

Application
Data Sheet

No. 11

EZTest Compact Table-Top Universal Tester

Material Testing & Inspection

Evaluation of Foods for People with Dysphagia

Consumer Affairs Agency, Government of Japan, Food Labeling Notification No. 277
(Permission of Labeling for Foods for Special Dietary Uses)

Introduction

Foods for people with dysphagia are easy to swallow, and intended to prevent pulmonary aspiration and suffocation. In recent years, there has been an increase in people with dysphagia due to an aging population, so the demand for these commodities has increased. In the home medical care context, selecting appropriate meals is important, and using foods for people with dysphagia is one aspect of this. This article introduces a system for measuring hardness, adhesion, and agglomeration, evaluation items based on the Consumer Affairs Agency of Japan's Food Labeling Notification No. 277 (Permission of Labeling for Foods for Special Dietary Uses).

F. Yano

Measurements and Jigs

Fig. 1 shows a schematic diagram of the tools used in evaluating foods for people with dysphagia. The sample is used to fill a container with a diameter of 40 mm to a height of 15 mm. Compression measurement is then done twice using a resin plunger with a diameter of 20 mm and a height of 8 mm, at a compression speed of 10 mm/sec and a clearance of 5 mm. For foods that are chilled or eaten at room temperature, the test is conducted at $10\text{ }^{\circ}\text{C} \pm 2\text{ }^{\circ}\text{C}$ and $20\text{ }^{\circ}\text{C} \pm 2\text{ }^{\circ}\text{C}$. For foods that are eaten warmed, the test is conducted at $20\text{ }^{\circ}\text{C} \pm 2\text{ }^{\circ}\text{C}$ and $45\text{ }^{\circ}\text{C} \pm 2\text{ }^{\circ}\text{C}$.

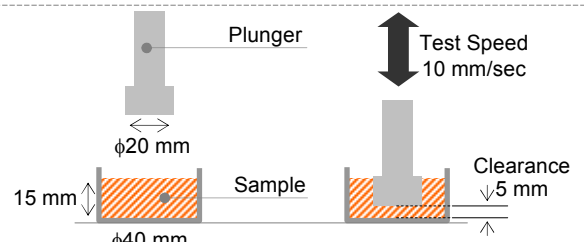


Fig. 1: Schematic Diagram of the Evaluation Test for Foods for People with Dysphagia

Measurement Results

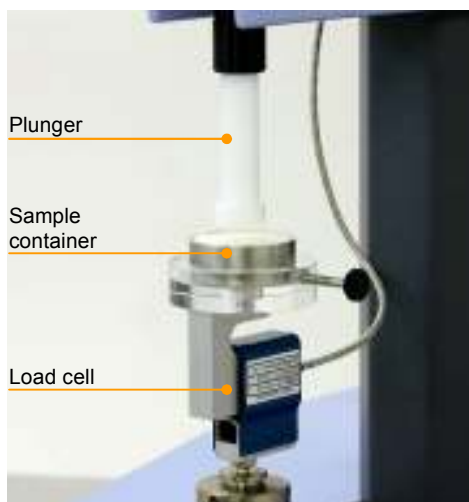


Fig. 2: Food Test Evaluation Jigs

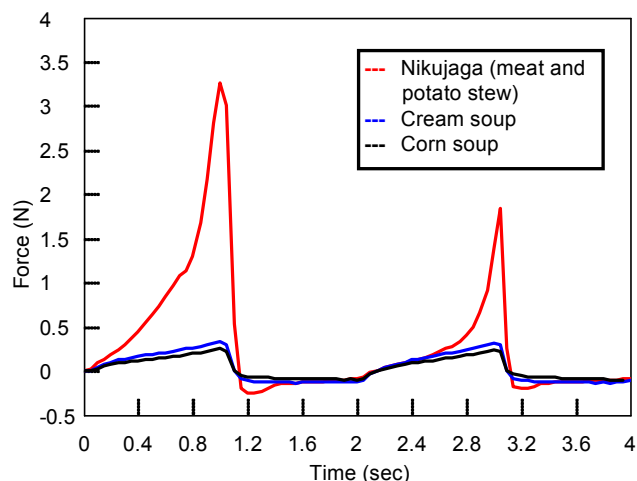


Fig. 3: Food Test Evaluation Results

Table 1: Test Conditions

| Item | Set Value |
|--------------------|-----------|
| Test Speed | 10 mm/s |
| Clearance | 5 mm |
| No. of Repetitions | 2 |
| Test Temperature | 20 °C |

Table 2: Test Results

| Sample | Hardness (N/m ²) | Adhesion (J/m ³) | Agglomeration | Standard (judgment) |
|---------------------------------|------------------------------|------------------------------|---------------|---------------------|
| Nikujaga (meat and potato stew) | 1.04×10^4 | 0.246×10^3 | 0.21 | III |
| Cream soup | 1.07×10^3 | 0.206×10^3 | 0.78 | II |
| Corn soup | 0.81×10^3 | 0.129×10^3 | 0.78 | III |

Evaluation System for Foods for People with Dysphagia

| | |
|-------------|--|
| Tester: | EZ-SX |
| Load Cell: | 50 N |
| Test Jig: | Universal Design Food Test Set |
| Software: | TRAPEZIUM X Texture |
| Thermostat: | Thermo-constant cooler/heater (separately installed) |

TRAPEZIUM X



EZTest Compact Table-Top Universal Tester

Features

- Light and compact
The compact size fits easily on tables. Testing can be performed in a corner of the office.
- A high-precision load cell is adopted. (The high-precision type is class 1; the standard-precision type is class 0.5.)
Accuracy is guaranteed over a wide range, from 1/500 to 1/1 of the load cell capacity. This supports highly reliable test evaluations.
- Jog controller (optional)
This allows hand-held control of the crosshead position. Fine position adjustment is possible using the jog dial.
- TRAPEZIUM X Texture operational software
This is the optimal software for a variety of pharmaceutical and cosmetic quality evaluations and physical characteristics measurements, as well as food texture measurements. It can create flexible control patterns and data processing items specific to foods, including hardness, brittleness, and energy.
- A wealth of specialized jigs
Supporting the many needs of our customers with special jigs and applications for a number of fields, including foods, pharmaceuticals, electrical machinery & electronics, and plastics.

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