Overview

- Fatty foods such as chocolate have a low melting temperature; the percentage of solid fats present in chocolate influences its softening and cracking (i.e., snapping) properties.
- One metric of the fat and oil content in food is the SFC (Solid Fat Content), which is generally measured using pulse NMR.
- Alternatively, the SFC can be evaluated by obtaining an integral curve from the DSC melting peak.

**Measurements and Results**

Changes in the integral curve that accompany melting are equivalent to changes in the SFC.

The fraction of oils and fats in chocolate that have melted is given by the integral curve for any temperature.

**[Measurement Conditions]**
- Sample weight: 5 mg
- Sample pan: Al open pan
- Heating rate: 10 °C/min
- Temperature range: -50 to 60 °C

Endothermic peaks were observed at melting near 10 °C and 28 °C.

The SFC of milk chocolate and ganache gradually decreases beginning from minus temperatures.

Unlike milk chocolate and ganache, no change is observed in the integral curve of cacao-rich chocolate until room temperature. Until that point, it maintains a rigid state that is primarily solid.

DSC Evaluation of Melting Fraction of Chocolate

2009. 03

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