



BLOMMER CHOCOLATE COMPANY

SATURATED AND TRANS FAT

In 1999 the Food and Drug Administration (FDA) proposed that the labeling of trans fat on Nutrition Facts be required by manufacturers due to the prominent public health concerns with trans fat. When this ruling came into effect in 2006 several companies reformulated their products to reduce or eliminate trans fat however there is still a significant amount of products that contain trans fat in the food supply. Saturated fats and trans fat are both associated with having elevated risk to heart disease. The 2010 Dietary Guideline for Americans recommends saturated fat consumption is minimized to 10% of the daily calories consumed and that trans fatty acid consumption is minimized as well.

Saturated fat is a fatty acid that has a hydrogen atom attached to every carbon atom by a single bond, making it fully saturated with hydrogen atoms. The full saturation of the hydrogen atom makes it more stable, prolonging the shelf life. Saturated fat is produced naturally in the body from carbohydrates and is found in several common food products such as hard cheese, cream, meat products, palm oil, and palm kernel oil. High intakes of saturated fat have been shown to increase the low density lipoprotein cholesterol (LDL-C) also known as the "bad" cholesterol. Increased levels of the "bad" cholesterol increase ones risk for heart disease.

Trans fatty acids, also known as trans fat, are created during the partial hydrogenation process of vegetable oils. During the partial hydrogenation process the molecule reconfigures itself so that the hydrogen atoms and double bonds are on different sides of the carbon chain as opposed to being on the same side. Trans fat is also found naturally in some meat and dairy products. Like saturated fat, high intake levels of trans fat leads to increased levels of "bad" cholesterol. However, unlike saturated fat, trans fat also increases the proneness of the heart to form clots from blood platelets and lowers levels of high density lipoprotein (HDL) which is known as the "good" cholesterol.

In compound and chocolate products such as coatings and drops various oils/fats are used to achieve the appropriate parameters of each product. In compounds palm kernel oil (fractionated and hydrogenated), palm oil, soybean oil, and coconut oil are used where in chocolates cocoa butter and milk fat (butter oil) are used. There are numerous versions of each type of oil and each individual oil will have its own specific parameters. Palm kernel oil, palm oil, and coconut oils tend to be high in saturated fat where partially hydrogenated oils such as partially hydrogenated palm kernel oil or soybean oil tend to be high in trans fat. Partially hydrogenated oils are the predominate source of trans fat in processed foods. Cocoa butter contains very little trans fat and saturated fat. The saturated fat component found in cocoa butter is derived from stearic acid which has been shown to have a more minimal detrimental health effect when compared to other saturated fats. Table 1 breaks down various oils used in chocolate and compound coatings to show typical amounts of trans and saturated fat found in them.

Table 1: Approximate Range of Trans and Saturated Fat in Oils (Based on 100 Gram Serving Size)

OIL TYPE	TRANS FAT (grams)	SATURATED FAT (grams)
Cocoa Butter	0.1	59.3 – 59.90
Milk Fat (Butter Oil)	4.9 - 6.67	60.2 - 67
Fractionated Palm Kernel Oil	0.1	86.8 – 92.90
Hydrogenated Palm Kernel Oil	0.4 – 2.0	94.7 - 98.5
Partially Hydrogenated Palm Kernel Oil	0.4 - 1.7	93.9
Palm Oil	< 1.0	45.98 - 87.25
Coconut Oil	< 0.2 – 0.4	91.2 – 99.1
Soybean	0.5 - 1.5	14 - 15

Source: These figures were generated from current oil supplier nutritional data. The figures used will vary based on the oil and oil supplier being evaluated.

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According to current FDA regulations if the trans fat for a product is under 0.5% it does not have to be declared and can be listed as 0 grams trans fat per serving. Chocolates and Compounds do contain saturated and trans fat, however the levels of these fats tend to be so minimal that most coatings fall under the 0.5% ruling. Because trans fat is naturally occurring in dairy products it is virtually impossible for a chocolate or compound to contain 0 trans fat. Table 2 shows the breakdown of trans and saturated fat in standard chocolates and compounds. Although the data listed in Table 2 is not representative of every coating; all of the coatings included in Table 2 have less than 0.5% trans fat.

Table 2: Approximate Range of Trans and Saturated Fat in Chocolates and Compounds

(Based on 100 Gram Serving Size)

	TRANS FAT (grams)	SATURATED FAT (grams)
White Chocolate	0.20 – 0.46	17.64 - 22.41
Milk Chocolate	0.26 - 0.32	21.27 – 21.45
Dark Chocolate	0.03 – 0.17	16.62 – 22.97
Compound Coating with Fractionated Palm Kernel Oil	0.03 – 0.15	25.91 – 31.49
Compound Coating with Partially Hydrogenated Palm Kernel Oil	0.46 – 0.50	25.21 – 30.78
Ice Cream Coating with Coconut Oil	0.01 – 0.03	41.99 - 51.36
Ice Cream Coating with Coconut and Soybean Oil	0.08 - 0.12	43.58 – 49.20

Source: These figures were generated from current products produced by the Blommer Chocolate Company. The figures will vary based on the specific product being evaluated.

As of November 2013 the FDA announced that partially hydrogenated oils may no longer be Generally Recognized as Safe (GRAS) due to their known adverse health effects. GRAS is the designation given to a substance added to food that is considered safe. The FDA has given industry groups until March of 2014 to make their comments, at which time the FDA will review the comments and make a decision. If this change does take effect it would prohibit companies from using partially hydrogenated oil without FDA approval. In the meantime manufacturers should evaluate their ingredients in their formulations and work with their suppliers on possible alternative oils that would then need to be tested in their particular application. Blommer is currently working with oil suppliers and our industry organizations like NCA to stay informed of the status of this issue.



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