

Crème Fraîche Texture Analysis

Understanding the texture of Crème Fraîche, especially comparing full-fat and low-fat varieties, is essential for ensuring product consistency and consumer satisfaction. Texture affects the mouthfeel and overall quality, and controlling firmness and adhesiveness is key to maintaining product standards.

Test Principle:

- The back extrusion test measures the consistency, firmness, and adhesiveness of Crème Fraîche using a CTX Texture Analyzer with a back extrusion cell (Figure I). This test evaluates how the sample reacts to compression, helping to quantify key texture characteristics.

Equipment:

- Instrument: CTX Texture Analyzer with 5 kg load cell
- Accessories: Back Extrusion Cell (TA-BEC), 38.1 mm disc, Fixture Base Table (TA-BT-KIT)
- Software: Texture Pro

Settings:

- Test Type: Compression
- Pre-Test Speed: 1.0 mm/s
- Test Speed: 1.0 mm/s
- Post-Test Speed: 1.0 mm/s
- Target Distance: 30 mm
- Trigger Force: 10 g

Sample Preparation:

Samples are tested directly from their original containers, ensuring that the sample fills no more than 75% of the container depth.

Procedure:

1. Attach the 38.1 mm disc to the load cell.
2. Secure the fixture base table and position the sample on it.
3. Lower the probe to just above the sample.
4. Align the sample and container centrally under the extrusion plunger.
5. Start the test and compress the sample over 30 mm.



Observations:

- Figure I: Shows the force required to extrude both full-fat and low-fat Crème Fraîche at 6°C. The maximum force indicates sample firmness, while the area under the curve represents hardness work done.
- Figure II: Displays force vs. distance, showing how the sample deforms under compression and the adhesive force as the plunger withdraws.

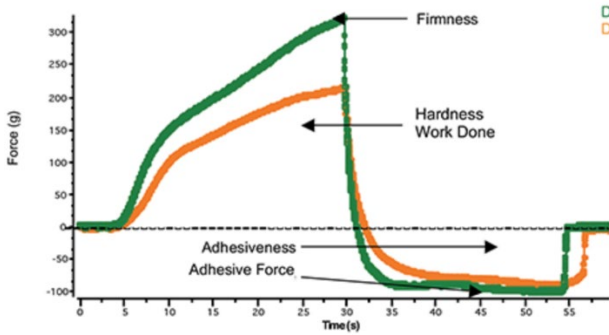


Figure I

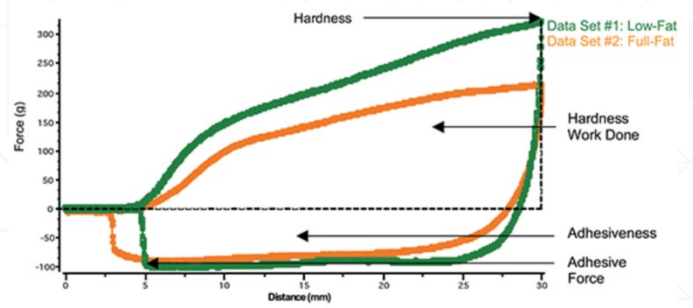


Figure II

Results:

Table I: Crème Fraîche Comparison:

Low-Fat:

- Hardness: 322 g
- Hardness Work Done: 51.3 mJ
- Adhesive Force: 101 g
- Adhesiveness: 20.7 mJ

Full-Fat:

- Hardness: 216 g
- Hardness Work Done: 35.9 mJ
- Adhesive Force: 90 g
- Adhesiveness: 17.8 mJ

Discussion:

Low-fat Crème Fraîche required more force to compress compared to full-fat, indicating a firmer texture. Adhesiveness was also higher for the low-fat version, reflecting its higher resistance when the probe is withdrawn.

Conclusion:

This test provides valuable data on the firmness and consistency of Crème Fraîche, helping manufacturers maintain product quality. Monitoring these texture properties ensures consumer satisfaction and product consistency across different fat content formulations.