Sausages Firmness – Shearing

TVT Texture Analyzer
The TVT Texture Analyzer (Figure 1) offers rapid and objective analysis for all kinds of products. The following parameters can be characterized for your product category.

- Hardness
- Springiness
- Resilience
- Cohesiveness
- Chewiness

Both international standard methods as well as customer tailor-made profiles are available.

Scope
- Determination of sausages firmness by single cycle shearing.

Method Description
The recording of the measurement data commences once the measurement starts. The probe will then cut/shear the samples to a pre-defined distance. After shear, the probe returns to its starting position.

Calibration
Make sure the instrument is correct calibrated before the measurements. How to perform the calibration can be found in the User’s Manual. NOTE: Do the zero probe calibration by turning the probe 90°. After probe calibration, make sure the blade passes through the hole in the insert without touching it.

Load cell 15-20kg (recommended)

Probe
Warner Bratzler triangular blade (Figure 2a)
Part number: 67.13.05

Rig (Figure 2b)
Heavy Duty Stand, Part number: 67.50.80
Blade insert, Part number: 67.50.10

Recommended alternative:
Blade set, Part number: 67.13.00
Heavy Duty Stand, Part number: 67.50.80
**Profile settings**

<table>
<thead>
<tr>
<th>Setting Parameter</th>
<th>Value</th>
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</thead>
<tbody>
<tr>
<td>Single Cycle Compression</td>
<td></td>
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<tr>
<td>Sample height [mm]</td>
<td>30.00</td>
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<tr>
<td>Starting distance from sample [mm]</td>
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<tr>
<td>Compression [mm]</td>
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<tr>
<td>Initial speed [mm/s]</td>
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<td>Test speed [mm/s]</td>
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<tr>
<td>Retract speed [mm/s]</td>
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<tr>
<td>Trigger force [g]</td>
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<tr>
<td>Data rate [pps]</td>
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</tr>
</tbody>
</table>

**Sample preparation**

Remove the samples from place of storage just prior to the measurement. Place the sample centered under the triangular knife blade.

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Figure 3: Sample set-up
Curve Description
In Figure 4 typical Force-Time compression cycle curves are illustrated. The maximum peak force is here related to the skin firmness and the area under the curve is the total work of the shearing. The red curve sample is a beer sausage and the blue curve sample is a chorizo sausage (see Figure 3).

Data Analysis
The maximum force required to shear through the skin of the sample is here defined as skin firmness and can be measured in the units [g] or [N]. Except raw data (force, time and distance) the program also directly provides calculated results such as mean value and standard deviation.