COLORADO DEPARTMENT OF TRANSPORTATION

PRE-APPROVED PRODUCT EVALUATION REQUEST & SUMMARY

APL Reference No. 3248-11

Product Evaluation Coordinator
Colorado Department of Transportation
4670 North Holly Street, Unit A
Denver, Colorado 80216

Material code: 601.09.02.00

FOR INTERNAL CDOT USE

Material code description full name: Concrete, Structural Wrapping Repair

PART 1

Product name: CF-516

Product category: Bridge Structures\Structural Wrapping Repair

Product representative (name & address):
Attn: Steve Nunn
Riverbend Enterprises, LLC
15160 Riverdale Road
Brighton, CO 80602
Phone: (303) 902-1813 FAX:

Manufacturer (name & address):
Attn:
HJ3 Composite Technologies
4100 S. Fremont Ave.
Tucson, AZ 85714
Phone: (520) 322-0010 FAX: (520) 322-0453

Web-site address: www.hj3.com

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Description of the product: (Include specific quantifiable details from tech data sheet. Advertising generalities are not appropriate.)

CF-516 is a Carbon Reinforced Polymer. CF-516 is a unidirectional composite. Product consists of a primer epoxy (PC-200), a tack coat epoxy (TC-310), a saturant epoxy (SRW-400) and a carbon fabric. The materials are combined together to form a high strength composite wrap to be installed externally on a structure.

The composite will require a 24 hour curing period. In most cases bridge column and girder repairs will not require traffic to be shut down while the repair and composite installation are executed. The composite will reach 145 ksi tensile strength on average with 12,500 ksi modulus.

Restrictions, (installation and/or use):

Use of the product, (be specific to CDOT highway activities only):

Tensile strengthening of concrete & steel. Increase ductility, bending, seismic and shear strength of concrete columns, beams, slabs and girders.

Benefits to CDOT, (how will your product enhance quality, improve safety, save money, be a better value then other manufacturer's products):

Carbon fiber can be used to repair existing beams, columns and slabs that have structurally degraded. Installation of carbon fiber requires less heavy equipment and labor to install and can be performed without closing the bridge. Repaired structures often have more strength than originally designed after being reinforced with carbon fiber. Carbon fiber will protect existing and new concrete from environmental effects such as deicing, UV, rain, wind abrasion. Minimal impact on aesthetics and can be sprayed with anti-grafitti coatings. All products tested in independent and certified labs. Installers must follow QA/QC program. Warranties available.

Specifications, (listing those applicable is required) **& Certificate of Compliance** (required to certify compliance with listed specifications):

- ☐ CDOT :
- ☒ ASTM : D 3039, D 638, D 790, D 695, D 648
- ☐ AASHTO :
- ☐ FHWA :
- ☐ other :

Product testing, (from national/independent laboratories or universities) **& Certified Test Report** (CTR required to validate all claims):

- ☐ NTPEP-AASHTO :
- ☐ FHWA :
- ☒ other : Smith-Emery Laboratories (October 10, 2007)
- ☐ other :

State DOT Approvals, (current documentation required):

Indiana, Kentucky, Oklahoma

Sample submitted: ☒ yes ☐ no ☐ n/a

Materials Safety Data Sheets (MSDS): ☒ yes ☐ no ☐ n/a

Notes/Additional Comments

Ten times stronger than steel in tension, no heavy equipment required, can be painted for aesthetics, does not alter the look of a structure, adds only 1/8" thickness.