EFFECT OF TEMPERING ON THE STABILITY OF CHOCOLATE GANACHE

INTRODUCTION

The tempering is an essential step in the chocolate fabrication process, since it confers to chocolate a glossy and attractive aspect. Tempering also allows the chocolate to set quickly, to be easily removed from molds and prevents from bloom formation.

Chocolate contains cocoa butter fat, which can be composed of six different crystal forms. The tempering of chocolate consists in cooling the chocolate paste while mixing under precise conditions, in order to obtain only one form of crystal. As a result, it is important in chocolate industry to perform a correct tempering.

Chocolate ganache is an emulsion composed of chocolate and cream, which can be found in many pastries. Ganaches are generally prepared by pouring warm cream over chocolate; this operation melts almost all the crystallized cocoa fat in the chocolate. It is important to keep or reform the beta crystal form of chocolate, which will help to stabilize the emulsion. In this note, we propose a method to assess the stability of chocolate ganache and the effect of chocolate tempering on their stability.

METHOD

Two samples of chocolate ganaches were analysed using the Turbiscan LAB at 30°C during 7 hours. One ganache was prepared with tempered chocolate while the other was not.

RESULTS

Identification of destabilization phenomena

The following graphs display the delta-backscattering signal for the non-tempered sample.

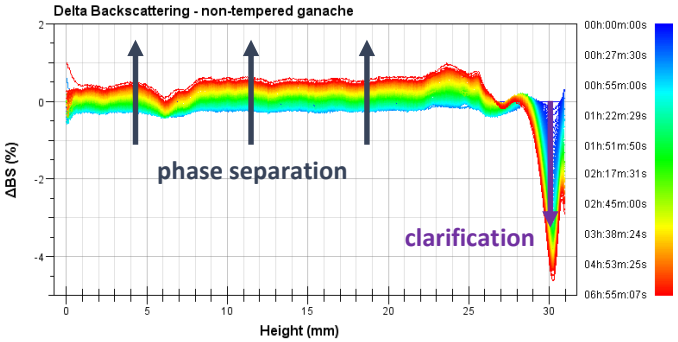

Figure 1: Delta-backscattering signal for non-tempered ganache at 30°C.

The Turbiscan profile display a decrease in the top of the sample (right part of the graph) and an increase in the middle and bottom of the sample (left part of the graph). It means that the concentration of scatterers is decreasing at the top and increasing at the bottom of the sample. In other words, phase separation is occurring in the sample, with a clarification at the top. The same phenomena is observed for the tempered sample but less intense, as shown on Figure 2.

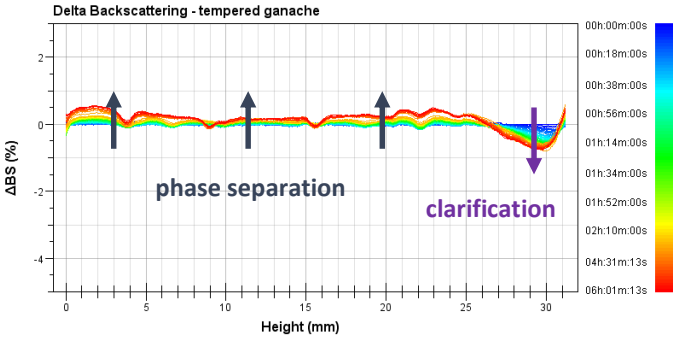

Figure 2: Delta-backscattering signal for tempered ganache at 30°C.