

6 Patton Drive, Hamilton, MA 01982 (978) 468-9969 info@texturetechnologies.com

TA.XTPlus Application Study: How to Break a Heart

Conversation hearts are a confection ubiquitous with Valentine's Day. These brightly colored heart shaped confections delight consumers with fun colors and silly phrases. We decided to compare two popular conversation heart brands, 'Brach's Conversation Hearts' and 'Sweethearts Candies', to evaluate their textural behavior.

Sample Preparation: Samples of 10 unbroken conversation hearts were randomly selected from each brand and tested on Day 0 and Day 2. Initial tests were done when the bags were opened and then replicate tests were performed two days later. Since these confections are often stored out in candy dishes in homes and offices we decided to replicate these conditions by leaving 10 conversations hearts on a plate at room temperature for 2 days.

A TA-8 ¹/₄" diameter stainless steel ball probe was used and the TA settings were as followed: *Return to Start, Compression, 0.2 mm/sec Pre-Test Speed, 0.5 mm/sec Test-Speed, 10 mm/sec Post-Test Speed, Distance Target Mode, 2 mm Distance, Auto Trigger and 5 g Trigger Force.*



The conversation hearts were placed centrally beneath the TA-8 on a TA-90 platform for testing. The tests were conducted with a 50 kg load cell.

	Day 0				Day 2			
	Distance to Fracture		Fracture Force		Distance to Fracture		Fracture Force	
	mm	% CV	g	% CV	mm	% CV	g	% CV
Brach's	1.3	16.7	25,359	24.6	1.4	29.8	27,152	43.9
Sweethearts	1.1	9.3	22,729	13.3	1.3	11.9	28,109	15.8

Comparative Results: The graph and table show the distance to fracture (brittleness) and the force needed to break the conversation hearts. The distances to fracture and the forces necessary to fracture for both brands of hearts increased over the two days of being left out in the open. The fracture force needed to fracture the Brach's conversation hearts increased by \sim 7% and the



Sweethearts increased by 21%. While the coefficients of variance are high it is just proof that no two hearts are alike and that some hearts are softer than others, even when from the same manufacturer and package. Further experiments showed that these observations are not influenced by the color or size of the candies. All of the % CV values increased among the candies exposed for the two days.

Note that some of the individual replicate tests for both brands generated over 30 kilos of force before the conversation hearts broke. Consumers with young children or delicate teeth may want to take their time and enjoy the hearts after they have 'melted'.

Conclusion: The TA.XT*Plus* Analyzer and Exponent software is the perfect instrument and software package for breaking conversation hearts.

PS. Please do ask how to fix a broken heart.