Chicken Breast Firmness – Cutting

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 chicken breast 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 sample to a pre-defined distance. After shearing, 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 (recommended)  20 – 30kg

Probe (Figure 2)
Warner Bratzler knife blade
Part number: 67.13.06

Rig
Heavy Duty Stand, Part number: 67.50.80
Insert with slot, Part number: 67.50.10

Recommended:
Blade Set and Heavy Duty Stand
Part number set: 67.13.00 and HDS: 67.50.80

Figure 1: TVT Texture Analyzer
Figure 2: Warner Bratzler knife blade
Profile settings

<table>
<thead>
<tr>
<th>Setting</th>
<th>Parameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single Cycle Compression</td>
<td></td>
</tr>
<tr>
<td>Sample height [mm]</td>
<td>20.00</td>
</tr>
<tr>
<td>Starting distance from sample [mm]</td>
<td>5.0</td>
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<tr>
<td>Compression [mm]</td>
<td>25.00</td>
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<tr>
<td>Initial speed [mm/s]</td>
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<tr>
<td>Test speed [mm/s]</td>
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</tr>
<tr>
<td>Retract speed [mm/s]</td>
<td>10.0</td>
</tr>
<tr>
<td>Trigger force [g]</td>
<td>5</td>
</tr>
<tr>
<td>Data rate [pps]</td>
<td>200</td>
</tr>
</tbody>
</table>

Sample preparation

Remove the samples from the place of storage prior to the measurement. Make sure the samples are of equal size and placed in the same direction in terms of fiber direction. The sample size can be adjusted as long as the size is kept constant between the samples that are going to be compared with each other. When cutting across the fibers the cutting distance needs to be less than the sample height (max 60% of the height).

Data Analysis

The force required to shear the sample to a certain distance is here defined as 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.