No: PUR/IMP/071/11 Date: 23.02.2012

SUB: TENDER ENQUIRY

MODE OF TENDER: 2 BID (PART-I TECHNICAL PART-2 COMMERCIAL)

Dear Sir,

We are interested to Purchase **ONE FULLY AUTOMATIC HIGH TEMPERATURE THERMO MECHANICAL ANALYSER (TABLE TOP MODEL**) as per specification enclosed.

Please quote your most competitive rates (on FOB/FCA International Airport basis in case of Import system) in two bid system so as to reach this office on or before **12.00** hours on **14.03.2012**. The tenders will be opened at **2.00 p.m** on the same day, in the presence of the bidder, if any.

An **Earnest Money Deposit of Rs. 63,750/-** or equivalent in the form of demand draft/bank guarantee in favour of Director NIIST is required to be sent along with the Technical Bid.

Envelope 1 should consist of technical bid and EMD. Envelope 2 should consist of the commercial bid. Both the envelopes should be sealed and put in another envelope and should be marked with reference No. and due date of the tender.

Kindly visit our website www.niist.res.in. and look for blank tender documents which forms part and parcel of this tender. Instructions to bidders, general conditions of contract , special conditions of contract and all formats included in the blank tender documents are an integral part of this tender. So you are requested to kindly go through the detailed terms and conditions in our website.

sd/-

Stores & Purchase Officer

Fully automatic high temperature thermo mechanical analyzer

(table top model for research purpose).

The basic instrument should have the capability to measure thermal expansion/ contraction, bending, compression of ceramics, glasses, polymers and the composites with respect to temperature/ load and atmospheres.

A. Measurement mode and precision

Dimensional changes, displacement, elongation, contraction, expansion of ceramics, glasses, polymers and composites with minimum measuring range of 1mm (1000 microns) or above with accuracy 0.01 microns.

Measurement of three point bending strength in compression and flexural strength modes at elevated temperatures.

The instrument should be capable to measure (a) coefficient of linear thermal expansion (b) volume thermal expansion(c) flexural strength (d) creep (e) stress – strain analysis and (f) viscoelastic behaviour of ceramics, glasses polymer and composites measurements.

B. Temperature specifications

Measurement capabilities from (a) low temperature (-150^{o}C) to high temperatures (upto 600^{o}C) or above and (b) room temperature to 1500^{o}C with heating and cooling rates between 0.01 ^{o}C to 50 ^{o}C or above per minute. The furnace chamber should have uniform thermal gradients or isothermal gradient conditions. The furnace environment should be controlled into vacuum, air, inert gas and any other controlled environments.

Temperature sensor/ controller

Suitable thermocouple to sense temperature with extreme accuracy. PID controller with multiple segments and multiple programs

C. Probes

Suitable probes to measure (a) linear thermal expansion (b) volume thermal expansion (c) tension and (e) bending for ceramic, glass, polymers and polymer ceramic composites.

D. Test specimen

Solids, composites, polymers, ceramics, crystals and metals with cylindrical and rectangular shapes.

E. Force

Minimum load range of 0.01 N and maximum 3 -5 N on the sample surface. Force should have resolution 0.05 mN

F. Sample holder

Should be rigid and made up of metal,ceramic which can withstand at ttemperatures as high as 1600^0C in any non corrosive atmospheres.

G. Standards

Standard samples that can show high thermal expansion and low thermal expansion at sensitive thermal gradients.

H. Power

Single phase, 250V, 50 Hz AC

I. Data acquistion and analysis

Should be able to automatically collect the data, and store in the form of ASCI, MS Excel, and Origin formats. Should also have the capability to online storage in memory stick.

J. Computer capability

State of art PC with user friendly software support for analysing linear and volume thermal expansion, expansion coefficient, heat and mass transfer, diffusion coefficeint, viscoelasticity, stress – strain , kinetics, creeping etc.

K. Safety requirements

The equipment should sense overheating, melting of samples as well as over expansion of samples. The equipment should have capability to stop run automatically if any such effects are encountered.

L. Other requirements

The system may have inbuilt UPS and should have no noise or any sort of anomaly when it is operated in the generator power or UPS power.