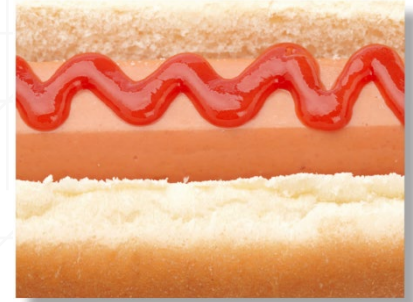


Hot Dogs Hardness Analysis

Hardness testing of hot dogs is essential for assessing texture consistency and ensuring product quality. This test measures the force needed to penetrate and shear through the hot dog, simulating the action of biting and confirming that the product meets desired textural standards.

Background:

- Hot dogs contain ingredients like meat trimmings, fat, salt, flavorings, and preservatives. Variability in meat texture among animals makes it necessary to monitor and control texture throughout production to ensure a consistent product.
- Evaluating hardness through bite force and touch is important to achieve the intended consumer experience. This testing method is quick, repeatable, and correlates with sensory properties, providing valuable insights into the firmness and cutting resistance of the hot dog.



Equipment:

- CTX Texture Analyzer with 50kg load cell
- Components: Shear Blade (TA-WBS), Fixture Base Table, Base Plate
- Software: Texture Pro Software for controlling parameters and recording results

Settings:

- Test Type: Compression
- Target Type: Distance
- Target Value: 30 mm
- Trigger Force: 15 g
- Pre-Test Speed: 2 mm/s
- Test Speed: 2 mm/s

Sample Preparation:

1. Prepare samples to equal lengths (minimum 8 cm).
2. Remove each sample from the refrigerator just before testing to maintain a consistent temperature.

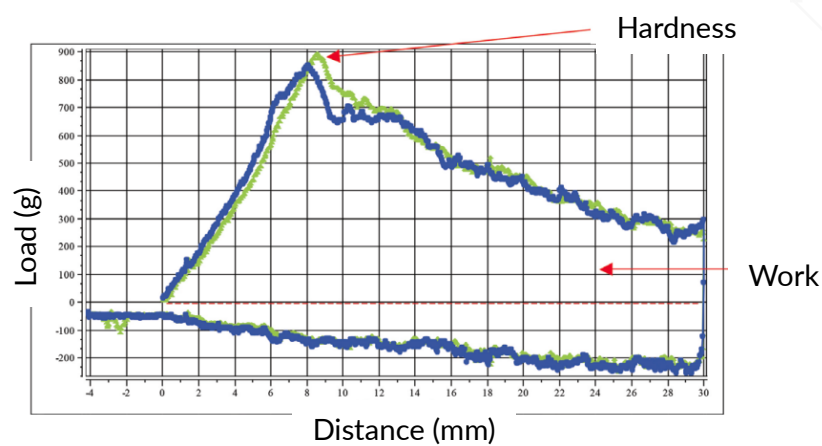
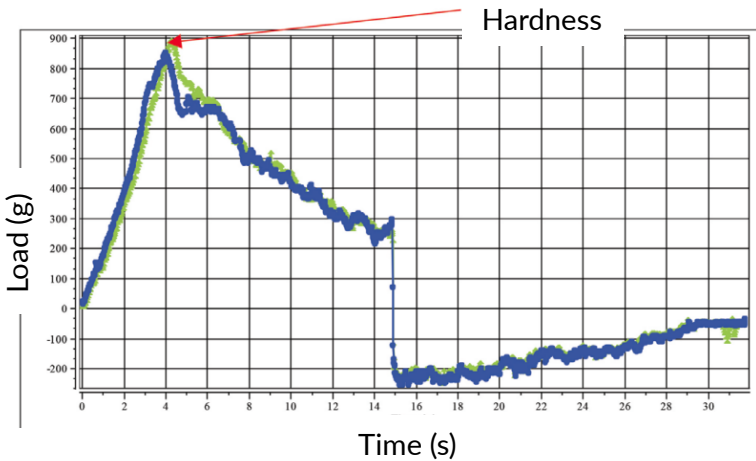


Procedure:

1. Attach the shear blade to the probe shaft.
2. Position the fixture base table on the analyzer base, tightening the screws for slight mobility.
3. Insert and secure the base plate.
4. Lower the instrument arm close to the base plate and align the shear blade with the open slot in the base plate.
5. Position the sample centrally and perpendicular to the slot.
6. Lower the instrument arm to a few millimeters above the sample, then start the test.

Observations:

- Load vs. Distance Graph: Shows peak force required to penetrate and shear the hot dog.
 - Peak Value (Bio Yield Point): Indicates the force needed to initiate shearing, simulating biting force.
 - Work Done (Area Under Curve): Represents the energy needed to shear through the sample, with higher values indicating a firmer texture.



Results:

- Average Hardness: 893 ± 40 g
- Average Work Done: 141.4 ± 12.7 mJ

| # | Sample Description Product Name | Hardness | Work Done |
|---|------------------------------------|--------------|------------------|
| 1 | Hot Dog | 893 ± 40 | 141.4 ± 12.7 |

Discussion:

Peak force reflects the initial resistance of the hot dog to shearing, while the work done indicates the total energy required for penetration. Consistent hardness ensures product quality and meets consumer expectations for texture. This method provides reliable results for maintaining texture consistency in hot dogs.