Production: SOFT CHEESE

Objective: Comparison of the hardness and stickiness of full-cream spread, cream-cheese spread, cheese triangles and processed cheddar cheese

Type of action: Penetration test

Test setting:

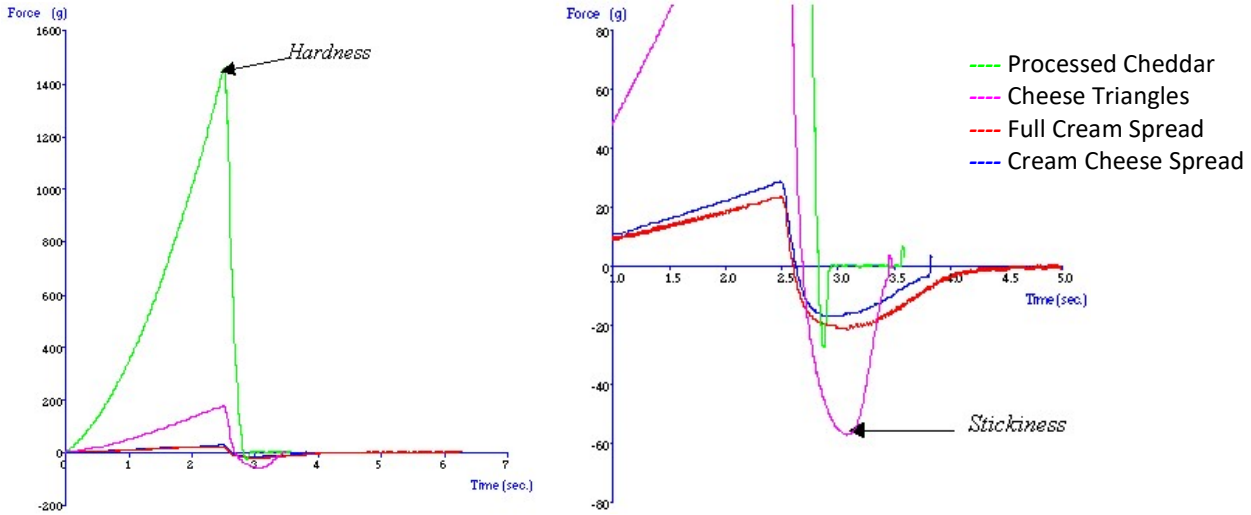
Speed	Test mode	Trigger	Target	Hold
2 mm/s	Distance (c)	2.5 gf	5 mm	0 sec

Accessory:

ϕ1 inch spherical probe stainless, Platform

Test Set-Up:
The sample was positioned centrally under the spherical probe and the test was commenced.

Typical plots:



(Original plot zoomed in to highlight the negative region of the curves)

The above curves were produced from testing the following samples at 20C

Observations:
When a 2.5g surface trigger was attained the probe proceeded to penetrate to a depth of 5mm. At this point, the probe returned to its original position at constant speed (e.g. 10.0mm/s). The negative region of the graph, produced on probe return, is an indication of the adhesive property of the fat-based spread and/or as a result of a certain weight of sample, which had adhered to the probe on return. One can see clearly that the processed cheddar cheese sample is considerably harder than the other samples. The cheese triangles are harder and stickier than the full-cream and the cream-cheese spreads. The test results also indicate that there is very little difference in the hardness and stickiness of the two spreads.

Data Analysis:

☒Max Force

☒Min Force

Results

Sample	Mean Max. +ve Force 'Hardness' (g)	Mean Max. -ve Force 'Stickiness' (g)
Processed Cheddar	1458.2	-27.8
Cream-Cheese Spread	28.7	-17.2
Full-Cream Spread	23.6	-21.8
Cheese Triangles	191.4	-59.5

Notes:

- Due to the fact that the samples have a high fat content, the temperature will no doubt have an effect on the textural properties. The chosen test temperature e.g. 20C should be kept constant for comparison purposes.
- As these products are temperature sensitive, it is important that the temperature is carefully controlled so that test data can be compared.
- When attempting to optimise test settings it is suggested that the first tests are performed on the hardest samples to anticipate the maximum testing range required and ensure that the force capacity allows testing of all future samples.