

PROCESS BULLETIN

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DAIRY PRODUCTS

Subject: **Sweetened Condensate milk high pressure homogenisation**

Where evaporated milk uses sterilization to extend its shelf-life, sweetened condensed milk has an extended shelf-life due to the addition of sugar. Sucrose, in the form of crystals or solution, increases the osmotic pressure of the liquid. This in turn, prevents the growth of microorganisms.

The only real **heat treatment** (85-90° C for several seconds) this product receives is after the raw milk has been clarified and standardized. The benefits of this treatment include totally destroying osmophilic and thermophilic microorganisms, inactivating lipases and proteases, decreases fat separation and inhibits oxidative changes. Unfortunately it also affects the final product viscosity and may promote the defect [age gelation](#). The milk is **evaporated** in a manner similar to the evaporated milk. Although sugar may be added before evaporation, post evaporation addition is recommended to avoid undesirable viscosity changes during storage. Enough sugar is added so that the final concentration of sugar is approximately 45%.

The homogenisation process

The evaporated milk is then **homogenized** to improve the milk fat emulsion stability. There are other benefits particular to this type of product:

- increased white colour
- increased viscosity
- decreased coagulation ability

The suggested homogenising pressure is 200-250 bar with two homogenizing stages.

The sweetened evaporated milk is then cooled and **lactose crystallization** is induced. The milk is inoculated, or seeded, with powdered lactose crystals, then rapidly cooled while being agitated. The lactose can crystallize without the seeding but there is the danger of forming crystals that are too large. This would result in a texture defect similar in ice cream called [sandy](#), which affects the mouthfeel. By seeding, the number of crystals increases and the size of those crystals decreases. The product is packaged in smaller containers, such as cans, for retail sales and bulk containers for industrial sales.