

Ricotta Cheese Texture Analysis

Texture testing of ricotta cheese is essential to ensure consistent firmness, adhesiveness, and spreadability, which are crucial for consumer satisfaction. This analysis quantifies key characteristics such as firmness, consistency, and adhesiveness, helping manufacturers maintain quality across batches.

Background:

- Ricotta cheese texture can vary based on manufacturing methods, moisture content, and curd structure.
- Quantifying properties like firmness and stickiness ensures that the product meets standards for texture and usability.



Equipment:

- Instrument: CTX Texture Analyzer with a 5,000 g load cell (Figure 1)
- Probe: 25.4 mm diameter Spherical probe (TA43)
- Fixture: Fixture base table (TA-BT-KIT)
- Software: Texture Pro

Settings:

- Test Type: Compression
- Pre-Test Speed: 2.0 mm/s
- Test Speed: 2.0 mm/s
- Post-Test Speed: 2.0 mm/s
- Target Distance: 15 mm
- Trigger Load: 10 g



Figure 1

Brookfield CTX Texture Analyzer



Figure 2

Transfer to container for testing



Figure 3

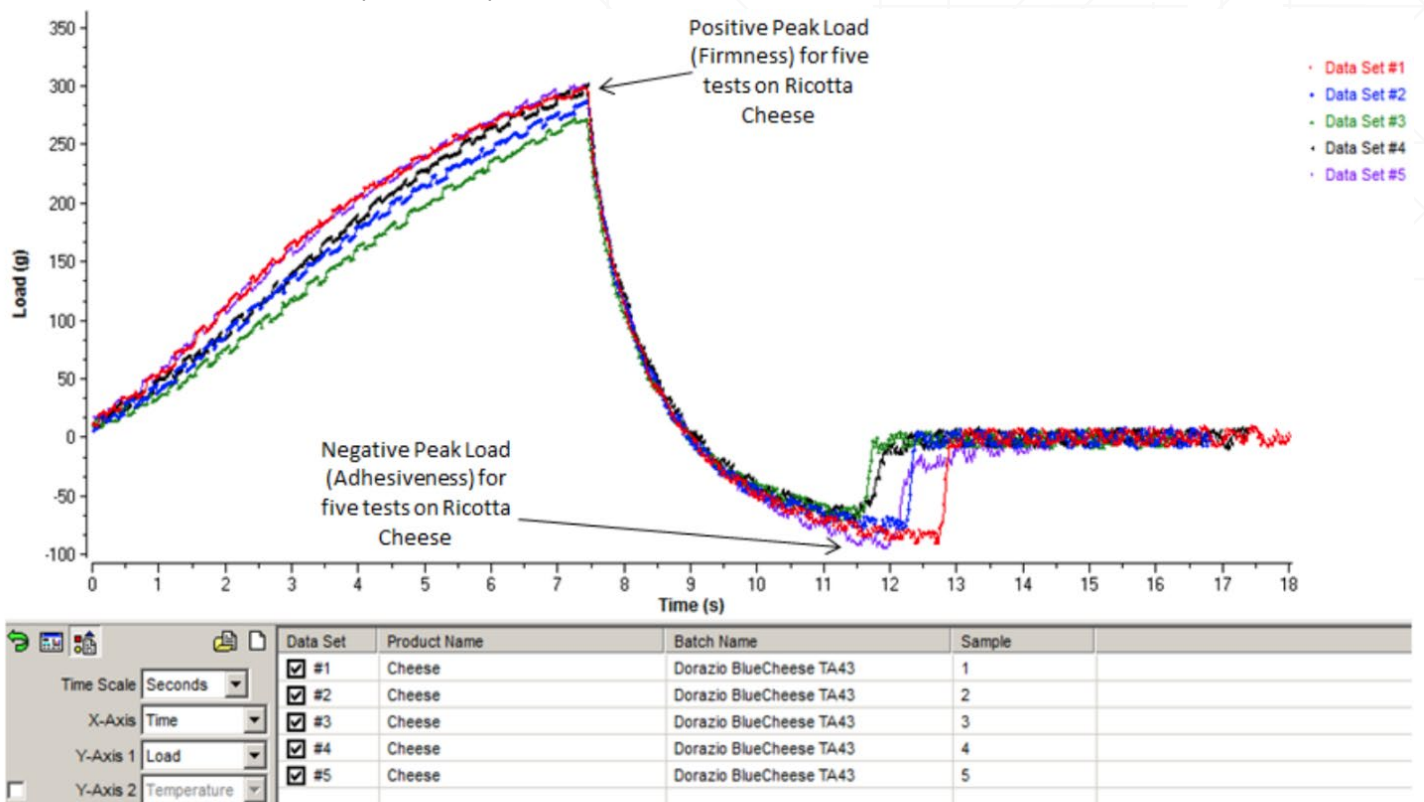
25.4mm ϕ Spherical probe (TA54)

Procedure:

1. Prepare the ricotta cheese sample by transferring it from the packaging to a glass container (Figure 2).
2. Smooth the top surface of the sample for even testing.
3. Attach the TA43 probe (Figure 3) to the CTX Texture Analyzer.
4. Place the container on the fixture base table and adjust the position to align the sample under the probe.
5. Lower the probe to a 30 cm distance above the sample, align, and secure the setup.
6. Start the test; the probe penetrates the sample to 15 mm and then withdraws.

Observations:

- **Figure 4:** The Load vs. Distance graph illustrates the texture characteristics.
 - **Firmness:** Maximum force during penetration indicates sample firmness; a higher force means a firmer cheese.
 - **Consistency:** The area under the Load vs. Distance curve measures consistency; a larger area indicates thicker consistency.
 - **Adhesive Force and Adhesiveness:** As the probe withdraws, resistance generates a negative curve. The maximum negative force shows adhesive force, while the area under this curve reflects adhesiveness (stickiness).



*Figure 4
Graphs show the firmness & stickiness for Ricotta Cheese samples*

Results:

- Average Firmness: 292 g force with a Standard Deviation of 12 g, indicating consistent firmness.
- Hardness Work Done: 24.1 mJ
- Adhesive Force: 81 g force
- Adhesiveness (Stickiness): 3.7 mJ

#	Sample Description Product Name	Batch Name	Results Sample	Hardness Cycle 1	Hardness Work Cycle 1	Adhesive Force	Adhesiveness	
				g	mJ	g	mJ	
1	Cheese	Dorazio BlueCheese T	1	298.00	25.88	90.50	4.83	
2	Cheese	Dorazio BlueCheese T	2	287.50	23.08	80.50	3.70	
3	Cheese	Dorazio BlueCheese T	3	273.00	21.24	69.00	2.51	
4	Cheese	Dorazio BlueCheese T	4	301.50	24.35	70.50	2.69	
5	Cheese	Dorazio BlueCheese T	5	300.50	26.06	95.00	4.56	
				Minimum	273	21.2	69	2.5
				Maximum	302	26.1	95	4.8
				Average	292	24.1	81	3.7
				Standard Deviation	12	2.0	12	1.0

Figure 5

Test results for Ricotta Cheese samples using 25.4mm diameter spherical probe (TA43)

Discussion:

The CTX Analyzer with TA43 probe provides reliable data on ricotta cheese firmness and adhesiveness, which are critical for product quality and consumer satisfaction. The repeatability of results confirms the suitability of this method for quality control in cheese production.