



COMPOSITE TECHNOLOGY DEVELOPMENT, INC.

ENGINEERED MATERIAL SOLUTIONS

August 18, 2004

Princeton Plasma Physics Laboratory
Attn: Mike Kalish
P.O. Box 451
Princeton, NJ 08543-0451

Subject: Quotation for Mechanical Testing

Ref: (a) Your verbal Request for Quotation of August 16, 2004

Encl: (1) CTD Quotation

Dear Mr. Kalish:

Composite Technology Development, Inc. (CTD) is pleased to provide this firm-fixed-price quotation for mechanical testing, as requested by reference (a). Additional information about the testing is attached.

Any contract resulting from this proposal will be based on the incorporation of mutually agreeable terms and conditions. All work will be completed within 3-4 weeks after receipt of order.

This offer is valid for a period of 60 days. Please contact Mr. Paul Fabian for any technical questions and the undersigned for any contractual questions regarding this quotation.

Sincerely,
Composite Technology Development, Inc.

/s/ Fred L. Beavers
Sr. Contracts Manager

enclosure



Quotation
August 17, 2004

ITEM 1 Through-thickness tensile/adhesion tests between copper and CTD-101K

CTD shall fabricate 16 through-thickness tensile test specimens, composed of copper end pieces bonded to CTD-101K/S-2 Glass composite insulation, and test these specimens at 77 K.

Specimen Design

Specimens will consist of a 0.050-inch thick composite layer of CTD-101K reinforced with S-2 Glass, 6781 style woven fabric, sandwiched between two copper end pieces, each 0.5-inch in diameter and approximately 1.2 inches long.

Specimen Fabrication

Specimens will be fabricated by loading the copper end pieces and dry S-2 Glass fabric into a closed mold, and impregnating the fabric using standard Vacuum Pressure Impregnation (VPI) processing procedures with CTD-101K epoxy resin. A single production run will be conducted, producing 16 specimens. Variations in the copper bonding surface preparation can be evaluated at PPPL's direction.

Specimen Testing

The specimens will be tested in tensile mode at 77 K, thus measuring the ultimate tensile strength in the "33" or through-thickness direction.

Deliverables

A final report will be submitted, detailing all specimen production and testing procedures, along with the measured ultimate tensile strength and failure modes.

Firm-Fixed-Price: \$4,465.00