



## CHURNING: FROM CREAM TO BUTTER



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**Butter is a dairy product made by separating the fat in milk. Churning or agitation of milk, cream or combination of both will result into butterfat and buttermilk. It is usually categorized into two: sweet butter and cultured butter, which has a more developed aroma and flavor that is obtained through fermentation. Moreover, it can also be classified based on its salt content.**

In earlier times, butter making was a common practice in farms and households by using manually operated churners. Then in the 20th century, automatic churner was developed and

Desired consistency and mouthfeel of butter is achieved by monitoring the temperature at every stage of the process.



**Cool.** After the heat treatment, cool immediately to 35-40°C and chill overnight to allow the fats to develop crystallization, which helps in the churning process.

**Churn.** Churn until butter grains stick together into large lumps. The temperature for cream before churning should be at least 5 - 10°C.

❖ **Churning temperature.** A cream at too low temperature is difficult to churn and results in brittle butter that does not spread easily. Meanwhile, too high churning temperature causes the butter to come in soft lumps that causes a greasy texture in the butter that leads to more incorporation of buttermilk.

paved the way for the industrialization of butter.

The color of butter varies depending on the milk that has been used. Since cow's milk contains beta-carotene, it produces a pale yellow to yellow butterfat while white butter is produced when buffalo's milk is used.

## Context (Problem)

Temperature is critical in butter making as it may affect not only the sensory characteristics of the butter but also the churning time.

## Solution to the problem:

**Pasteurize.** Using a double boiler, heat the cream as is or with added milk at 72°C for 15 seconds. Stir continuously for uniform heating and also to avoid scorching on the sides and the bottom of the pan.

❖ **What cream to use.** Always use freshly separated cream when pasteurizing. Frozen raw cream tends to separate when heated and produces gritty butter when churned.



**Drain.** Separate the butter lumps from the buttermilk. Paddle out the excess buttermilk.



**Wash.** The temperature of water for washing should be about 0 – 5°C. Wash the butter until the water becomes clear. Paddle out excess water.

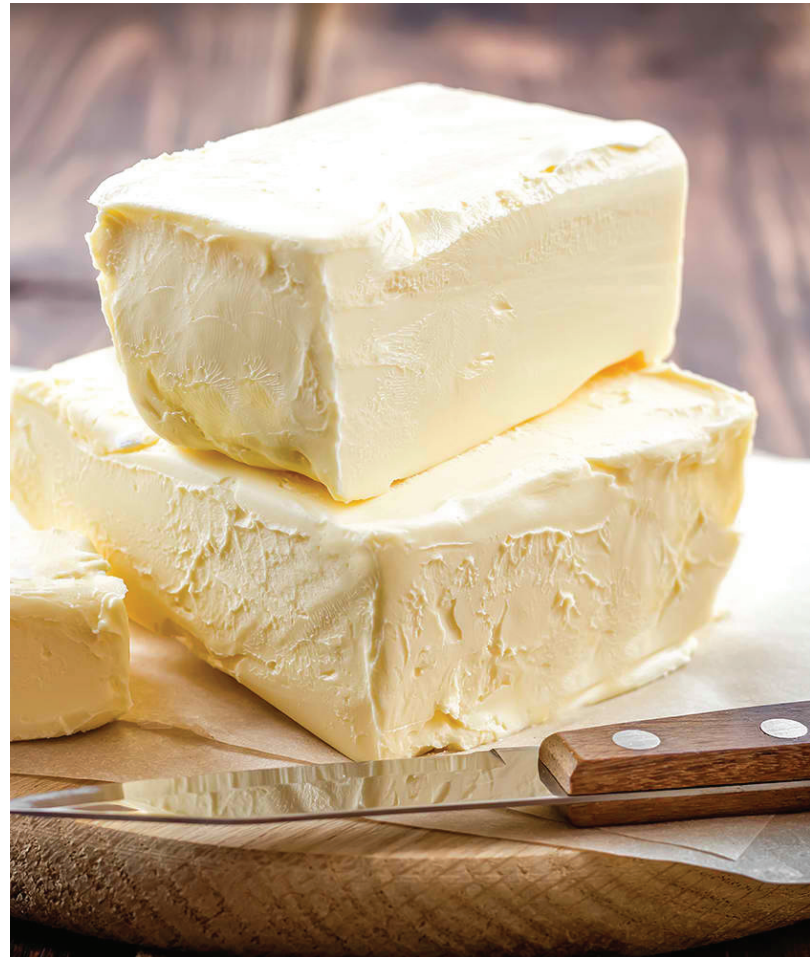
▶ **Water for washing.** The temperature of water should be low to solidify the butter during washing. Otherwise, it will only absorb more water instead of removing the buttermilk.

**Add Salt (optional).** The salt to be added should be 1 – 2% of the washed butter weight. Make sure that salt distribution is even and mix until the salt dissolves completely.



**Pack.** Transfer to desired packaging materials. Store. Refrigerate at 0 - 4°C.

**Shelf-life.** Unopened salted butter may be stored in the refrigerator for 1 – 2 months and can be frozen for 6 – 9 months.



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## Results

Desired consistency and mouthfeel of butter is achieved by monitoring the temperature at every stage of the process.

## Lesson Learned

Cream and water should be at a certain range of temperature before churning and used for washing, respectively.

*Keywords: butter, cream, churning*

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