# AIB Standard Procedure
# White Pan Bread Firmness Measurement

| | |
|---|---|
| Product: | Bread |
| Type: | White pan bread |
| Objective: | Firmness measurement of bread by compression with a probe. |

TA-XT2 settings:

| | |
|---|---|
| Mode: | Measure force in compression |
| Option: | Return to start |
| Pre-test speed: | 2.0 mm/s |
| Test speed: | 1.7 mm/s |
| Post test speed: | 10.0 mm/s |
| Distance: | 6.2 mm |
| Trigger type: | Auto |
| Force: | 10 g |
| Acquisition: | 200 pps |

| | |
|---|---|
| Accessory: | 25 mm probe |
| Sample preparation: | After cooling for 1 hour, breads are double bagged and held at room temperature until further testing. Loaves are generally tested on days 1, 3 and 7 after baking. On each testing date, 2 loaves of each variable are sliced and measured. Two slices of bread are stacked (starting with slice 4 from the end) for each measurement (6 measurements per loaf, x2 loaves per variable = 12 readings per variable per testing day). |
| Results: | Each time a measurement is taken, the maximum peak force value is identified and placed in the results file spreadsheet where the average and standard deviation can be calculated on the 12 measurements. |

# AIB Standard Procedure
# Hamburger Bun Crust Toughness Measurement

| | |
|---|---|
| Product: | Bun |
| Type: | Hamburger or other bun-type product |
| Objective: | Firmness/ toughness measurement of bun crust by puncture with a probe. |

TA-XT2 settings:

| | |
|---|---|
| Mode: | Measure force in compression |
| Option: | Return to start |
| Pre-test speed: | 2.0 mm/s |
| Test speed: | 1.7 mm/s |
| Post test speed: | 10.0 mm/s |
| Distance: | 5.0 mm |
| Trigger type: | Auto |
| Force: | 10 g |
| Acquisition: | 200 pps |

| | |
|---|---|
| Accessory: | 3 mm probe |
| Sample preparation: | After cooling for 1 hour, buns are double bagged and held at room temperature until further testing. Samples are generally tested on days 1, 3 and 7 after baking. On each testing date, 2-5 buns of each variable are measured. Buns are placed directly under the probe and can be punctured several times, depending on sample size. |
| Results: | Each time a measurement is taken, the maximum peak force value is identified and placed in the results file spreadsheet where the average and standard deviation can be calculated. |

# AIB Standard Procedure
# Flour Tortilla Stretchability/Flexibility Measurement

| | |
|---|---|
| Product: | Tortillas |
| Type: | Flour |
| Objective: | Measure tortilla stretchability, breaking point and rupture force |

TA-XT2 settings:

| | |
|---|---|
| Mode: | Measure force in compression |
| Option: | Return to start |
| Pre-test speed: | 6.0 mm/s |
| Test speed: | 1.7 mm/s |
| Post-test speed: | 10.0 mm/s |
| Distance: | 30.0 mm (more or less depending on break point of the tortilla) |
| Trigger type: | Auto |
| Force: | 20 g |
| Acquisition: | 200 pps |

| | |
|---|---|
| Accessory: | TA-108 Tortilla/Film Fixture<br>TA-108a 18mm diameter probe w/ rounded edge |
| Sample preparation: | After cooling for 30 min., tortillas are double bagged and held at room temp. until further testing. Tortillas are generally tested on days 1, 3 and 7 after baking. |
| Results: | Each time a measurement is taken, the maximum peak force value as well as the distance value are identified and placed in the results file spreadsheet where the average and standard deviation can be calculated. |

# AIB Standard Procedure
# Cookie Hardness

| | | |
|---|---|---|
| TA Settings: | Test Mode: | Measure force in compression |
| | Option: | Return to start |
| Parameters: | Pretest speed: | 2.5 mm/s |
| | Test speed: | 2.0 mm/s |
| | Post test speed: | 10.0 mm/s |
| | Distance: | 15.0 mm |
| Trigger Type: | Auto | |
| | Force | 20 g |
| Data acquisition points: | 200 pps | |
| Attachments: | 3-point bend rig with the base gap set at 6 cm (for a 10.5 cm diameter cookie) and a 7 cm wide rounded edge blade. | |
| Sample Preparation: | Center one cookie on the base, lower the blade to just above the product and set the top stop. Break 6-15 cookies per variable per test day. Mark the peak force (hardness) and the distance (softness or flexibility) if desired. | |
| | This procedure was designed for sugar snap cookies that are rolled to 3/8 inch and cut with a 3-inch cutter. The gap distance of the base can be adjusted to accommodate cookies of various sizes. Adjusting the gap to be half the diameter of the cookie/cracker is a common procedure. | |

# AIB Standard Procedure
# Bagel Firmness Measurement

| | |
|---|---|
| Product: | Bagels |
| Objective: | Firmness measurement of bagel crumb by compression with a probe. |

TA-XT2 settings:

| | |
|---|---|
| Mode: | Measure force in compression |
| Option: | Return to start |
| Pre-test speed: | 2.0 mm/s |
| Test speed: | 1.7 mm/s |
| Post test speed: | 10.0 mm/s |
| Distance: | 6.2 mm |
| Trigger type: | Auto |
| Force: | 10 g |
| Acquisition: | 200 pps |

| | |
|---|---|
| Accessory: | TA-108a 18mm diameter probe (w/ rounded edge, also used for tortillas) |
| Sample preparation: | After cooling for 1 hour, bagels are double bagged and held at room temperature until further testing. Products are generally tested on days 1, 3 and 7 after baking. On each testing date, ~5 bagels of each variable are sliced (using a template to ensure bagels are 26mm thick) and measured. Three to 5 measurements can be obtained per bagel, resulting in 15-25 peaks per variable per test day. |
| Results: | Each time a measurement is taken, the maximum peak force value is identified and placed in the results file spreadsheet where the average and standard deviation can be calculated on the measurements. |

# AIB Standard Procedure
# Corn Tortilla Chip and Tostada Shell Measurement

| | |
|---|---|
| Product: | Corn tortilla chips and tostada shells |
| Objective: | Measure chip breaking force |

TA-XT2 settings:

| | |
|---|---|
| Mode: | Measure force in compression |
| Option: | Return to start |
| Pre-test speed: | 3.0 mm/s |
| Test speed: | 1.0 mm/s |
| Post-test speed: | 10.0 mm/s |
| Distance: | 6.0 mm |
| Trigger type: | Auto |
| Force: | 10 g |
| Acquisition: | 200 pps |

Accessory: **Chips** : TA-101 platform w/ ~18mm cylinder opening and 1/2 inch ball probe
**Tostada shells**: TA-92 3-point bend rig w/ gap of 2 inches and round edge knife attachment

Results: Each time a measurement in taken, the maximum peak force value (as well as the distance value if desired) is identified and placed in the results file spreadsheet where the average and standard deviation can be calculated.