Production: PATE

Objective: Comparison of firmness of full-fat and reduced-fat pate

Type of action: Penetration test

Test mode settings:

| Speed	Test mode	Trigger	Target	Hold
1.5 mm/s	Distance (c)	10 gf	8 mm	0 sec

Accessory:
φ 10 mm cylinder probe, Platform

Sample Preparation:
Equilibrate samples at a chosen temperature before testing. This temperature should be kept constant for comparison purposes.

Test Set-Up:
Secure the Heavy Duty Platform onto the base of the machine. Position the sample container centrally under the probe on the Heavy Duty Platform and commence the penetration test.

Typical plots:
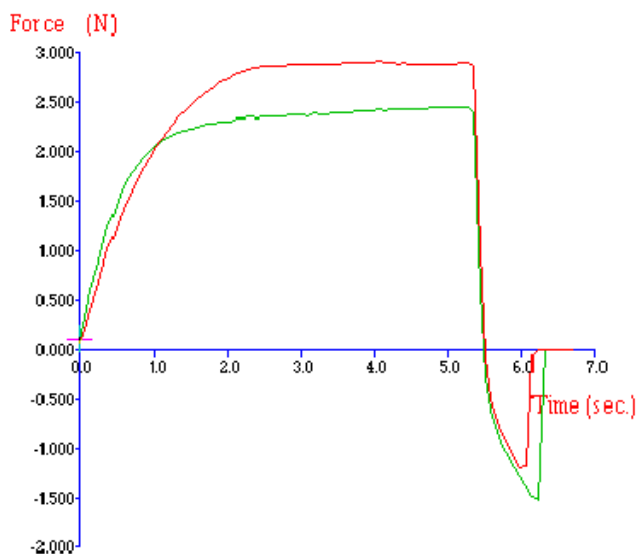
The above curves were produced from smooth pork liver pate (full-fat vs low-fat), tested at 5C.

Observations:

Once the probe triggers on the surface it then proceeds to penetrate to a depth of 8mm within the sample. At this point (the maximum force) the force value is recorded and taken as a measure of hardness of the sample. The probe then withdraws from the sample at maximum speed.

The results indicate that the reduced fat product requires a larger force to penetrate and it therefore has a firmer consistency than its full fat counterpart.

Data Analysis:

☒Max Force

Results

Sample	Mean Maximum Force 'Firmness' (+/- S.D.) (N)
Full Fat	2.23 +/- 0.11
Reduced Fat	2.95 +/- 0.05

Notes:

● The test may be modified to penetrate to a greater depth into the sample. This will subsequently increase the firmness value. When increasing the penetration distance, one must consider the base effect of the container, and should not exceed 75% of the depth of the sample. Any values obtained are only relative at the specified distance to which they are penetrated.

● The same sample container may be penetrated more than once if required. However, the tests should not be carried out too close together or to the container walls i.e. at least 10mm apart.

● When attempting to optimize 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.