Salmon Feed Pellets Hardness - Cutting

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

- Hardness
- Fracture Force
- Break Force
- Springiness/Elasticity

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

Fig. 1 TVT Texture Analyzer

Scope
- Determination of salmon feed pellets hardness by single cycle cutting.

Method Description
The recording of the measurement data commences once the probe reaches the pre-set trigger force. The probe will then cut the sample to a pre-defined distance of the sample height. After the cutting, 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.

Load cell (recommended) 50 kg

Probe
P-CBK, Craft Blade Knife, stainless steel (Figure 2)
Part number: 67.13.80

Figure 2: P-CBK
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>
</tr>
<tr>
<td>Sample height [mm]</td>
<td>10.0</td>
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<tr>
<td>Starting distance from sample [mm]</td>
<td>5.0</td>
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<tr>
<td>Compression [%]</td>
<td>25.00</td>
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<tr>
<td>Initial speed [mm/s]</td>
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</tr>
<tr>
<td>Test speed [mm/s]</td>
<td>1.5</td>
</tr>
<tr>
<td>Retract speed [mm/s]</td>
<td>1.5</td>
</tr>
<tr>
<td>Trigger force [g]</td>
<td>10</td>
</tr>
<tr>
<td>Data rate [pps]</td>
<td>200</td>
</tr>
</tbody>
</table>

Sample preparation
Take the sample directly from storage and center it below the probe. The sample can be placed in either horizontal or vertical direction, Figure 3. Commence the test.

![Figure 3: Sample set-up; a, standing sample (horizontal); b, laying (vertical) sample](image)

Curve Description
In Figure 4 typical Force-Distance curves are illustrated for cutting the sample in a, standing position and b, laying position. The maximum peak’ force value is here defined as the cutting hardness of the pellet. Smaller peaks prior to the maximum peak force indicate fractures or cracks in the pellets.
Data Analysis
The force required to cut the sample to a certain distance is here defined as hardness 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.