Salmon Feed Pellets Hardness - Shearing

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.

Figure 1: TVT Texture Analyzer

Scope

- Determination of salmon feed pellets hardness by single cycle shearing.

Method Description

The recording of the measurement data commences once the probe reaches the pre-set trigger force. The probe will then shear the sample to a pre-defined distance of the sample height. After the shear, the probe returns to its starting position.

Calibration

Lower the "tooth" probe gently into the slots of the rig plate, while adjusting both probe and rig slightly to make sure the fitting is optimized. Fasten the screws of both the rig plate and the probe while in correct position. Thereafter, preform the calibration. How to perform the calibration can be found in the User's Manual.

Load cell (recommended) 50-100 kg

Probe
Grain & Pellets set, Stainless steel
Part number: 67.50.50 (Figure 2)

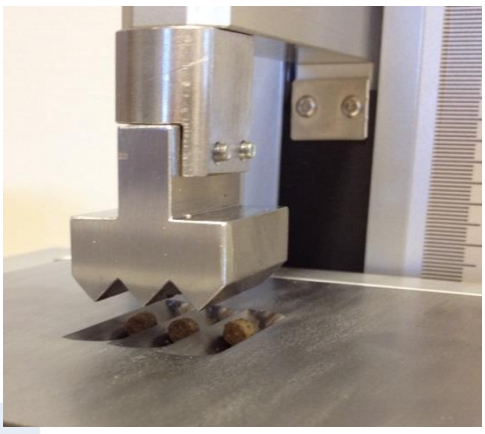

Figure 2: Grain & Pellets set

Profile Settings

Setting Parameter	
Single Cycle Compression	
Sample height [mm]	10.0
Starting distance from sample [mm]	5.0
Compression [%]	30.00
Initial speed [mm/s]	2.0
Test speed [mm/s]	1.0
Retract speed [mm/s]	10.0
Trigger force [g]	50
Data rate [pps]	200

Sample preparation

Take one or multiple samples directly from storage and place it/them in the slots of the rig. Commence the test. *NOTE If the samples are left standing in open air, they might absorb moisture from the atmosphere which could influence the results.*

Curve Description

In Figure 3 typical Force-Time curves are illustrated. The maximum peak+ force value is here defined as the hardness/break force of the pellets. Smaller peaks prior to the maximum peak force indicate fractures or cracks in the pellets. The curves in Figure 3 display two different types of pellets and for each measurement 4x3 pellets are used.

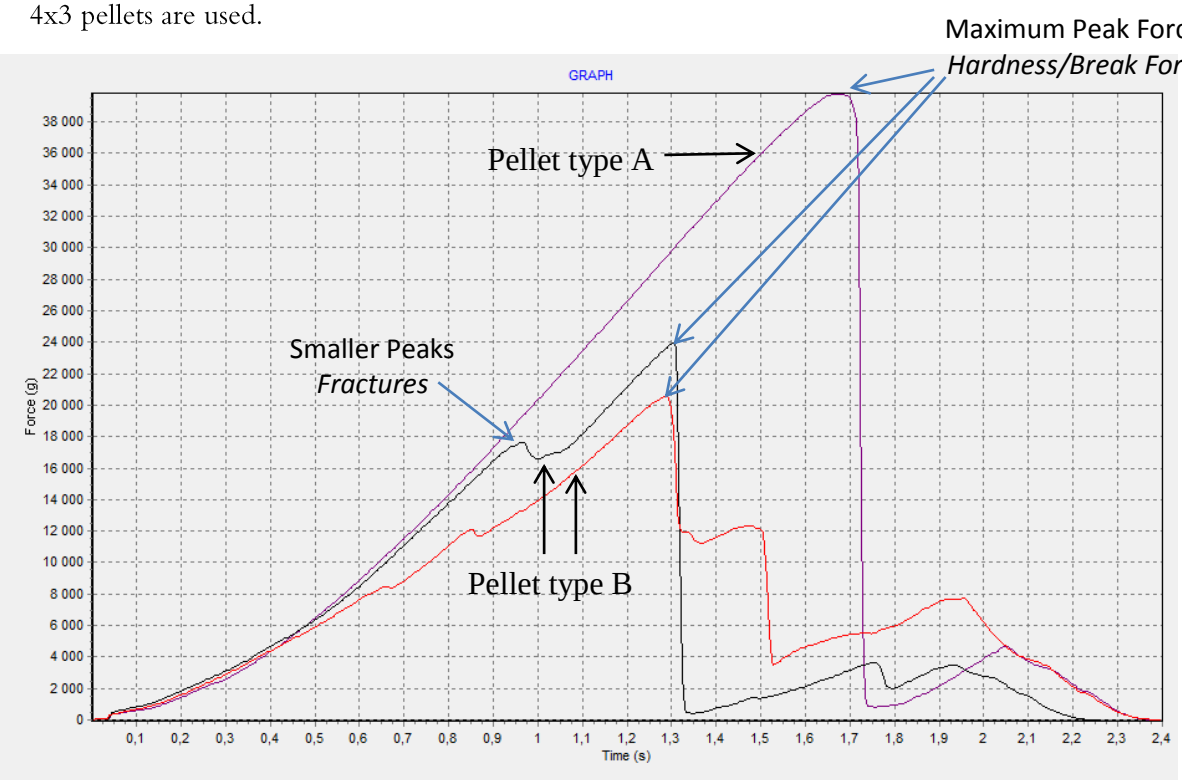

Figure 3: Shearing of 4x3 pellets for two types of pellets.

Data Analysis

The force required to shear 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***.