

Welcome to the Instron® Materials Testing Accessories Newsletter

In This Issue: Food Testing Accessories

In today's fast paced world, consumers put increasing demands on the quality of food products. The industry is required to meet certain statutory regulations in terms of ingredients and additives, and they must correctly label packaging and ensure it gets to the retailers in a presentable form. If they fail to meet any of these requirements then their business is likely to suffer. However, with food the real proof is in the eating, and as all of us know, if the texture of the food is strange or out of place, we won't buy it again. For example, if you buy lettuce you expect it to be crispy, not damp and limp. If you buy a tub of yogurt you want it to be firm enough to stay on your spoon rather than run over the sides before it reaches your mouth. This property within the food industry is referred to as texture and it is important that the food industry quantify this property for a range of food types.

- In 1962, Professor Malcolm Bourne of Cornell University used an Instron system in the first deployment of a mechanical testing instrument for texture measurements. Since that milestone, thousands of food industry companies have made Instron their texture analysis provider of choice.
- Texture can be determined in a number of ways including puncture, shear, and deformation. Puncture testing uses a number of probes of varying diameters and point geometries to determine the resistance to force as the probe is inserted into a food product at a constant rate. The load trace of the probe entering the fruit will indicate if the skin resisted enough force to be classed as 'firm' according to the manufacturers or retailers requirements.



[Click here](#) to view Food Testing Solutions

Examples of Food Testing Applications

- Shear testing can also determine a food's bulk firmness by measuring forces a sample of food resists. An example of this is a Kramer shear cell. The fixture is mostly used on fruit and vegetables, but can be used on diced or cubed meats.



- Deformation of food products can be split into three main categories: tensile, compressive, and bend. More specific test types are also applied to food and some examples are shown below:



Ottawa Texture Test
Fixture



Tortilla/Pastry Burst
Fixture



Multiple Food Puncture
Fixture

- A more complex property of food is how the food reacts to repeating or cyclic forces generated by chewing. The [back extrusion cell](#) simulates many of the deformation mechanisms that occur during mastication. The flow resistance, related to the aggregate viscosity of the food specimen, is measured as the food is extruded through the annular gap between the plunger and cell wall. Over time any degradation in force can be related to how the product will break down in the mouth.



Within the food testing industry some tests are simple while others are complex. When food testing accessories are used on an Instron system supporting Bluehill® 2 Software with [test profiler](#), a powerful food analyzer is created. This allows manufacturers and retailers to evaluate products before they reach the customer – ensuring reliable and consistent performance.

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[Online Request](#)

Related Links

- Fourth Edition of the [Accessories Catalog for Materials Testing](#) is now available!



- Missed previous issues of the Accessories Newsletter? Catch up at the Instron [Library](#). Follow the link and select "Newsletter" as the Document Type.

Future Events

- For a list of upcoming shows that Instron will be attending, please visit the [Events](#) page of our website.

Some foods can be tested with standard material testing equipment including:

- [Compression platens](#)
- [Tensile grips](#)
- [Bend fixtures](#)
- [Further details on specific food testing equipment](#)
- [Further details on Bluehill 2 Software](#)
- [Further details on Texture Profile Analysis method templates for Bluehill 2](#)

For more information on Accessories, visit us [on the web](#), submit an [online request](#), or call us at [+800 564 8378](#) (US only) or [+44 1494 456815](#) (Europe only)

Are you testing something a little different? Do you think more people should know about it? Would you like to submit an article for possible publication in the Instron accessories newsletter? If so, please [submit your story](#).

[What do you think? Tell us!](#)



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