Application manual No. 060

Production: BUTTER vs. MARGARINE

Objective: Comparison of cutting force of butter and margarine using the wire cutter

Type of action: Cutting test

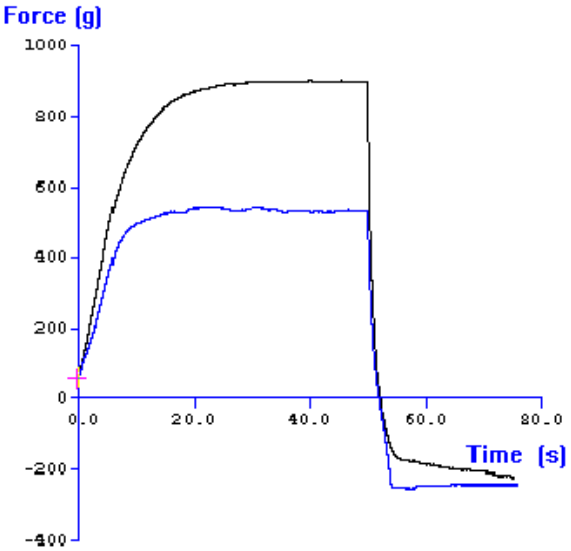
Test mode settings:

Speed	Test mode	Trigger	Target	Hold
0.5 mm/s	Distance (c)	50 gf	25 mm	0 sec

Accessory:
Wire butter cutter, Platform

Test Set-Up:
Remove samples (of the same dimensions) from place of storage just prior to testing. Position the sample centrally on the Heavy Duty Platform blank plate. Commence the test immediately.

Typical plots:



The above curves were produced from butter and margarine samples (120mm x 60mm x 80mm), tested at 4.5C.

Observations:
Once contact is made with the sample there is an initial time period required for the wire to come into full contact with the whole sample (which is usually as a result of an uneven sample surface). Once full contact is made the slope of the curve decreases considerably until the force is seen to plateau as the wire continues to cut into the sample to the specified distance. The greater the cutting force, the firmer is the sample. It is quite obvious that the butter samples are considerably more firm than the margarine samples, which is as expected, due to the higher content of saturated fat contained in butter.

Data Analysis:
☒Ave (+) (From 20 to 40 second)

Results

Sample	Mean Force 'Firmness' (+/- S.D.) (g)
Butter	807.6 +/- 53.4
Margarine	482.9 +/- 30.7

Notes:

- Depending upon the regularity of the surface, it may be necessary to increase the trigger force value slightly. Consideration should be taken to ensure that when the test begins to plot data the wire should be in such a position so as to be in full contact with the product surface but should not have started shearing to any considerable depth.

- The samples should be of the same dimensions and temperature in order to make comparisons between tests.

- 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.