part B (hardener) into premixed part A (resin) for 3 minutes @ 400 rpm and scrape sides while mixing.
- Mixed material should be uniform in color & not show streaks.
- Do not mix more material than can be used within the stated pot life.
- You will have less working time at higher temperatures or more at lower temperatures.

## SURFACE PREPARATION - BONDING

- Substrate must be structurally sound, dust-free, and free of grease, oil, dirt, coatings or any other contaminants prior to application.
- To create the proper bond, develop a profiled textured surface by mechanical means or chemical etch using **Certi-Vex Etch and Efflorescence Remover & StarSeal Neutralizing Rinse**.
- Check porosity of surface by applying water.
- If water penetrates surface continue with application.
- If the water beads additional profiling is required.
- Clean the surface with **Certi-Vex Super Degreaser & Cleaner** once the desired profile/texture is achieved.
- Allow surface to dry before application.
- Air and surface temperature must be minimum 40°F (5°C).
- Exposed steel surfaces should be cleaned to remove contamination with Certi-Vex Super Degreaser & Cleaner and abraded to a bright metal finish using clean dry blasting media.

## APPLICATION - BONDING

- **Bond fresh to hardened concrete**
  - Application and surface temperatures should be at least 40°F (5°C) and rising.
  - Review surface preparation and mixing sections above.
  - Apply an even coat of neat Certi-Vex CE 310 by brush, roller, squeegee or trowel working into the existing concrete surface at coverage rates below.
  - Apply fresh concrete when the Certi-Vex CE 310 is tacky. Do not place concrete over dried epoxy.
  - If application of fresh concrete is delayed for 3 days or less apply an additional coat of Certi-Vex CE 310 over the 1<sup>st</sup> application. After 3 days Certi-Vex CE 310 will need to be abraded to accept the second application.
- **Bond hardened to hardened concrete**
  - Application and surface temperatures should be at least 40°F (10°C) and rising.
  - Review surface preparation and mixing sections above.
  - Ensure the surfaces to be joined have uniform applications of Certi-Vex CE 310.
  - Apply an even coat to both concrete surfaces of neat Certi-Vex CE 310 by brush, roller, squeegee or trowel.
  - For optimum results the bond line should not exceed 1/8" (3.2mm) see Coverage section.
  - Join surfaces and hold or clamp firmly until adhesives sets.
  - Ideally a small amount of adhesives should exude from the joint. Surfaces must be mated while the adhesive is still tacky.

## COVERAGE - BONDING

One gallon of neat Certi-Vex CE 310 covers approximately  
20 MIL 80 sqft/gal  
30 MIL 53 sqft/gal  
125 MIL 13 sqft/gal = (1/8", 3.2mm)

## APPLICATION - ANCHORING

- Fill each dry, clean, dust free or damp hole from the bottom up to 1/2" to 2/3" of depth with Certi-Vex CE 310.
- The depth of the hole should be 10-15 times the bolt diameter.
- Insert dry, rust and oil free bolts or anchor rod, rotating slowly until the anchor reaches the bottom of hole.
- Make sure the hole is completely filled with adhesive and that no gaps appear between the anchor rod and hole.
- Top off with more epoxy if necessary and finish.
- Allow to fully cure before applying torque or load.

## CONTACT US@

Additional product information, technical assistance, and customer services are available by contacting Vexcon Chemicals directly, or our distributors.

## APPLICATION - PICK PROOF SEALANT

Apply a bead of Certi-Vex CE 310 to the joints and areas being sealed. Strike with a rounded spatula or similar tool to finish.

## STRUCTURAL PATCHING & REPAIR MORTAR

- **Mortar**
  - The mix ratio of aggregate to binder is approximately 1:1 by volume, but may vary depending upon the desired consistency of the mortar and temperature of material.
  - Pour one part by volume of Part A and one part by volume of part B into a clean, dry container and mechanically mix for 3 to 5 minutes.
  - Scrape the sides & bottom of mixing container while mixing.
  - Do not whip or air entrainment while mixing.
  - Gradually add 1 gal clean, oven dry 20/40 mesh silica sand to mixed epoxy. Blend thoroughly.
  - One gal (3.8L) of neat Certi-Vex CE 310 epoxy mixed with 1 gal (3.8L) of oven dry 20/40 mesh silica sand will yield approximately 736 in<sup>3</sup> (0.012 m<sup>3</sup>) of mortar.
- **Vertical/Overhead and Horizontal Repairs**
  - Apply Certi-Vex CE 310 neat as a primer coat to the prepared concrete surface.
  - Mix the Certi-Vex CE 310 into an epoxy mortar as described above.
  - While the primer is still tacky, apply to the area by trowel in lifts of 1/2" to 1" (25mm to 38mm).
  - Allow each lift to reach initial set before applying subsequent lifts.

## PACKAGING

1/g, 2/g 10/g bulk kits

## SPECIAL NOTES

- The NTSB has stated that epoxy adhesive products are approved for short term loads only and should not be used in sustained tensile load adhesive anchoring applications where adhesive failure could result in a public safety risk. Consult a design professional prior to use.
- Do not thin material.
- Overhead applications must be approved and/or designed by a professional engineer.
- Air & substrate temperature will affect working and cure times.
- This data sheet does not supersede engineering recommendations and/or drawings.
- Not intended for submerged or continuously saturated conditions.
- Shelf Life: If properly stored in its original sealed container, one (2) years from date of manufacture. Rotate your stock.
- Storage/Handling: Store in tightly sealed original factory container. Keep from freezing & exposure to moisture. Special care should be taken to keep dirt, water and contaminants away from the openings of containers.
- Proper application of Vexcon material is the responsibility of the installer or user. Telephone consultation and/or field visits by Vexcon personnel are for the sole purpose of making technical recommendations only, and not for providing quality control or supervision on location.
- Warranty: All products are sold subject to Vexcon's published materials Limited Warranty and Terms and Conditions of Sale and can be changed without notice. You may view our Warranty's and Terms and Conditions of Sale at vexcon.com.

## HEALTH & SAFETY

Vexcon SDS is an integral part of the safety and application of our product. A short synopsis is provided in this product data sheet. Before using this Vexcon product, it is advisable to obtain a copy of the SDS at vexcon.com.

- vexcon.com
- techservice@vexcon.com
- customerservice@vexcon.com
- sales@vexcon.com
- Voice: 888.839.2661
- Fax: 215.332.9997