

Fractionation and use of CBE component fats

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On 3 August 2003, the EU Chocolate Directive came into force. One of the effects of this was that, for the first time, vegetable fats were permitted in chocolate in all EU member states. There were, however a number of limitations imposed by the Directive – on the oils that could be used and on the processes that could be operated. One of the results of this was to make fractionation even more important since this is now the only modification process permitted on vegetable oils for use in chocolate.

The limitation on the types of oils that could be used meant that only six base oils are permitted – from palm, shea, illipe, sal, kokum and mango kernel. Almost all of these need to undergo some form of fractionation in order to obtain the correct mix of triglycerides for use in chocolate. The ‘correct mix’ is to a certain extent defined by the legislation although, within that, there is scope for the formulation of a range of CBEs.

The characteristics of a CBE are broadly defined by two variables

- (a) the composition, more specifically, the ratio of palm fraction to the other, more exotic oils and their fractions, and
- (b) the ‘quality’ of the fractions in terms of how much or how little olein fraction remains in the stearin.

The requirements in triglyceride terms for a CBE component will be outlined. These will be related to the triglycerides found in the six base oils and, of course, in cocoa butter. Finally, the use of fractionation to obtain a concentration of the SOS type of triglycerides necessary for CBEs and the way in which these fractions may then be combined to give different CBEs will be discussed. These aspects will be brought together to consider how the two variables mentioned above can be used to define CBEs with different characteristics and functionality.