Production: BREAKFAST TOASTER PASTRIES

Objective: Comparison of resistance to cutting of chocolate and strawberry frosted breakfast toaster pastries by a knife blade

Type of action: Cutting

Test setting:

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

Accessory:

Blade of Warner Bratzler, Platform

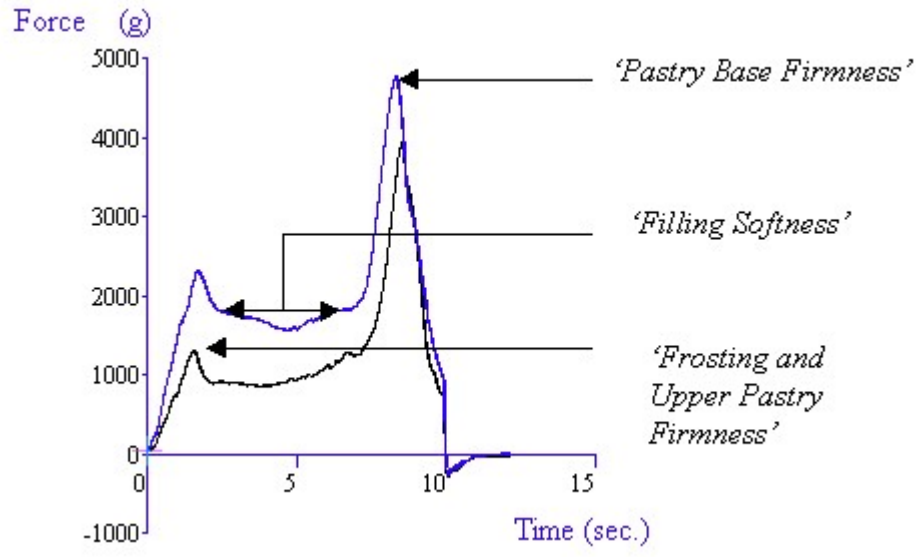
Sample Preparation:

Samples are removed from their packets just prior to heating. They were heated according to the manufacturer's instructions and allowed to cool to a known temperature. Samples may need to be cut to allow them to fit on the platform. For comparison purposes, sample dimensions and testing temperature should be noted and kept constant. The sample is then placed centrally under the Knife Edge.

Test Set-Up:

The Slotted Insert is secured on the Heavy Duty Platform. The Knife Edge is attached to the load cell carrier and lowered into the slotted insert. The Heavy Duty Platform is repositioned so that there is no contact between the blade and slot surfaces and a 'blank' test run as a check. The blade is then raised to allow placement of the sample.

Typical plots:



The above curves were produced from a strawberry and a chocolate frosted breakfast toaster pastry, tested at 33C.

Observations:
The first peak force readings (i.e. cutting of the frosting and upper pastry layer) for each type appear to be different - strawberry being much firmer than chocolate. As the blade continues to shear through the sample the softness of the filling is measured. The chocolate filling is softer than the strawberry filling indicated by a work of shear value. The final peak represents the firmness of the pastry base. Again the strawberry pastry base is firmer than that of the chocolate sample. During toasting moisture is driven off from the product resulting in a firmer pastry. Attention should be drawn to the fact that the pastry base is considerably firmer than the frosting coated upper pastry layer.

Data Analysis:

☒Max Force (From 0 to 4 second)

☒AVE (+) (From 3 to 7.5 second)

☒Max Force (From 6 to 10 second)

Results

Pastry Type	Mean First Peak Force 'Frosting and Upper Pastry Firmness' (+/-S.D.) (kg)	Mean Area 'Filling Softness' (+/-S.D.) (kg)	Mean Second Peak Force 'Pastry Base Firmness' (+/-S.D.) (kg)
Strawberry	2.25 +/- 0.1	7.96 +/- 0.7	4.82 +/- 0.5
Chocolate	1.49 +/- 0.4	6.26 +/- 1.7	4.25 +/- 0.5

Notes:
- The Noise emitted during this test can be measured and analyzed using an Acoustic Envelope Detector.
- Storage, packaging and handling of the sample before testing are considered variable conditions under which the pastries are tested. These conditions should be identified and kept constant for comparison purposes.
- 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.