Salmon Feed Pellets Hardness & Springiness – Hold Until Time Compression

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.

Scope
- Determination of salmon feed pellets hardness and springiness by hold until time compression.

Method Description
The recording of the measurement data commences once the probe reaches the pre-set trigger force. The probe will then compress the sample to a pre-defined distance and hold in that position during a pre-set time. After compression, 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-CY35S, Cylinder probe 35 mm diameter, stainless steel
Part number: 67.30.35  (Figure 2)
**Profile Settings**

**Setting Parameter**

<table>
<thead>
<tr>
<th>Hold Until Time Compression</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample height [mm]</td>
</tr>
<tr>
<td>Starting distance from sample [mm]</td>
</tr>
<tr>
<td>Compression [%]</td>
</tr>
<tr>
<td>Hold time [sec]</td>
</tr>
<tr>
<td>Data acquisition time [sec]</td>
</tr>
<tr>
<td>Initial speed [mm/sec]</td>
</tr>
<tr>
<td>Test speed [mm/sec]</td>
</tr>
<tr>
<td>Retract speed [mm/sec]</td>
</tr>
<tr>
<td>Trigger force [g]</td>
</tr>
<tr>
<td>Data rate [pps]</td>
</tr>
</tbody>
</table>

**Sample preparation**
Take the sample directly from storage and center it below the probe. Commence the test.

**Curve Description**
In Figure 3 a Force-Time curve is illustrated. The hardness is taken at the maximum peak force which is here called Force A, while the force required after 20 s holding time is called Force B. Force B is used for calculating the springiness.

\[
\frac{\text{Force } B}{\text{Force } A} \times 100 = \% \text{ Springiness}
\]
Figure 3: Hold until time compression of salmon feed pellets.

**Data Analysis**
The force required to compress the sample to a certain distance is here defined as hardness and can be measured in the units [g] or [N]. Springiness is given as a percentage [%] value. Except raw data (force, time, and distance) the program also directly provides calculated results such as *mean value* and *standard deviation*.