

HIGH FIBRE CHOCOLATE

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Chocolate and cocoa products are a pleasure to eat and are well accepted as food in many cultures around the world. The nutritional value of foods is related to its composition including its content of carbohydrates, fats, proteins, minerals and vitamins. Despite a necessity to choose and consume healthy foods to provide a balanced diet, the human desire toward tasty foods is overwhelming. The challenge to provide healthy yet tasty foods is utmost on the minds of many food manufacturers. It is no secret that chocolates are greatly craved by almost everybody. This craving is further assisted by current trends showing that chocolate consumption on a regular basis is also healthy. Several formulated chocolate products are currently available in health stores, catering for special requirements for health conscious individuals. One such product is termed *high fibre chocolate*.

CONSTITUENTS OF HIGH FIBRE CHOCOLATE

The constituents of high fibre chocolate include:

- sugar;
- cocoa liquor;
- cocoa butter or cocoa butter substitute;
- milk; and
- edible fibre.

High fibre chocolate properties depend on:

Cocoa

- type and origin of cocoa beans;
- proper fermentation and subsequent processing of the cocoa beans for optimum quality; and
- analytical constants that assist in choosing only high quality cocoa beans for chocolates.

Milk

- appropriate methods for processing milk and milk products to avoid development of rancidity and off-flavours;

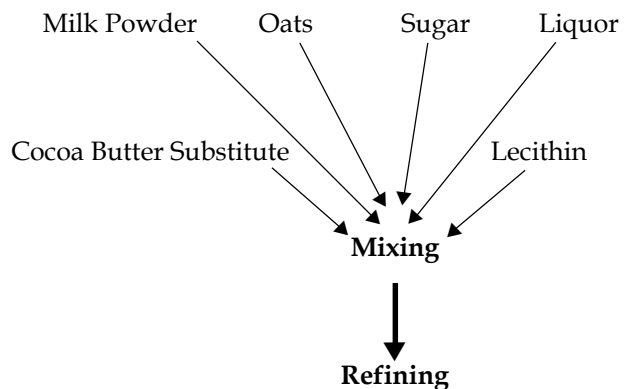
- provenance; and
- analytical constants.

Cocoa butter or cocoa butter substitute

- type of cocoa: soft or hard butters depending on type of chocolate;
- process: natural, deodorized, raw; and
- analytical constants.

Cocoa butter substitute (CBS) can be used as a total replacer of cocoa butter in imitation or chocolate substitutes. The finished products should resemble as closely as possible the products in which only cocoa butter had been used.


High Fibre Chocolate Production



Refining involves the crushing, milling and shearing of cocoa and sugar fragments to produce a product, which has the desired particle size. Only an even particle size distribution gives the required optimum viscosity/yield value and taste.


- Particle size distribution is crucial to chocolate;
- Minimize particles below 5 microns;
- Important for texture and viscosity/yield value; and
- Measured by micrometer, microscope with graduated eye piece and laser beam scattering.





Conching

Conching is a flavour development process, which puts the chocolate through a *kneading* action and takes its name from the shell-like shape or the containers originally employed. The *conches*, as the machines are called, are equipped with heavy rollers that plough back and forth through the chocolate mass anywhere from a few hours to several days. Under regulated speeds, these rollers can produce different degrees of agitation and aeration in developing the chocolate flavours. In some manufacturing setups, there is an emulsifying operation that either takes the place of conching or else supplements it. This operation is carried out by a machine that works like an egg beater to break up sugar crystals and other particles in the chocolate mixture to give it a fine, velvety smoothness.



Tempering

- Chocolate must be tempered before use in

moulding, enrobing or depositing operations to get good gloss and avoid discoloration due to fat bloom; and

- Tempering basically removes unstable crystal seeds from the chocolate by carefully melting them which converts them to stable crystals.

BENEFITS OF HIGH FIBRE CHOCOLATE

Conventional chocolate products provide a ready source of energy derived mostly from their sugar (carbohydrate) and fat contents. For persons who desire to restrict their caloric intake and those wishing to control their glycemic index, snacking on normal chocolate products would not be appropriate. High fibre chocolate provides an alternative to this dilemma, yet are able to maintain the desired health benefits. The dietary fibre component in such chocolate would assist in reducing the overall caloric density (dependent on the weight (g) of chocolate consumed). In addition, the numerous benefits of dietary fibre, including that of providing bulk and assisting in the digestive process are achieved. High fibre chocolate is also enriched in their vitamin and mineral contents. As a result, health conscious persons, diabetics and others requiring special formulated products are able to snack with these high fibre chocolate without compromising their requirements to maintain a strict dietary regime.

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