Chocolate Mousse Firmness by Penetration

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/Firmness
- Adhesiveness
- Stringiness
- Stickiness
- Cutting Force

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

Figure 1: TVT Texture Analyzer

**Scope**
- Determination of firmness in chocolate mousse by single cycle penetration test.

**Method Description**
The recording of the measurement data commences once the probe reaches the pre-set trigger force. The probe will then penetrate the sample to a pre-defined distance. The probe will return to its starting position once the pre-set distance is reached.

**Calibration**
Make sure the instrument is correct calibrated before the measurements. How to perform the calibration can be found in the User’s Manual.

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**Load cell (recommended)** 5 – 10 kg

**Probe**
P-CY25S, Cylinder probe 25mm diameter, stainless steel  
(Figure 2)
Part number: 67.30.25

Figure 2: P-CY25S
Profile settings

Setting Parameter

Single Cycle Compression

Sample height [mm] 60.0
Starting distance from sample [mm] 20.0
Compression [mm] 10.00

Initial speed [mm/s] 1.0
Test speed [mm/s] 1.0
Retract speed [mm/s] 10.0

Trigger force [g] 5
Data rate [pps] 333
Adhesiveness Marked ✔

Sample preparation

Fill the containers with equal amount of sample. Try to avoid getting air pockets in the sample during filling. Take the sample from place of storage just before testing. Place the container centrally under the probe and commence the test. Always keep the container size and volume of product constant for comparing the samples. Treatment and storage temperature shall be similar for all samples since these are critical parameters that could influence the results.

Curve Description

In Figure 3 a typical Force-Distance curve is illustrated. The maximum peak force indicate the firmness of the sample at the pre-set penetration depth, while the Area is a measure of the total work of penetration. The minimum of the negative peak indicates the stickiness of the sample and the Area is a result of the adhesion.

![Force-Distance Curve](image)

Figure 3: Penetration test for chocolate mousse.

Data Analysis

The force required to penetrate the sample to a certain distance (firmness) and withdraw to the starting position (stickiness) 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.