

Department of Chemical Engineering, IIT Delhi

Purchase of Texture Analyzer

Date: 03.10.2011

Quotations are invited for one texture analyzer with minimum requirements as below. Technical and commercial bids must be submitted in separate sealed envelopes subscribed with “Technical Bid” or Commercial Bid” as appropriate. Both technical and commercial bids should be enclosed in an envelope subscribed “Quotation for Texture Analyzer”.

The quotation should reach **Dr. S. Mohanty, Department of Chemical Engineering, IIT Delhi, Hauz Khas, New Delhi – 110016** latest by **5:00 P.M. on October 17, 2011**.

The equipment must be able to determination of Texture, effect of viscosity, rheology / stress-strain behaviour, measurement of hardness, softness and stickiness, brittleness, cutting force, shearing, consistencies and penetration forces on polymers, powders, gels, adhesives and pressure sensitive Adhesives with the following specifications.

Functional Requirements:

- (1) Texture Analysing System of minimum 50 kg load frame capacity. It should be possible to use different capacity load cells on the same load frame (interchangeable load cell feature).
- (2) Instrument should be computer controlled through compatible software for finding rheological properties. Software should provide complete database of family of probes and attachments and include comprehensive library of application reports, help guide covering a wide range of products and tests. Software should give flexibility in data manipulation and data analysis using a wide range of mathematical and statistical formulae. The supplier should confirm very clearly in yes or no whether the software being offered by them can perform the following tasks or not:
 - 32 bit software.
 - Facility to modify the distance being traveled by the probe during the test to account for the bend compensation and frame deflection.
 - Facility to hold the constant force applied for the duration of the test by either increasing or decreasing the test speed proportionally, differentially or integrally.
 - Facility to detect and then change the speed of the Instrument proportionally to the product height during the test rather than testing at constant speed.
 - Facility to download the latest version of the firmware via PC through the Internet.
 - Facility to collect Acoustic Data as an integral part of the test along side force, distance and time. Whether this information can be used by the Instrument / software to quantify sensory crispness.
 - Facility to write a macro i.e. an English language programme which enables a user to do routine calculations automatically.
 - Facility to measure linear distance for calculating crispiness / brittleness.
 - Whether the software can measure area, gradient, mean, time difference, ratio, travel, count positive peak, count negative peak, dispersion, average drop of, volumic mass, force maxima and force minima. The supplier must confirm categorically how each of these parameters are calculated using the software which is offered.
 - Feature to mark events like fracture, first peak, maximum force etc.
 - Whether software can determine on Powders – Particle Cohesion after compaction, recovery from compaction, granule surface friction, resistance to flow, resistance to compression, mixing and mixing kinetics.

- (3) The Instrument should be able to measure hardness, firmness, stress relaxation, cohesiveness, elasticity, tenderness, brittleness, stress resilience, etc. Existing application studies for these parameters, conducted on the offered equipment must accompany the quotation.
- (4) It should be possible for the Instrument to acquire the data from external devices like temperature or humidity controllers. Relevant brochures in original must be enclosed with the quotation in support of suppliers claim that these are manufactured / supplied by them.

Accessories required with the Instrument:

- (a) Load cells of 50 Kg & 5 Kg (Both to be used on single load frame)
- (b) Platform for keeping the sample
- (c) Software with above features

Product Specifications:

- (i) Power supply should be 220 V, 50 Hz
- (ii) The supplier should specify the rate at which the data is collected and plotted. Reports generated at different data rates must accompany the quotation.

Mandatory Requirements:

- The supplier fulfilling the desired specifications will be required to arrange the live demonstration of the quoted Instrument and the software to a team of scientists. All the functional requirement and product specifications mentioned above will have to be demonstrated prior to any purchase decision.
- The supplier will be required to install the equipment and accessories completely in place and also demonstrate the Instrument and the software vis-à-vis the tender specifications. Training will also be required to be given to the users on the operation and applications on different food products after the Instrument is accepted.
- The supplier should enclose the authorization letter in original from the Manufacturer to submit quotation against the present tender. The quotation must be submitted either by the manufacturer or by their exclusive representatives in India. Quotations from re-sellers / dealers / representative offices or individuals will not be accepted even if it is accompanied by Authority letter from the exclusive representatives of the manufacturer.
- The Indian Agent and the manufacturer must have supplied sufficient number of Texture Analysers particularly to Indian organizations.
- The supplier should enclose worldwide and Indian users list / references and special mention to be made for the supplies made in last Five years. The names, postal address, department and the phone numbers of the users in India must accompany the quotation.
- The supplier should provide 1 year warranty for the equipment.

Terms and Conditions:

- Please quote prices at FOB and CIP New Delhi, inclusive of installation charges.
- Quote should be in Indian Rupees as well as foreign currency (if applicable) and to be valid for at least three months.
- Attach all the technical literature and a list of similar installations done in India.
- A minimum of one year comprehensive on-site warranty, also mention cost for warranty for three years.
- Mention if you can provide any technical support like training of IIT Delhi personnel at IIT Delhi or in your factory and providing a technical person for operation of the machine for initial period of 2 years. Kindly mention about this in the technical bid.
- If the quote is being submitted by the representative of the Principals/ manufacturers themselves, a valid Agency-ship/ Dealership Certificate authorizing the agent to quote to IIT Delhi on behalf of Principal should be enclosed.
- The Institute reserves right to reject/accept any/all quotations without assigning any reasons thereof.
- Complete set of manuals for the operation and servicing of the equipment should be given. All circuit diagrams, other mechanical and electrical schematics must be provided to Main unit, subsystems and accessories.
- Delivery period 4-6 weeks on receipt of PO.
- Clearly specify installation requirements – such as space, power, frequency, environment (Temperature, humidity) etc.
- If the items quoted are proprietary in nature, please enclose proprietary certificate from the principals stating “certified that ---- is a proprietary item of M/s ----- and no other manufacturer make these items”.
- If the bidder is Indian agent, the agency certificate should be enclosed.
- Please produce compliance certificate for the specification.
- Please ensure that the Indian agent has been enlisted with the Department of Expenditure, evidence may please be attached.
- Quote separately for models of higher specifications also.

Sanat Mohanty
Department of Chemical Engineering