



SIMPLIFIED TEMPERING METHOD FOR SMI

INTRODUCTION

Improper tempering is responsible for defects in the texture and appearance of chocolate. When choosing tempering machine, many factors should be considered. For SMI, hand tempering is frequently practiced, however the output is limited and hygiene is difficult to control.

PROCEDURE

1. Melt milk chocolate at 45°C in tempering kettle.
2. Set tempering kettle to 31-32°C.
3. Add small chunks of well tempered solid milk chocolate into the tempering kettle.
4. Stir mixture until it reaches 31°C.
5. Pour chocolate into moulds and cool.
6. Demould the chocolate.



Chocolate chips for melting



Melting in tempering kettle

RESULTS & DISCUSSIONS

When the melted chocolate reached stabilization temperature, samples were taken from the tempering kettle at 30 minutes interval from 0 minutes to 90 minutes. Two studies were conducted

Polymorphic study

5 - 7 mg of fat samples were weighed and kept in aluminum pan and immersed in liquid nitrogen prior to analysis using Differential Scanning Calorimeter. The samples were held at -25°C for 5 minutes on the DSC head prior to measurement. DSC melting curves were recorded at the heating rate of 0.5 °C/min from -25°C to a maximum of 50°C.

End product quality

The chocolates were kept in a box for 3 days prior to melting analysis. The glossiness of the products was measured with Colorimeter. The product bloom formation scores were recorded.

Observation on the polymorphic study indicated changes on the liquid chocolate occurred increased after 30 minutes upon reaching stabilization temperature. Meanwhile, final products showed no difference based on the melting point and visual observations of the products.

These data suggest that the quality of the products were consistent.

CONCLUSION

This technique is capable of producing 25-35 kg of well tempered chocolate daily. The suitable stabilization temperature is 31 – 32°C. The technique will produce milk chocolate product with consistent quality.

ENQUIRIES

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