

Production: CAKE

Objective: Firmness measurement of cake by compression with a probe

Type of action: Penetration test

Test setting:

| Speed | Test mode | Trigger | Target | Hold |
|----------|--------------|---------|--------|-------|
| 1.7 mm/s | Distance (c) | 20 gf | 6 mm | 0 sec |

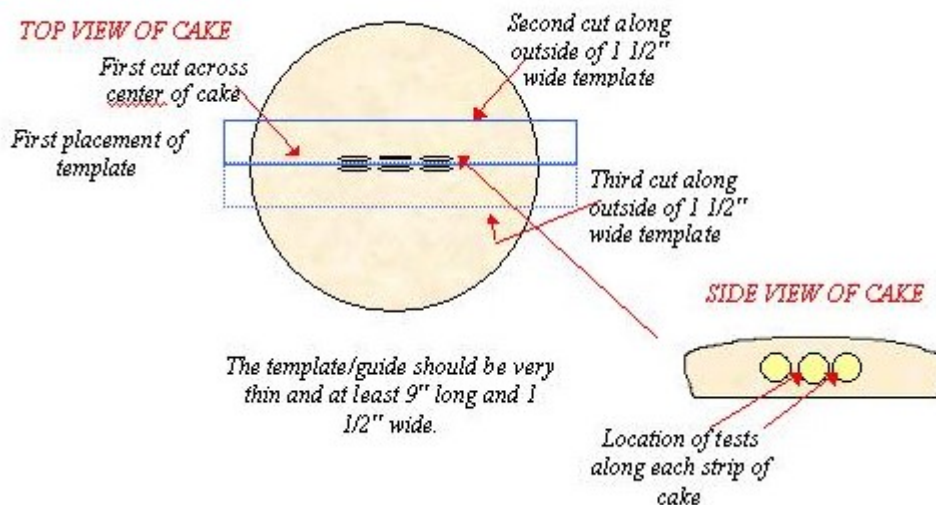
Accessory:

φ 25 mm cylinder probe. Acrylic, Platform

Sample Preparation:

Place a 9 inch long thin template on the top of each cake. Slice the 8 inch round cake in the centre and again along the other side of the template as shown in the below diagram. Use a good quality bread knife and a gentle sawing motion to cut the cake slices. Roll the slice so that the cake slice rests on its side on the template, and use the template to relocate the slice under the probe for testing. Test the sides of each cake slice using a 1" diameter cylinder probe in three different areas close to the centre of the crumb. Space the tests about 1/8" - 1/4" apart (further apart if the test depth is increased). Repeat the three tests along the second slice. We do two cakes per variable per testing day, thus obtaining 12 curves per variable each day they are tested (usually on days 1, 3 and 7).

It is also possible to conduct a TPA style test on the cake.



Test Set-Up:

Each cake sample was positioned centrally under the probe and the test commenced. Analysis was conducted only after all of the tests were completed and archived for each cake set.

Data Analysis:☒ Max Force**Results**

The maximum peak force is recorded for each of the 12 test replicates and the average and standard deviation are calculated on the measurements. If a TPA test is conducted, record hardness, springiness, resilience and cohesiveness.

Notes:

- This method is from a collection of procedures for testing the texture of common bakery products with the Texture Analyzer. These procedures have been developed by and are used at the American Institute of Baking's Experimental Bakery Lab in Manhattan, Kansas.
- It is the philosophy of the researchers at the AIB to have extremely flexible protocols for texture testing. Bakery products come in every imaginable type and shape, so meaningful textural comparisons must account for the different product geometry's. These test procedures typically manage differences in geometry by reducing the products' size to a common denominator.
- Generally, the objective of most of these tests is to measure the firmness and shelf life of a baked product. Since the bulk of these protocols address sample handling, they can and should be modified slightly if the test objective is different (eg springiness, cohesiveness, resilience, etc).
- These protocols are simply starting places for developing test methods which are suitable for your own products. A researcher should be comfortable modifying the sample handling protocols, test speeds and distances to accommodate any specific purposes.