Marzipan Consistency, 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
- Consistency
- Stickiness

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

Figure 1: TVT Texture Analyzer

Scope

- Determination of marzipan consistency 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. After penetration, 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) 5 – 10 kg

Probe
P-CO45S, Conical Probe, 45°,Stainless Steel (Figure 2)
Part number: 67.15.45

Figure 2: P-CO45S

Profile settings

Setting Parameter	
Single Cycle Compression	
Sample height [mm]	35.0
Starting distance from sample [mm]	5.0
Compression [mm]	12.00
Initial speed [mm/s]	2.0
Test speed [mm/s]	2.0
Retract speed [mm/s]	10.0
Trigger force [g]	5
Data rate [pps]	200
Adhesiveness	Marked ☑

Sample preparation

Take the samples from their packaging just before testing and place under the probe, Figure 3. Work quickly, since contact with air dries out the product and increases the surface firmness. Storage and handling of the samples might influence the result and should thereby be kept constant.

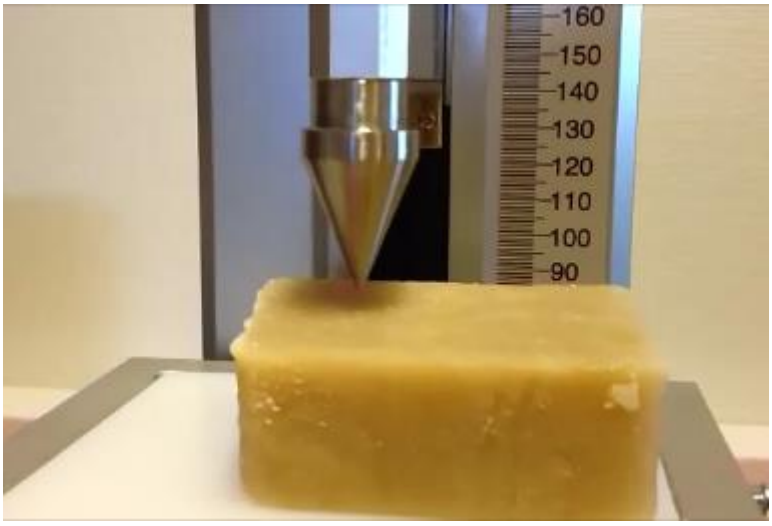

Figure 3: Sample set-up

Curve Description

In Figure 4 a typical Force-Time curve is illustrated. Maximum peak^{+} force is here defined as the hardness of the sample. The area^{+} is the work of penetration and defined as consistency, while the maximum peak^{-} force is here defined as stickiness and the area^{-} is the work of adhesion.

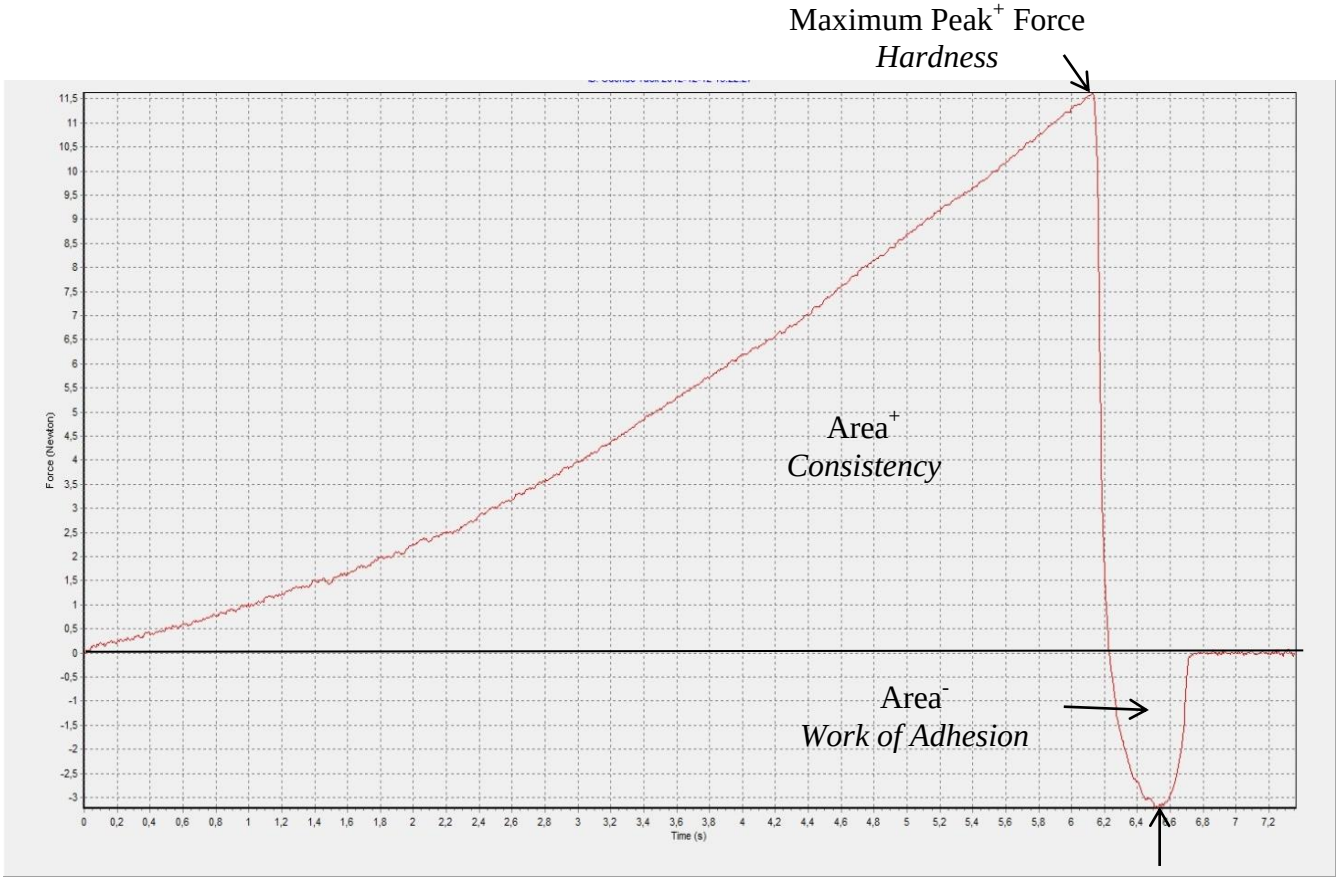

Figure 4: Penetration test of marzipan

Data Analysis

The force required to puncture 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***.