

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.

EXPERIMENT

Samples:

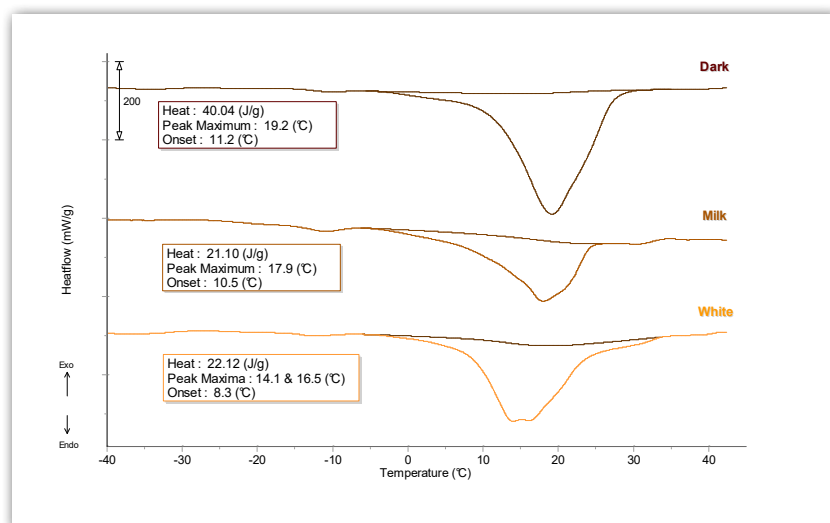
- Dark chocolate 70% of cocoa
- Milk chocolate
- White chocolate

Experimental conditions:

Instrument : SETLINE DSC
 Atmosphere: air, atmospheric pressure
 Sample mass: about 25 mg in a 100 μ l sealed aluminum crucible

Experimental procedure:

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



RESULTS AND CONCLUSION

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.

INSTRUMENT

SETLINE DSC / DSC+

-170 to 700°C



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ensuring quality, consistent and reliable data

AVAILABLE WITH HIGH PRESSURE CRUCIBLES
up to 500 bar at 600°C

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