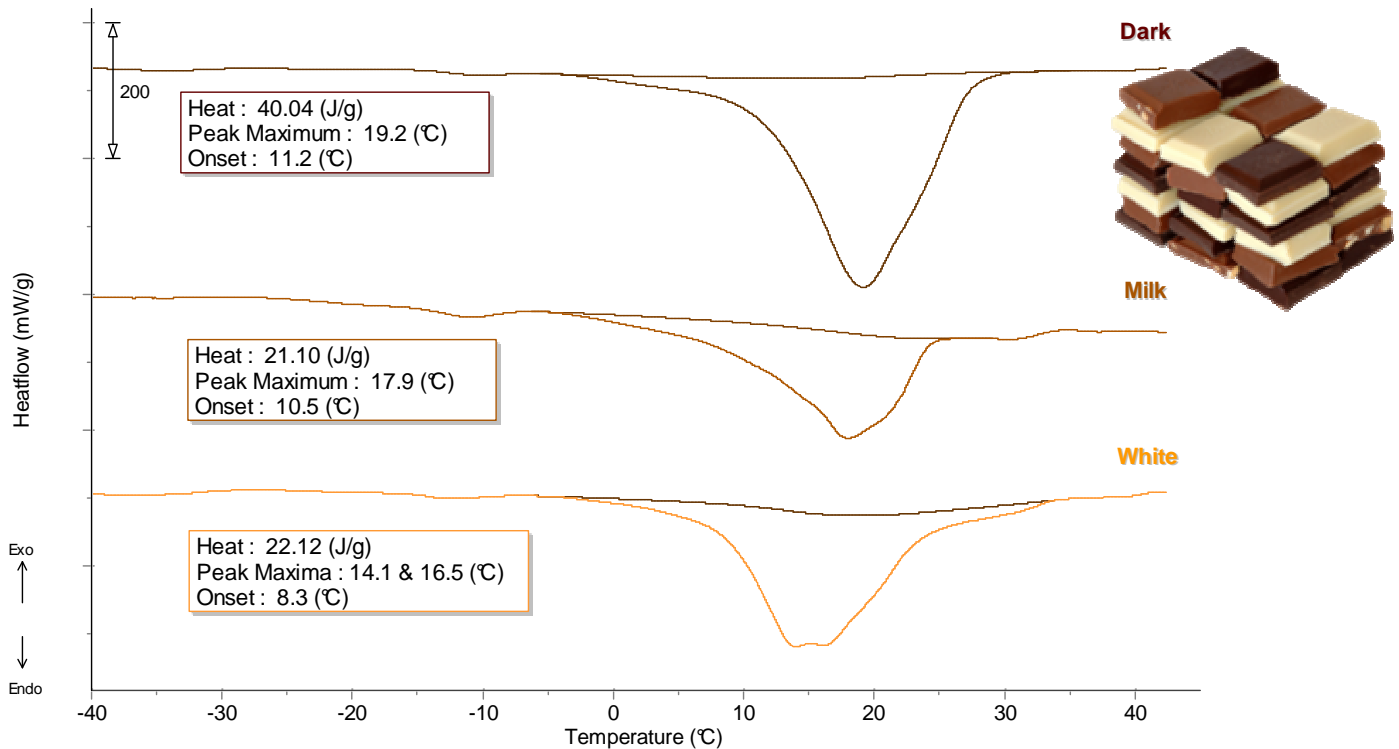


Melting of different types of chocolates by DSC

Introduction

Chocolate is mainly composed of cocoa butter, cocoa paste and sugars. Moreover, the composition could differ from one type of chocolate to another. The dark chocolate contains solid cocoa, cocoa butter and sugar. In the milk chocolate, powder milk is added. In the white chocolate, there is no solid cocoa. Then, the thermal profile is an essential information for the industry to improve the quality and properties of their products, like for example the ability to be solid at room temperature and soft in the mouth.



Experimental

Samples:

- Dark chocolate 70% of cocoa
- Milk chocolate
- White chocolate

DSC 131 Evo experimental conditions:

Atmosphere: air, atmospheric pressure

Sample mass: about 25 mg in a 100µl sealed aluminum crucible

Experimental procedure:

Heating from -50°C up to 45°C at 5°C.min⁻¹.

Instrument

DSC 131 Evo

-170°C / 700°C



Results

For the dark chocolate, an endothermic effect is recorded with a maximum at about 20°C, corresponding to the melting of the cocoa butter that contains different fatty acids.

The white type presents two maxima attributed to the two main compounds : cocoa butter and milk fats. From the melting peak area, it is noticed that the white chocolate contains less cocoa butter.

For the milk chocolate the observation of the melting peak area shows that it contains less cocoa butter.