Application Note B-TA1040

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Thermal analysis of gummy candy - Part 2-~Sample observation DSC~

Introduction

Gummy candies that have a rubbery, elastic texture are popular. In this application, we used a sample observation DSC to investigate the thermal behavior of gummy candies and resulting changes in shape.

The upper limit was set to 80°C based on the results of measurements using TG-DTA/GC-MS.

Measurements and results

In the DSC measurement, the temperature was lowered from room temperature to -50°C at 10°C/min in an N_2 atmosphere, and then raised to 80°C at 10°C/min.

Figure 1 shows the DSC measurement results and a sample observation image.

A baseline shift is observed at -12°C during the cooling process and at -23°C during the heating process that is presumed to be a glass transition. Furthermore, an endothermic change is observed from around 60°C.

Upon checking the sample observation image, no change was observed in the sample shape during the cooling process or the heating process up to around 60°C, although the gloss of the sample surface gradually disappeared from around 60°C, and the shape of the sample changed at 80°C.

This result shows no change in sample shape due to a glass transition. However, the texture may be affected at temperatures below -10°C after the glass transition. In addition, the shape changes significantly due to changes in viscosity above 60°C.

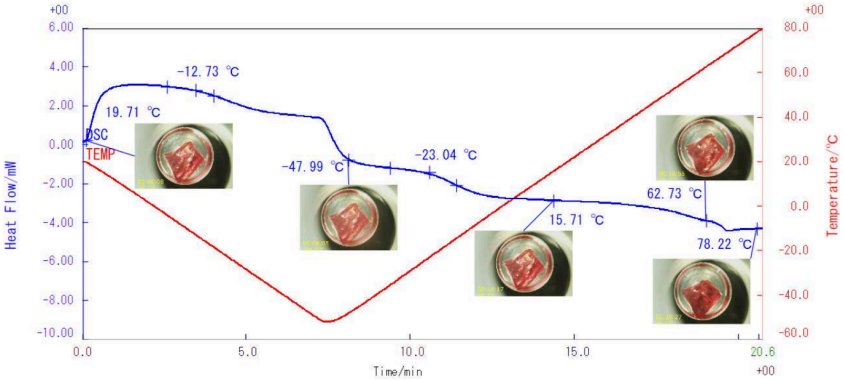

Figure 1: DSC measurement result and sample observation images

Recommended equipment and software:

- DSCvesta, Sample observation unit VSO-1
- Measurement analysis software Vullios

Related products

Sample Observation DSCvesta

Allows real-time observation and recording of sample chan ges from room temperature up to 725°C

Sample Observation DSCvesta2

Allows real-time observation and recording of sample chan ges from room temperature up to 725°C