

Mini Popadoms Texture Analysis

Testing the hardness and fracturability of mini popadoms is crucial for quality control, ensuring consistent texture and consumer satisfaction. This test evaluates firmness, crunchiness, and brittleness, which are key indicators of the product's textural quality.

Background:

- Mini popadoms are thin, pancake-like breads that require a specific texture profile. Bulk compression testing measures hardness (peak force), work done (energy to compress), and fracturability, providing a comprehensive assessment of texture. Fracturability values reveal the sample's brittleness, while the number of fractures indicates crispiness.

Equipment and Settings:

- CTX Texture Analyzer with a 5 kg load cell
- Components: Ottawa Cell, Plunger, Fixture Base Table
- Texture Pro Software
- Test Parameters:
 - Test Type: Compression
 - Pre-Test Speed: 1.0 mm/s
 - Test Speed: 2.0 mm/s
 - Post-Test Speed: 2.0 mm/s
 - Target Distance: 30 mm
 - Trigger Force: 30 g



Sample Preparation:

1. Remove samples from storage and weigh portions (5.4 g).
2. Fill the Ottawa cell to at least 60% with the weighed sample for consistent results.

Procedure:

1. Attach the plunger and align it over the Ottawa cell on the fixture base table.
2. Adjust alignment so the plunger can penetrate the cell without touching the sides.
3. Position the sample evenly in the cell and initiate the test.
4. Clean the Ottawa cell between tests to avoid sample contamination.

Observations:

- Figure I: Compression test results show peak force, indicating hardness, and the area under the curve, representing work done.
- Figure II: Force vs. Distance graph displays hardness and work done until reaching the target distance of 30 mm, with a sudden drop indicating plunger withdrawal.

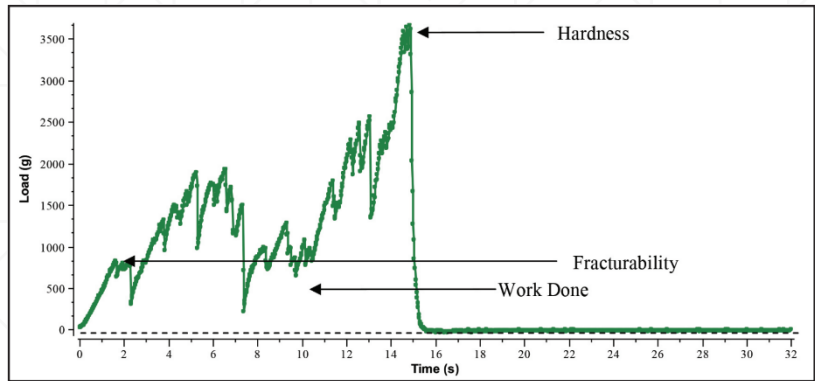


Figure I

Results:

- Hardness (Peak Force): 3665 g
- Work Done: 389.7 mJ
- Fracturability: 825 g
- Quantity of Fractures: 47 (indicating crispiness)

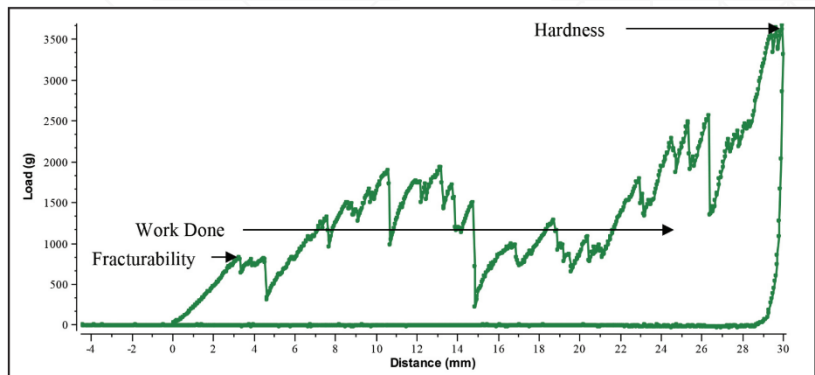


Figure II

Sample	Hardness (g)	Work Done (mJ)	Fracturability (g)	Quantity of Fractures
Mini Popadoms	3665	389.7	825	47

Discussion:

The peak force measures popadom hardness, while work done quantifies the energy needed to compress it. Fracturability reflects brittleness, and the fracture count indicates crispiness. These metrics aid in quality control, optimizing texture, and maintaining consistency in production.