

Cooked Hamburger Patties Texture Analysis

Understanding the firmness, hardness, and adhesiveness of cooked hamburger patties is critical for ensuring consistent product quality, optimizing cooking methods, and meeting consumer expectations. Texture analysis helps manufacturers maintain the desired sensory qualities, such as bite and mouthfeel, which directly influence customer satisfaction and brand loyalty.

Test Objective:

- Compare the firmness, hardness work done, adhesiveness, and adhesive force of cooked hamburger patties by compression using a 9 mm small shear blade (TA52).

Background:

- Hamburgers are a staple of American cuisine, and their texture varies depending on ingredients and preparation methods. This test simulates the force needed for human teeth to bite and cut through a hamburger patty, using the TA52 blade to measure the required penetration force.



Equipment:

- Instrument: CTX Texture Analyzer with 10 kg Load Cell
- Fixture: Fixture Base Table (TA-BT-KIT)
- Probe: Small Shear Blade (TA52)
- Software: Texture Pro Software

Settings:

- Test Type: Compression
- Target Type: Distance
- Target Value: 10 mm
- Trigger Load: 30 g
- Pre-Test Speed: 1 mm/s
- Test Speed: 1 mm/s

Sample Preparation:

1. Store samples overnight in the refrigerator.
2. Cook samples just before testing.
3. Test patties within 10 minutes of cooking.
4. Cut all patties into equal shape and size.



Procedure:

1. Attach the TA52 shear blade to the CTX Texture Analyzer.
2. Insert two table bolts into the slots on the instrument base.
3. Place the Fixture Base Table on the CTX Texture Analyzer and align it.
4. Position the hamburger sample on the table, aligning it centrally under the probe.
5. Set the test parameters using TexturePro Software.
6. Start the test.
7. Clean the probe after each test.
8. Repeat the steps for all samples.

Observations:

- Upon detecting a trigger load of 30 g, the shear blade penetrates the hamburger patty at a speed of 1 mm/s over 10 mm. Once the 10 mm distance is reached, the probe returns to its starting position.

Discussion:

- Maximum Force Value (Peak Load): Indicates sample firmness; a higher value signifies a firmer patty.
- Hardness Work Done: Represents the amount of work needed to overcome the internal bonds within the patty, peaking during the first bite.

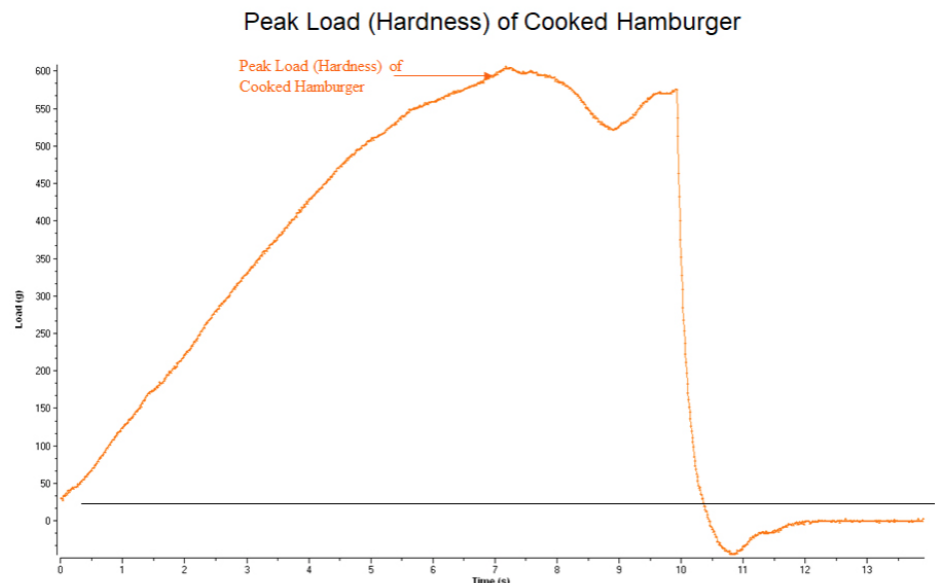
Results:

Hardness:

- Minimum: 607 g
- Maximum: 724 g
- Average: 673 g
- Standard Deviation: 60 g

Hardness Work Done:

- Minimum: 39.40 mJ
- Maximum: 43.90 mJ
- Average: 41.40 mJ
- Standard Deviation: 2.30 mJ



Conclusion:

The analysis determines the ideal hardness of cooked hamburgers. Adhering to test procedures, sample preparation, and equipment setup is essential for obtaining reproducible and consistent results.