

CHAPTER 19

Chocolate compounds and coatings

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19.1 Introduction

Chocolate compounds and coatings are many and varied but share one thing in common: they do not meet the legal criteria to be classified as chocolate (see Chapter 28). This is usually because a fat other than cocoa butter has been used to produce the compound or coating, but it can be because insufficient cocoa solids are present or that other ingredients have been included that are not permitted in chocolate. In some markets, it can be purely because the legal maximum for the inclusion of vegetable fats other than cocoa butter has been exceeded. They are generally much more cost-effective to produce than chocolate and offer much greater flexibility in both texture and melting profile. They offer the manufacturer a simpler manufacturing process with less capital investment.

19.2 What are chocolate compounds and coatings?

Legal aspects aside, the general understanding of what constitutes a chocolate compound or coating is that a vegetable fat other than cocoa butter is used in the manufacture of the product. They can be divided into several categories depending on the type of cocoa butter alternative that is utilised. Apart from this major difference, the ingredients used to manufacture a chocolate compound are much the same as those used to manufacture chocolate. Cocoa solids are used in the manufacture of chocolate compounds and coatings being sourced from either cocoa mass or fat reduced cocoa powder, depending on the type of fat that is used. Milk solids are also used and can come from whole milk powder or skim milk powder but more cost-effectively from whey powder. Alternatively, soya milk can be used to make a dairy milk-free product. The same emulsifiers commonly utilised in chocolate can be used in chocolate compounds and coatings: namely lecithin and polyglycerol polyricinoleate and have the same effect on the

viscosity parameters of a chocolate compound or coating as they would for a chocolate recipe. Chocolate compounds and coatings usually have their flavour enhanced by the use of artificial vanilla (vanillin) flavours in much the same way that chocolates often do. Market pressures to move away from artificial flavours can increase the cost of a chocolate compound or coating considerably if a decision is made to move to natural vanilla.

Several different types of vegetable fat can be used in place of cocoa butter to produce a chocolate compound or coating. First, a chocolate compound can be produced by the inclusion of cocoa butter equivalent (CBE) into the recipe at a level above 5% (in markets that allow a 5% addition of CBE) or as a 100% replacement of cocoa butter (sometimes termed a super compound). The CBE fat has the same physical and chemical properties as cocoa butter due to it having a very similar triglyceride composition to cocoa butter. The disadvantage of using CBE is that the chocolate compound still needs to be tempered; hence the manufacturer would have the same capital outlay as that for a chocolate product. CBE is compatible with cocoa mass so that chocolate compounds indistinguishable in taste from an equivalent chocolate recipe can be manufactured. That said, a CBE fat does deliver a much cleaner (odourless) flavour than even the best deodourised cocoa butter. A CBE fat is also white in colour as opposed to the yellow colouration of cocoa butter. Hence, if the desire is to manufacture a white “chocolate” product with the same melting profile as one using cocoa butter but with a cleaner colour and flavour, then CBE fat in place of cocoa butter is one option and is also more cost-effective than using cocoa butter. Some would argue there is no such thing as a white chocolate, as only cocoa butter and not cocoa mass is present in the formulation. The lack of yellowness in the product when using a CBE makes colouring of the compound coating much easier if desired.

It is more usual to find either a cocoa butter substitute (CBS) or a cocoa butter replacer (CBR) used in the manufacture of chocolate compounds. The properties of these fats are more extensively covered in Chapter 7. A CBS fat is referred to as a “lauric” fat due to their high content of lauric fatty acid. They are manufactured from either palm kernel oil or coconut oil that has been refined, fractionated and hydrogenated. CBS fats have a sharp melting point, giving similar texture properties to those of chocolate. They do not require tempering and crystallise rapidly. Due to the shape of the crystals formed, CBS fat is incompatible with cocoa butter and, if the two are mixed, there will be a softening or lowering of the melting point (eutectic effect). The inclusion of more than 5% cocoa butter in a compound chocolate manufactured using CBS will almost certainly result in bloom. Therefore CBS chocolate compounds must be manufactured using fat reduced cocoa powder (10–12% fat) and cannot benefit from the use of cocoa mass to deliver chocolate flavour. The degree of alkalisation used in the manufacture of the cocoa powder and the source of the cacao beans used will help improve the flavour achieved.