Texture analysis applications manual

TX-700

LAMY RHEOLOGY INSTRUMENTS

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What is texture analysis?

Texture analysis is mainly linked to the mechanical properties of the product. The TX-700 is capable of expressing with experimental values the qualitative feelings.

Texture Analyzer TX-700

The TX-700 is a texture Analyzer, operating in both compression and traction, with a 7" touch screen. Compatible with a wide range of probes and cells, the TX-700 is the ideal tool for your texture analysis. Thanks to its touch screen directly displaying the curves, its method programming capability, storage and analysis of measurements, the TX-700 will integrate in laboratory and production area.

TX-700 Specifications

Available Operating Modes:

- Compression (distance & relative)
- Relaxation
- Traction
- TPA Cycle
- Penetrometry

A large choice of sensors:

- 10 N (1 kg), Resolution 0.001 N (0.1 g)
- 20 N (2 kg), Resolution 0.001 N (0.1 g)
- 50 N (5 kg), Resolution 0.001 N (0.1 g)
- 250 N (20 kg), Resolution 0.01 N (1 g)
- 500 N (50 kg), Resolution 0.01 N (1 g)

Temperature:

The TX-700 has a PT 100 sensor to measure your sample's temperature from -50°C to +300°C.

Motion:

- Height: 240 mm / Resolution: 0.1 mm
- Speed: from 0.1mm/s to 10mm/s

Accuracy:

+/- 0.05 % of the full scale

Display:

- Force
- Speed
- Distance
- Temperature
- Time
- Level of sensitivity
- Date/hour
- Choice of force units: gram or Newton

Security and confidentiality:

An «operator» function allows you to enter a username for your instrument. This user must then be identified using a 4-digit code. There is also a protected mode that locks your measurement conditions.

What benefits are there for you?

- Integrated adjustable turntable: diam. 160 mm.
- Table for attaching inserts: 120 x 220 mm.
- The storage of your measuring methods.
- Data can be backed up and exported using a USB key.
- External control thanks to the optional software.
- PC: RS232 and USB
- Printer: USB Host - compatible PCL/5
- .More information on our website.

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Applications

Food industry:

Food is a major industry in our society, that's why the TX-700 is suitable for a lot of analysis such as dairy (milk, butter, cheese, yogurt...), bakery (bread, pasta, pastries…), snacks (crisps, candy, biscuits…) but also fruits and vegetables (strawberry, corn.....).fefe

Chemistry / Petroleum:

From plastics rigidity analysis to adhesion of glue passing by compression of polymer hydrogels, the versatility of the TX-700 is a major asset to any laboratories or products site.

Teaching:

Having top of the line instruments for teaching is one of the best guarantees of quality for your establishment. So, with the TX-700, your student will be able to work with easy-to-use but complete devices.

Cosmetics / Pharmaceuticals:

The TX-700 can analyze large varieties of products such as cream, shower gels or shampoos. It is also suitable for analyzing pharmaceuticals products such as capsules or scored tablets.

Building materials:

The quality of materials used in every construction is crucial to ensure stability of construction over time. That's why control of these materials is essential. The TX-700 can provide quality measurement for your building materials.

Chocolate:

They are many kinds of chocolate (white, milk or dark) with a lot of textures: liquid, paste, tabs, or used as a flavoring ingredient in other foods. For this reason, the TX-700 is your best ally because one device can analyze all of your different products.

Probes and cells applications

						
Warner-Bratzler cell	✓	✓				
Wire shear cell	✓	✓				
Lipstick Cantilever		✓			✓	
Film Compression	✓	✓	✓	✓	✓	
Kramer cell 5 blades	✓	✓				
3 points bend fixture	✓	✓				✓
Tensile fixture	✓	✓				
Extrusion cell	✓	✓	✓	✓	✓	
Syringes test bench		✓			✓	
KIEFFER dough Cell	✓	✓				
Pizza Tensile Fixture	✓	✓				
Compression Fixture	✓	✓	✓	✓		
Compression Fixture (spherical probe)	✓	✓				
Friction Fixture		✓	✓	✓	✓	
Spreadibility Fixture	✓	✓			✓	
Ottawa Cell	✓	✓				
Pasta Firmness cell	✓	✓				
Volodkevich Bite Jaws	✓	✓				
MOHRS probe	✓	✓				
Tablet coating adhesion					✓	
Blister pack support					✓	
Capsule Loop Tensile					✓	

						
Bi-Layer Shear Fixture					✓	
PUNCH Fixture	✓	✓			✓	
Noodle Tensile Fixture	✓	✓				
Noodle Firmness	✓	✓				
Mesh probe	✓	✓			✓	
Bloom probe	✓	✓		✓	✓	
Flat probe	✓	✓	✓	✓	✓	
20mm spherical probe	✓	✓	✓	✓	✓	
Cleaver probe	✓	✓	✓		✓	
½ spherical probe	✓	✓	✓	✓	✓	
Conical probe	✓	✓	✓		✓	
Cylindrical probe	✓	✓	✓	✓	✓	

TX-700 Accessories

In order to be polyvalent, the TX-700 has at its disposal a large variety of probes that allows you to realize all your texture measurement with only one device.

Many cells can be adapted to the device:

- Warner-Bratzler
- Wire shear
- Lipstick Cantilever
- Compression cell for film
- Kramer cell
- 3 Points bend
- Tensile Fixture
- Extrusion Cell

There are also many probes to suit your experiment:

- Spherical
- Cleaver
- Dual cone
- Conical
- Cylindrical
- Bloom
- Flat
- ½ spherical

On-demand probes can be made.

Warner-Bratzler cell
REF: 130074

Warner-Bratzler cell is used to cut sample thanks to its fine cutting blade. This device can be used to cut through samples such as small chocolate bars, meat like sausages or other products that requires cutting assessment.

Wire shear cell
REF: 130076

Wire shear cell is the mainly used cell to measure the consistency of block shaped products such as butter, margarine or cheese. The wire can also be useful to cut other soft enough products such as foie gras.

Lipstick Cantilever
REF: 130147

Lipstick being one of the most used cosmetics; it is primordial for you to characterize its everyday resistance toward rupture. That is for this assessment that we design the lipstick cantilever test bench.

Film compression test
REF: 130031

There is a large variety of film going from plastics bags to packaging industry; they are in our everyday life. This cell helps you to determine the resistance of your film toward puncture. All sort of thin film can be used with this device. Required base table 310106.

Kramer cell 5 blades
REF: 130094

The 5 blades Kramer cell is used to assess tenderness and hardness. It is design for cutting by shearing and extrusion of small samples such as corn, peas or grapes. All kind of soft small samples can be used with this cell. Required base table 310106.

3 Points bend fixture
REF: 130091

The 3 points bend fixture is used to characterize breaking force, friability and springiness on large enough sample such as chocolate tabs or even cereals bars.

Tensile fixture
REF: 130092

The tensile fixture cell is used to measure the tensile force. It represents the required force to stretch a sample until it reaches rupture point. Many samples can be used such as food (like pasta) or even plastics (like film).

Extrusion cell
REF: 100200

The extrusion cell permits measurements of the consistency of viscous products, such as yoghurt, creams or sauces but also shampoo or hair gel products. This cell can be used for both forward and backward extrusion. Required base table 310106.

Syringe test bench
REF: 130145

This device is design to measure the needed force to push liquid through a syringe. It can be adapted to a large range of syringes with a diameter from 9mm to 29mm.

Mesh probe
REF: 130158

Utilisation of mesh on this probe allows you to realize texture analysis of different soft products such as yogurts or cream. This probe can assess a large surface of the sample in order to evaluate the global texture.

Bloom probe
REF: 130046

This probe is used for Bloom test. This test determines the weight in grams needed by a normalized plunger to depress the surface of a gel by 4 mm without breaking it at a specified temperature. Various types of gel can be categorized.

40mm flat probe
REF: 130083

Plate probes are used to assess texture on solid samples. By using this probe, we can determine factors like the consistency, the elasticity and the adhesion on a solid.
Also exist in 34mm and 50mm.

20mm spherical probe
REF: 130149

Spherical probes are used to measure consistency, elasticity, spinning and adhesion on soft to strong sample. Here, the probe is used for texture analysis of different hair gel. However the probe can be used for a wide range of products.

½ spherical 40mm ø
REF: 130049

Such probes can be used to assess multiples parameters such as consistency, elasticity, adhesion and spinning properties of gel or cream. Measurement can be done directly in the jar if the opening is wide enough or in a dedicated container.
Also exist in 8mm and 30mm.

Cleaver probe
REF: 130064

The cleaver probe is equipped when determination of the breaking force is needed. The probe shape design allows you to analyze hard samples without any difficulties.

Conical probe
REF: 121023

A conical probe allows you to measure the consistency via a simple penetration test on solid sample (spreading). This probe exists in different sizes in order to cover a maximum range of applications.

Cylindrical probe
REF: 130077

This family of probes exists in a large variety of diameter (from 2mm to 25mm). These probes can be used to assess a lot of parameters in large varieties of products (from fruits to deodorants).

Pizza Tensile Fixture
REF 130054

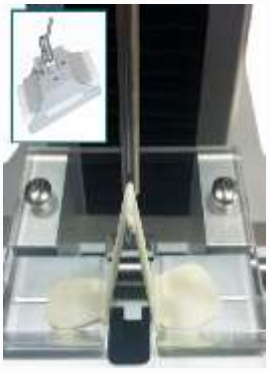
Pizza Tensile Fixture quantifies cooked pizza firmness by measuring the tensile force and deformation distance to break sample.

Knife probe
REF: 120012

The knife fixture allows the installation of a standard craft blade. This probe can be used to assess the cutting force on soft or hard products (tablets, pastilles…). It is also possible to cut very small sample thanks to the thickness of the blade.

Needle probe
REF: 130045

This 3mm needle probe is used to make penetration test on hard sample (such as household soap) that requires a lot of force to go through.



KIEFFER dough Cell
REF: 130148

Kieffer Dough and Gluten Extensibility Fixture quantifies maximum force and distance needed to break sample. Required base table 310106.

Compression Fixture
REF 130153

Compression Top Plate for applying uniform compression forces on samples up to 10x15cm. Required base table 310106

Compression Fixture with spherical probe
REF 130151

Dough Extensibility Fixture for holding sheet of raw dough or flat bread to measure breaking point of stretched sample. Required base table 310106.

Spreadibility Fixture with conical probe
REF 130157

Spread Test Fixture quantifies the spread force of a material. Comes with 1 male cone probe, 5 five samples cups and 1 sample cup holder. Required base table 310106.

Pasta Firmness cell
REF 130152

Pasta Firmness and Stickiness Fixture measures the firmness and stickiness of uncooked pasta. Required base table 310106.

MOHRS probe
REF 130165

Shear Blade used for cutting tests, especially meat, poultry, fish or similar products.

Friction Fixture
REF 120013

Sliding Friction Jig measures the coefficient of friction for packaging materials according to ASTM D1894.

Ottawa Cell
REF 130065

Ottawa Cell for extruding assorted soft samples, like pasta or diced fruit and vegetables. Required base table 310106.

Volodkevich Bite Jaws
REF 130067

Volodkevich Bite Jaws for testing bite force of meat products using shear cutting-test. Required base table 310106.

Tablet coating adhesion
REF 900025

Tablet Coating Adhesion Fixture measures the adhesion force of a tablet coating to a tablet. Required base table 310106.

Blister pack support
REF 400630

Blister Pack Support Fixture is used to measure the force required to remove the tablet from its blister pack. Required base table 310106.

Bi-Layer Shear Fixture
REF 400043

Bi-Layer Shear Fixture measures shear strength by cutting a two-part tablet or capsule using a guillotine blade. Required base table 310106.

Kit of probe
REF 130166

Kit of many probe in case for complete studies contains: Cylindrical probe (PN 130077, 130124 and 130037), Cleaver probe 130064, Plate 130101, Conical 121023 and semi-spherical 130019 and 130079.

Noodle Tensile Fixture
REF 130168

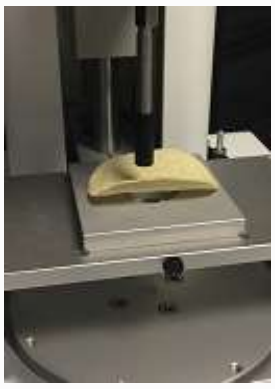
Noodle tensile fixture is used to stretch noodle in way to get information about elasticity and rupture force after different cooking time.

Capsule Loop Tensile
REF 450010

Capsule Loop Tensile Test Fixture is used to measure the force required to split one half of a hard gel capsule. Required base table 310106.

Fixture Base Table
REF 310106

Fixture table need for some cells or probe to allow fixation or holding of sample.



PUNCH Fixture
REF 130167

Junior Punch Fixture is for punching through flat samples; 12.7mm max. Diameter probe.
Hole in fixture is 14mm. required base table 310106.

Noodle Firmness
Ref 130139

Pasta Firmness and Stickiness Fixture measures pasta and like products. Exists with knife shape.
Required base table 310106.

Probes list

Probe	Part number	Diameter (mm)	Height (mm) or Angle (degree)	Interest for	
Spherical *Inox 316L*	130149	20	/	Consistency, elasticity and adhesion on soft to strong sample.	
Cleaver *Inox 316L*	130064	25	α : 60°	Breaking Force Knack	
Dual cone *Inox 316L*	130048	65	α_1 : 90° α_2 : 30°	Internal Firmness Penetrometry	
Conical *Inox 316L*	130020	25	α : 20°	Consistency measurement. Penetration on solid sample (spreading)	
	130047	30	α : 45°		
	121023	30	α : 30°		
Cylindrical *Inox 316L*	130077	2	35	Measure in texture penetration on solid sample	
	130063	3	35		
	130078	4	35		
	130066	6	35		
	130124	10	40		
	130099	20	40		
	130037	25	40		
Bloom *Plexiglass*	130046	12.7	30	Bloom Gel Strength test	
½ Spherical *Inox 316L*	130079	8	/	Consistency, elasticity, adhesion and spinning on gel and cream.	
	130019	30	/		
	130049	40	/		
Flat *Inox 316L*	130080	34	/	Consistency, elasticity, adhesion and spinning on a solid of size smaller than the plateau.	
	130083	40	/		
	130101	50	/		