

The Art of making chocolate

Cacao has been cultivated for at least three millennia in Mexico, Central and South America!

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Introduction

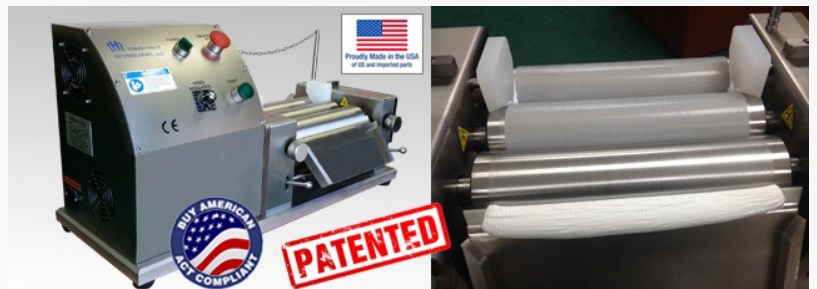
Chocolate and its varied forms (candy bars, cocoa, cakes, cookies, coating for other candies and fruits) are probably most people's favorite confection. Chocolate is a raw or processed food produced from the seed of the tropical *Theobroma cacao* tree. Cacao has been cultivated for at least three millennia in Mexico, Central and South America, with its earliest documented use around 1100 BC. The majority of the Mesoamerican people made chocolate beverages, including the Aztecs, who made it into a beverage known as *xocolātl*, a Nahuatl word meaning "bitter water." The seeds of the cacao tree have an intense bitter taste and must be fermented to develop the flavor.

Raw Materials

The primary components of chocolate are cocoa beans, sugar or other sweeteners, flavoring agents, and sometimes potassium carbonate (the agent used to make so-called dutch cocoa).



From Cacao to Chocolate - How Chocolate Is Made?



Award Winning Three Roll Mills

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A little bit of sweetness can drown out a whole lot of bitterness.”

Francesco Petrarca

The Manufacturing Process

Once a company has received a shipment of cocoa beans at its processing plant, the beans are roasted, first on screens and then in revolving cylinders through which heated air is blown. Over a period of 30 minutes to 2 hours, the moisture in the beans is reduced from about seven percent to about one percent. The roasting process triggers a browning reaction, in which more than 300

different chemicals present in the cocoa beans interact. The beans now begin to develop the rich flavor we associate with chocolate. Roasting also causes the shells to open and break away from the nibs (the meat of the bean). This separation process can be completed by blowing air across the beans as they go through a giant winnowing machine called a cracker and fanner, which loosens the hulls from the beans without crushing them. The hulls, now separated from the nibs, are usually sold as either mulch or fertilizer. They are also sometimes used as a commercial boiler fuel. Next, the roasted nibs undergo broyage, a process of crushing that takes place in a grinder made of revolving granite blocks. The design of the grinder may vary, but most resemble

old-fashioned flour mills. The final product of this grinding process, made up of small particles of the nib suspended in oil, is a thick syrup known as chocolate liquor.

The next step is refining, during which the liquor is further ground between sets of revolving metal drums. The widely-used machine is roll mill (2 or 3 rolls). It has been recorded that the three roll mill was used to mill chocolate as early as 1915. Each successive rolling is faster than the preceding one because the liquor is becoming smoother and flows easier. The ultimate goal is to reduce the size of the particles in the liquor to about .001 inch (.00254 centimeters).



Award Winning Belt Furnace

If the chocolate being produced is to be cocoa powder, from which hot chocolate and baking mixes are made, the chocolate liquor may be dutched, a process so-named because it was invented by the Dutch chocolate maker Conrad van Houten. In the dutching process, the liquor is treated with an alkaline solution, usually potassium carbonate, that raises its pH from 5.5 to 7 or 8. This increase darkens the color of the cocoa, renders its flavor more mild, and reduces the tendency of the nib particles to form clumps in the liquor. The powder that eventually ensues is called dutch cocoa.....

Have you ever thought about chocolate processing? Read more about it at
https://threerollmill.com/documents/Chocolate_fabrication.pdf.

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