

Canadian Food Texture

System "Measures Up"

Studies have shown that consumers look at the texture of food as indicative of its quality. At produce bins in grocery stores, shoppers squeeze the melons and oranges, and carefully study the surface of tomatoes or green peppers, in their search for the ideal specimen. Fruits and vegetables that don't measure up are returned to the bin. Likewise, food that seems too hard or soft to the taste when eaten at home may not be purchased again.

As part of their product development and quality control, food manufacturers have for years used two traditional systems to measure food texture. The first, sensory analysis, used taste test panels but was cumbersome, time-consuming, and expensive. More recently, instruments were used to objectively measure factors such as tension and compression. But these instruments were not flexible enough to measure a wide range of products, using a variety of tests. There were some general-purpose objective measurement instruments, but few of these were suited for use in both research laboratories and industrial quality control.

New test cell designs

A versatile texture-measuring apparatus now exists, and it is capable of performing a variety of measurements in both quality control and research activities. The Ottawa Texture Measuring System (OTMS), manufactured and distributed by Cannors Machinery Limited of Simcoe, Ontario, was developed by engineers in the federal Department of Agriculture to provide an accurate, unbiased method of measuring food texture. OTMS uses electronic recording devices, a computerized system of texture analysis, and interchangeable test cells to measure the texture of a wide range of raw or processed foods.

The test cell designs are the key to OTMS. These cells, or containers, have a wire grid or perforated plate as a bottom. Foods are placed into a cell, which is installed in a press. A plunger forces the food through the grid or plate, and the amount of force required is measured electronically. By analyzing the recorded measurements, operators can determine the firmness and toughness of the food.

Each cell is equipped with adjustable frames, so that foods of various sizes can be tested easily. To provide maximum flexibility, the shapes of the grids and perforations can also be adjusted.

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