



सीएसआईआर-केंद्रीय खाद्य प्रौद्योगिक अनुसंधान संस्थान
CSIR- CENTRAL FOOD TECHNOLOGICAL RESEARCH INSTITUTE
मैसूरु / MYSURU-570 020, भारत / INDIA

(Constituent Laboratory of CSIR, New Delhi (Ministry of Science & Technology)
An ISO 9001:2008, ISO 14001:2004 & ISO 17025:2005, NABL Accredited Laboratory

Dt. 24-11-2023

Corrigendum: Tender for Universal Texture Analyser

Corrigendum Title: Revised Technical Specification based on PBC

Tender Ref: CFTRI/74245/2023 Date: 13-11- 2023

Tender ID: 2023_CSIR_174315_1

The revised specification based on the proceeding of the Pre Bid Conference held on 22-11-2023 @ 11. 00A.M is uploaded herewith.

All the prospective bidders are requested to take cognizance of the revised specification and submit their bids accordingly on or before 11/Dec/2023 by 02.00 p.m.

All other terms and conditions of the tender remain unaltered.

Stores & Purchase Officer
CSIR-CFTRI, Mysore

Revised Detailed Technical Specifications for Universal Texture Analyser

Universal Texture Analyzer/UTM for measuring mechanical properties such as hardness, firmness, softness and stickiness, chewiness, cohesiveness, elasticity, tenderness, brittleness, freshness, cutting force, shearing, consistency penetration, Texture profile Analysis (TPA) of Food products. Compression, Tensile, flexural, Shear, Breaking, Penetration/Puncture, Stress relaxation properties of plastics, rubber, paper and composite packaging materials and food materials and miscellaneous products.

Universal Texture Analyzer/UTM base table top model dual column with safety pins and safety lock system, to attach multiple Load cells on the same frame. with a computer attached.

Technical Specifications

1. Latest with computer controlled system
2. Test Speed Range: **From 0.001 to 2000 mm/min**
3. Force capacity: Up to 10 KN
4. Cross head travel distance (distance from base to lower surface of the load cell): Must be greater than 1000 mm
5. Crosshead position accuracy: A minimum of ± 0.015 mm or ± 0.1 %
6. The instrument should have the option to be operated/controlled as standalone with attached operator panel/ LCD display and also through PC and Software
7. The equipment should have complete safety features like emergency stop, warning signals/indicators, malfunction/error messages, automatic overload prevention and control
8. The equipment should have provision for Interface for add-on **accessories like temperature controller.**
9. Computer specifications: Branded computer HP/Dell/Lenovo/Samsung/Asus/Acer, etc. i7 processor, 32 GB RAM, 512 GB SSD, MS Windows 11 OS, MS office with LED 21-inch monitor.
10. HP LaserJet Printer Model MFP 136W Commercial/Professional edition.
11. Software: Communication software with media and license, for the system, to communicate and connect with MS Office, to be provided, along with future upgrades free of cost for a period of 10 years, from the date of satisfactory installation.

Load Cell Requirements:

1. **Load cells required: 50 N, 100 N, 1 KN and 10 KN with ± 0.1 % accuracy reading down to 1/500 of load cell capacity.**
2. Load cell should withstand up to 150 % of rated load without mechanical damage / loss in accuracy.
3. Self-identification and display of the load cell capacity whenever the load cell is changed.
4. Should be EN ISO 7500:2004/Class 0.5 ASTM E4/equivalent or better.
5. Load Cell should have provision of built-in memory for storing 10 - point calibration Data.

Accessories

1. Load cells as specified above.
2. Vice action grips: one for films and 2 for dumbbell shape specimens for manual tightness
3. Warner Bratzler shear blade jig: This jig enables shear test that involve cutting with blade. In addition to V-cut for Warner Bratzler tests, it allows the user to substitute blades with other edge profile. It is used to evaluate the shearing of foods such as meat, sausages, cheese, vegetable, and snack bars.
4. Three-point bending probe: This setup makes it possible to evaluate the breaking strength or brittleness of samples by performing a bending test, it is ideal for testing the three-point bending strength of samples such as biscuits or chocolate bars, etc.

5. Magnus Taylor Puncture Probe: Cone probe 60° and 45° for Spreadability test: This probe is used to evaluate how easy it is to spread samples that are normally spread into a thin layer, such as margarine etc.
6. Semi solids testing probe: Compression probe cylindrical made by stainless steel probes, viz. 2 mm, 4 mm, 6 mm, 8 mm, 10 mm, 12 mm, 35 mm and 80 mm diameter
7. Ball probe: 2 mm, 5 mm and 10 mm diameter
8. Spaghetti noodles probe
9. Back extrusion jig
10. 1 mm Needle probe
11. Pasta and noodles blade.
12. Tensile test grips for noodles (roller type)
13. Wire cutter jig: This jig used for shear testing such as butter, cheese, margarine, etc.
14. Multi probe (piercing) Jig
15. Kramer shear blade jig
16. Ottawa forward extrusion jig

Expected output forms/features with respect to Results:

1. The software should support reporting the results such as strain vs stress, tensile, flexural, compression strength and elongation values, firmness, hardness etc. should be calculated automatically.
2. The software must have the facility to modify the distance being traveled by the probe during the test to account for the bend compensation and frame deflection.
3. The software must have the 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.
4. Software features should be compatible with latest commercial packages like MS Excel, TXT, ASCII and many more
5. The software should be able to detect the speed of the Instrument proportionally to the product height during the test.
6. The software should have the facility to write a macro, i.e., an English language program which enables a user to do routine calculations automatically.
7. The software should have feature to 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 as to how each of these parameters are calculated using the software supplied.
8. The software should have the feature to mark events like fracture, first peak, maximum force etc.
9. Software should be loaded with standard methods of testing, information about loading and calibration of accessories, auto project loading, help guide, should be provided with explanation and interpretation of curves generated, auto result calculations, etc.
10. In-built statistical analysis software for results
11. Software should have pre designed report templates to include graph settings on which the test is running.
12. The instrument should be upgradable to capture the sound produced while chewing for crunchy products.

Standards

1. The test parameters should support the following standards:
2. Tensile properties: ASTM D828, D638, **D882**, ISO 1924, TAPPI T 494
3. Peel strength: ASTM D3330, ASTM D1876
4. Tear properties: ASTM D1938
5. Seal strength: ASTM F88
6. Bond strength: ASTM F904

Warranty: The instrument along with all accessories including computer should have minimum two years warranty from the date satisfactorily installation.

Post warranty AMC quote has to be provided for a period of 5 years.

Training: Comprehensive Training should be provided onsite to the staff of CSIR-CFTRI