

8.1: From the Cocoa Bean to the Finished Chocolate

In North America, chocolate manufacturing started in Massachusetts in 1765. Today, in the factory, the beans get cleaned, and magnets take out metallic parts, and then sand, dust, and other impurities are removed. Some starch will be changed into dextrins in the roasting process to improve flavor. Machines break the beans and grind them fine until a flowing liquid is produced, called chocolate liquor. Through hydraulic pressure, cocoa butter is reduced from 55% to approximately 10% to 24% or less, and the residue forms a solid mass called press cake.

The press cake is then broken, pulverized, cooled, and sifted to produce commercial cocoa powder. The baking industry uses primarily cocoa powders with a low fat content.

At the factory, chocolate is also subject to an additional refining step called conching. Conching has a smoothing effect. The temperature range in this process is between 55°C and 65°C (131°F and 149°F). Sugar interacts with protein to form amino sugars, and the paste loses acids and moisture and becomes smoother.

This video explains the chemical reactions related to heat, melting point, and formation of crystal structures in science360.gov/obj/video/27d9...stry-chocolate

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