Mayonnaise Firmness & Adhesiveness 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 and adhesiveness in mayonnaise 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.

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] 25.0
Starting distance from sample [mm] 10.0
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] 10
Data rate [pps] 200
Adhesiveness Marked ✔

Sample preparation

Place the sample centrally under the probe. Always keep the sample size, treatment and storage temperature similar for all samples since these are critical parameters that could influence the results.

Curve Description

In Figure 3 a typical Force-Time 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.

Figure 3: Penetration test for mayonnaise.

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.