QuakeWrap® GU50C

HYCHEM
Infrastructure

Product Description

QuakeWrap® GU50C is a high-strength unidirectional pultruded laminate constructed with carbon fibers. The CFRP laminates are bonded to the substrate using QuakeBond™ 220UR (Universal Resin). The laminates are ideal for strengthening concrete, wood, and steel structures.

Uses

- Increased live load capacity in buildings and bridges, floors, roofs, etc.
- Seismic retrofit of structural elements such as columns, unreinforced masonry walls, etc.
- Repair of large diameter pipes to achieve strengthening and water-proofing.
- Repair of damaged structural system: new openings in floors, removal of existing walls, etc.
- Correction of design or construction errors: misplaced reinforcing bars, insufficient structural depth.

Advantages

- Very strong and lightweight laminates ideal for confined spaces.
- Used for flexure and shear strengthening.
- High modulus of elasticity.
- Fully compatible and excellent adhesion to QuakeBond™ resins.
- Non-corrosive.
- Light weight does not alter mass and dynamic loads on structure.
- Alkali resistant.
- Thin sections can be easily crossed and overlapped.

Fiber & Laminate Properties

	US UNITS	SI UNITS
Fiber Properties:		
Tensile Strength	710 ksi	4,900 MPa
Tensile Modulus	33,400 ksi	230,000 MPa
Ultimate Elongation	2.1%	2.1%
Density	0.065 lb/in^3	1.8 g/cm^3
Laminate Properties:		
Density	0.047 lb/in$_3$	1.3 g/cm^3
Tensile Strength	400 ksi	2,750 MPa
Tensile Modulus	24,000 ksi	165,500 MPa
Ultimate Elongation	1.7%	1.7%
Breaking Force	18,800 lb/in.	3,300 N/mm
Ply Thickness	0.0472 in.	1.20 mm

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Coverage

Application requires QuakeBond™ 220UR at a rate of 1 gallon per 65 feet (1 liter per 5.2 m) of laminate.

Surface Preparation

Surface must be clean and sound; it may be dry or damp, but must be free of standing water and frost. Remove dust, laitance, grease, curing compounds, disintegrated materials and other bond inhibiting materials from the surface. Existing uneven surfaces of the substrate must be verified after surface preparation by random pull-off testing (ACI 503R) at the discretion of the engineer. Minimum tensile strength of 200 psi (1.4 MPa) with substrate failure is required.

Blast Clean, short-blast, scarify or use other approved mechanical means to clean the substrate surface. Any sharp edges (i.e. fins, form-marks, etc.) must be ground smooth and flush.

Application

Wipe GU50C with appropriate cleaner (e.g. acetone or MEK) using clean cloth.

- Apply QuakeBond™ 220UR onto the substrate with a trowel or spatula to a nominal thickness per QuakeBond™ 220UR PDS. A notched trowel may be used for this application.
- Apply QuakeBond™ 220UR to the cleaned surface of GU50C to a thickness of 50 mil (1.3mm).
- Within the open time of the epoxy, considering ambient temperature, place the coated GU50C on top of the substrate and press firmly.
- Use a hard rubber roller and press the laminate into the epoxy until the adhesive is forced out on both sides.
- Remove excess epoxy; final epoxy thickness should not exceed 1/8 in (3 mm).
- ▪ The bonded GU50C laminates should not be disturbed for 24 hours.

Installation of QuakeWrap® products must be performed only by specially trained and approved contractors.

Laminates can be cut to appropriate length using a commercial quality heavy duty shears. Care must be taken to support both sides of the laminate to avoid splintering. Since dull or worn cutting tools can damage, weaken or fray the fiber, their use should be avoided.

Cleanup

Dispose of waste in accordance with local disposal regulation. Cured materials can only be removed mechanically. See QuakeBond™ 220UR SDS for information on resin cleanup.

Packaging

- Rolls: 4 in x 500 ft (101.6 mm x 152.4 m). Smaller quantities can also be accommodated.
- The laminates can be easily cut in the field to desired length.

Shelf life and Storage

Shelf life is unlimited in proper storage conditions. Store in dry conditions at 46°-95°F (7°-35°C).

Limitations

Design calculations must be made and certified by an independent licensed professional engineer.

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Caution

QuakeWrap® GU50C is non-reactive and fully cured. They do not require a Material Safety Data Sheet (MSDS). However, caution must be used when handling since fine carbon dust may be present on the surface. Gloves must therefore be worn to protect against skin irritation. Caution must also be used when cutting the laminates to protect against airborne carbon dust generated by the cutting procedure. Use of an appropriate, properly fitted NIOSH approved respirator is recommended.

First Aid

Appropriate Personal Protective Equipment (PPE) should be worn at all times when handling product.
Consult SDS for more information.

Certificate of Compliance

Material Safety Data Sheet (SDS) will be supplied upon request and is included with each shipment.

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