QuakeWrap® U20C

HYCHEM
Infrastructure

Product Description

QuakeWrap® U20C is a high-strength unidirectional carbon fabric. The fabric is black and is impregnated in the field using QuakeBond™ 300SR Saturating Resin to form a carbon fiber reinforced polymer (CFRP) used to strengthen structural elements. The fabric weighs approximately 20 oz/yd^2 (678 g/m^2) and the fibers are primarily in the longitudinal (0°) direction.

Uses

- Increased live load capacity in buildings, 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 components caused by aggressive environments, fire, vehicle impact, aging, etc.
- Changes in structural system: new openings in floors, removal of existing walls, etc.
- ▪ Correction of design or construction errors: misplaced reinforcing bars, insufficient structural depth.

Advantages

- High-strength and lightweight fabric ideal for confined spaces.
- Used for flexure and shear strengthening as well as confinement.
- Fully compatible and excellent adhesion to QuakeBond™ resins.
- Non-corrosive.
- Versatile; can be wrapped around complex shapes.
- Light weight does not alter mass and dynamic loads on structure.
- Alkali resistant.
- Special manufacturing of the fabric makes it very stable & prevents fraying.

Coverage

65 ft^2 per 1-gallon (1.6 m^2 per 1-liter) QuakeBond™ 300SR

Surface Preparation

Surface must be clean and sound; it can 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 must be filled with an appropriate repair mortar.

The adhesive strength 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 for bond-critical applications.

Blast clean, shot-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. Sharp edges must be rounded to a minimum radius of ¾ in. (19 mm).

Apply QuakeBond™ 220UR onto the substrate with a trowel or spatula to a nominal thickness of 40 mil (1mm).
A notched trowel may be used for this application.

HYCHEM
Head Office: 1/30 Bluett drive
SMEATON GRANGE NSW 2567
PH: 1300 HYCHEM
WWW.HYCHEM.COM.AU

QuakeWrap® U20C

Fiber & Laminate Properties

	US UNITS	SI UNITS
Fiber Properties:		
Aerial Weight	20 oz/yd^2	678 g/m^2
Tensile Strength	725 ksi	5 GPa
Tensile Modulus	39,160 ksi	270 GPa
Ultimate Elongation	1.9%	1.9%
Density	0.065 lbs/in^3	1.76 g/cm^3
Laminate with 300SR: *		
Tensile Strength**	146.9 ksi	1,013 MPa
Tensile Modulus	13,800 ksi	95,100 MPa
Ultimate Elongation**	0.94%	0.94%
Breaking Force**	5,730 lb/in	1000 N/mm
Ply Thickness	0.040 in	0.99 mm

* Results based on tests of single plies of fabrics saturated with 300SR
** Mean ultimate value minus three (3) standard deviations

Application

- Saturate QuakeWrap® U20C fabric thoroughly with QuakeBond™ 300SR; for more details, refer to the Product Data Sheet for 300SR.
- Prior to mixing and applying QuakeBond™ 300SR, all products should be preconditioned to a temperature of 65-85˚F (18-29˚C).
- Before the epoxies harden, apply saturated fabric to the substrate surface that has been coated with QuakeBond™ 220UR.
- Using gloved hands or a putty knife, carefully remove any entrapped air bubbles under the fabric; a plastic laminating roller can be used for this purpose. If required, additional layers of saturated fabric can be directly applied on top of previous layers.
- Feather the edges of the fabric with QuakeBond™ 220UR.

Installation of QuakeWrap® fabrics may only be performed by specially trained and approved contractors.

Fabric can be cut to appropriate length using a commercial quality heavy duty scissor. 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 regulations. Cured materials can only be removed mechanically. See QuakeBond™ 300SR and 220UR SDSs for more information on resin cleanup.

Packaging

- Rolls: 24 in x 100 yards (610 mm X 91 m).
- This fabric can be easily cut in the field into narrower widths of various lengths.

HYCHEM
Head Office: 1/30 Bluett drive
SMEATON GRANGE NSW 2567
PH: 1300 HYCHEM
WWW.HYCHEM.COM.AU

QuakeWrap® U20C

Shelf life and Storage

Shelf life is unlimited in proper storage conditions. Store in a dry environment at 45°-95°F (7°-35°C).

Limitations

Design calculations must be made and certified by an independent licensed professional engineer.
System is a vapor barrier. Concrete should not be encapsulated in areas of freeze/thaw.

Caution

QuakeWrap® U20C is non-reactive. Caution must be used when handling since a fine carbon dust may be present on the surface. Gloves must be worn to protect against skin irritation. Caution must also be used when cutting the fabric to protect against airborne carbon dust generated by the cutting procedure. Use of an appropriate, properly fitting 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

Certificate of compliance are available upon request and included with each shipment.

HYCHEM®
Head Office: 1/30 Bluett drive
SMEATON GRANGE NSW 2567
PH: 1300 HYCHEM
WWW.HYCHEM.COM.AU