Application Brief

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# TA NO.33 SEP.1986 DSC Measurements of Edible Meat

## 1. Introduction

Meats are basically made up of proteins and fats. Thermal denaturation and melting behavior contain a lot of information concerning the quality of meats.

This brief describes the results of High Sensitivity DSC measurement of pork sirloin and sausage.

## 2. Methods and Data

2-1 Pork Sirloin

Figure 1 show DSC measurement results for pork sirloin. Figure 1 shows the DSC curve for raw pork and pork that has first been heated or “cooked” at 70°C for 20 minutes.

The endothermic peaks at 28°C and 42°C both come from the melting of the fat. The endothermic peaks that appear at 60°C and 75°C in Figure 1 are not observed in Figure 2 (after the heating process), and must be from the denaturation of protein.

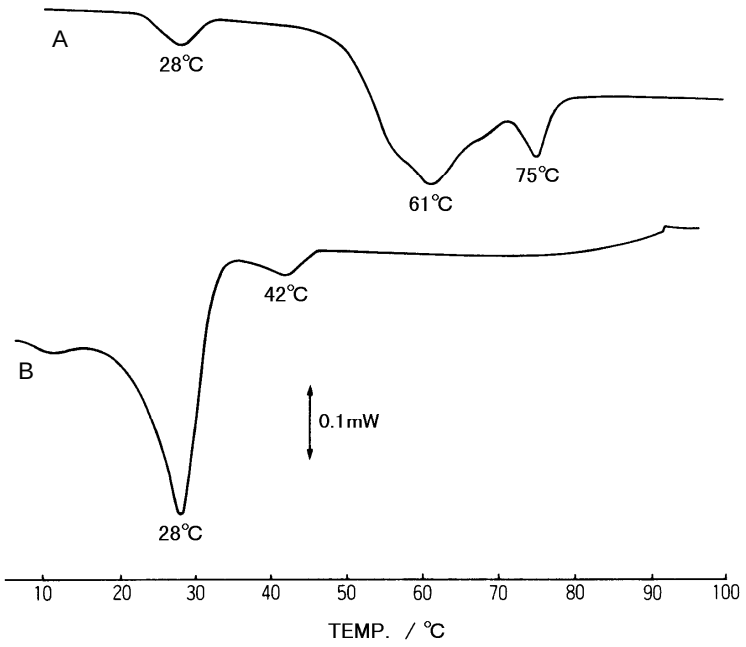


Figure 1 DSC measurement results for pork sirloin
Sample weight : 30mg
Heating rate : 2°C/min
A : Raw pork
B : Heated pork

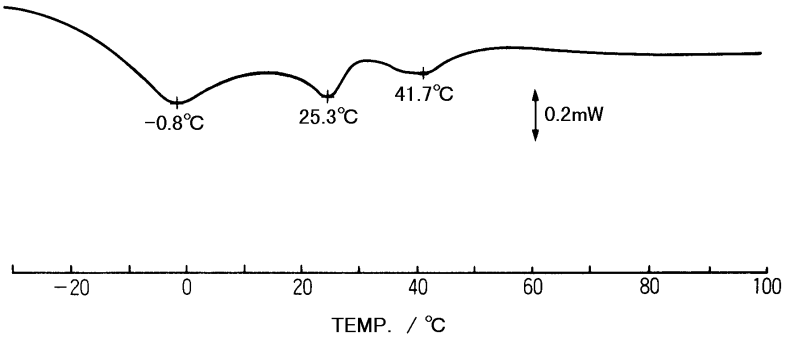


Figure 2 DSC measurement results for pork Sausage
Sample weight : 30mg
Heating rate : 2°C/min

2-2 Pork Sausage

Figure 3 shows the DSC measurement results for sausage. The melting of the contained ice and the fats can be observed. No peaks for denaturation of protein in higher temperature ranges can be observed, therefore the sample must have already undergone complete heat processing.

## 3. Conclusions

The presented data demonstrates that DSC analysis can be used to determine whether a sample has already undergone heat processing.