# Bloom in Vegetable Fat Based Chocolate Crème

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Vegetable fat blends are commonly used in bakery applications. Consumers like to eat confectionary products, but consumer trends are changing into the direction of more healthy foods. As a result of this trend the bakery industry needs to reduce the use of trans fatty acids and saturated fatty acids. However, this has consequences for the processing and product quality. Use of higher amounts of unsaturated fatty acids increases the risk of off flavour by oxidation and shorter shelf life as a result of fat bloom. The phenomena of fat bloom can occur in bakery crèmes as well as in chocolate coatings and also on the surface of cookies or biscuits. The goal of this study is to understand the fat bloom formation in bakery crèmes in relation to the fat blends used.

Figure 1: left after storage at 20°C and right after temperature cycle

A series of bakery crèmes based on different fat blends was produced and stored under fat bloom initiating conditions. Different kinds of bloom were found. The bloom particles were characterized with different techniques in order to get information on the mechanistic cause of fat bloom and to be able to predict fat bloom formation in relation to used fat blends and processing conditions. For this research the fat bloom particles were analysed by the following techniques:

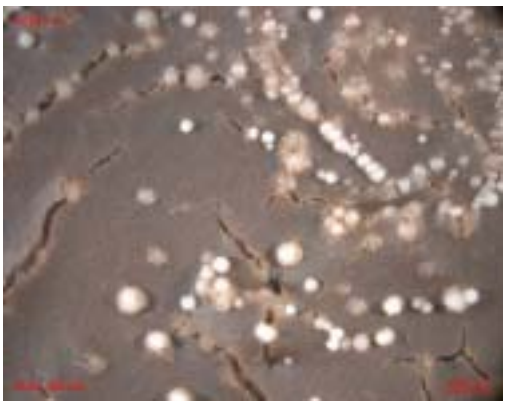

Figure 2: Microscopic picture of fat bloom

- Fatty acid and TAG analyses by GC
- DSC melting profile
- Microscopy
- FTIR measurement (Fourier Transform IR)
- XRD (X-ray diffraction)

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