TCI PrecurStrong Carbon Fibre (pre-cured strips)

PRODUCT DESCRIPTION

TCI PrecurStrong is a unidirectional, high-strength, high-modulus carbon fibre-reinforced polymer (CFRP) strip for structural strengthening. It is bonded onto the structure as external reinforcement using TCI 400-SA, an adhesive epoxy, as the adhesive.

APPLICATIONS

Structural capacity changes

- Increased live and/or dead loads in structures
- Increased traffic volumes on bridges and viaducts
- Allows for the removal of walls, columns, or sections of floor slabs
- Ability to accommodate changes of building utilization or industrial machinery layout

Advantages

- Meets design criteria of **ACI 440**, and **CSA S806**
- High strength-to-weight ratio
- Light weight, adds negligible dead load to structure
- Non-corrosive, non-magnetic and non-conductive.

TCI 400-SA, An A

TCI 6 s a two-component, 100% solid, room temperature cure thermoset epoxy system with low viscosity and long pot life characteristics.

Specific Gravity @ 23oC, gm/cm^3	1.54 +/- 0.04	1.08 +/- 0.04
Viscosity @ 23oC, cps	Paste	40,000 +/-10,000
Mix Ratio by weight	100	25
Pot Life @ 23oC, 200gm mass	1.0-1.25 hours	
Gel Time @ 23oC, 200gm mass	1.45-2.45 hours	
Cure Cycle	3 Days @ R. T. OR 6 Hrs @ 45oC + 24Hrs@ R. T.	

MECHANICAL & PHYSICAL PROPERTIES

TCI PrecurStrong Carbon Fibre	
PHYSICAL PROPERTIES	TYPICAL TEST VALUE
Tensile Strength	400 Ksi (2,758 MPa)
Tensile Modulus	24 Msi (165.474 GPa)
Elongation at Break	1.70%
Fibre Volume Content	> 68%
Temperature Resistance	300 F (149 C)
Thickness	0.0472 " (1.2mm)
Standard width	1.97", 3.15", and 3.94" (50, 80, and 100 mm)

TCI 400-SA – Cured 24 Hrs @ 60°C	
TYPICAL TEST PROPERTIES	TYPICAL TEST VALUE
Tensile Strength	10,050 psi (69.3 MPa)
Tensile Modulus	406 Ksi (2,800 MPa)
Elongation at Break	7.5%
Flexural Strength	16,900 psi (116.5 MPa)
Flexural Modulus	478 Ksi (3,296 MPa)
Glass Transition Temperature Tg	94°C (201°C)

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INSTALLATION

Environmental conditions

- Maintain a dry dehumidified environment and maintain the ambient temperature at a minimum of 10° F above the dew point
- Substrate surfaces shall be at least at SSD (Saturated Surface Dry) condition prior to installation
- Maintain the required environmental conditions of substrate surfaces until at least 48 hours after the installation has been completed
- The surface temperature of the substrate shall not fall below 5° C. Don't apply the protective coating if the substrate surface temperature is above 40° C

Surface preparation:

- Concrete substrate must be sound and clean. Remove all spalled or fractured areas and inject any cracks that exceed 0.3 mm in width. Ensure to patch and fill voids
- All surfaces must be free of dust, laitance, grease, waxes, coating materials, and any other foreign particles
- Surface preparation should promote continuous intimate contact between the CFRP system and the substrate surface
- Substrate surfaces shall be thoroughly cleaned using mechanical and/or high-pressure sand /water blasting
- All substrate surfaces have to be primed using TCI 400-SA. Refer to the current 400-SA datasheet for primer mixing and application procedures

Installation of PrecureStrong Carbon Fibre Strips:

1.Setting out according to design;
2. Remove painting of the concrete surface and polish, blow out the floating dust with compressed air;
3. Prepare adhesive: Mix component A and B evenly in bucket. Mix ratio by weight A: B = 2:1 ;
4. Installing: Paste TCI 400-SA onto the surface of carbon fibre plate evenly, ensure to avoid bubbles;
5. Anchorage: Paste the carbon fibre strip onto the concrete surface, remove extra epoxy near the plate.
6. Maintenance: Cure time should be no less than 24 hours at room temperature.

Final cure and return to service

Allow 72 hours for a final cure before returning to service.

LIMITED WARRANTY

Ten (10) year material replacement warranty is available. For complete details contact info@tcicarbonfibre.com. Copy is furnished upon request.

Legal Disclaimer

Keep products containers tightly closed, keep products out of reach of children, products are not for internal consumption, products are for industrial use only, products are for professional use only. IN CASE OF EMERGENCY: Call CANUTEC +1 (613) 996-6666. Prior to each use of any product of Technical Construction Infrastructure Inc. ("TCI"), users must read and follow the warnings and instructions on the products most current product label, specification, products datasheet, products safety datasheet, and products material safety data sheet. Current safety datasheet, datasheet, and other TCI product literature can be obtained by emailing info@tcicarbonfibre.com, or by calling +1 (905) 997-5800. The information included herein is for illustrative purposes only, and to the best of our knowledge, is accurate and reliable. TCI cannot however under any circumstances make any guarantee of results or assume any obligation or liability in connection with the use of this information.