

# pasteurization



pasteurization of milk

**pasteurization**, heat-treatment process that destroys pathogenic microorganisms in certain foods and beverages. It is named for the French scientist Louis Pasteur, who in the 1860s demonstrated that abnormal fermentation of wine and beer could be prevented by heating the beverages to about 57 °C (135 °F) for a few minutes. Pasteurization of milk, widely practiced

in several countries, notably the United States, requires temperatures of about 63 °C (145 °F) maintained for 30 minutes or, alternatively, heating to a higher temperature, 72 °C (162 °F), and holding for 15 seconds (and yet higher temperatures for shorter periods of time). The times and temperatures are those determined to be necessary to destroy *Mycobacterium tuberculosis* and other, more heat-resistant, non-spore-forming, disease-causing microorganisms found in milk. The treatment also destroys most of the microorganisms that cause spoilage and so prolongs the storage time of food.

Ultra-high-temperature (UHT) pasteurization involves heating milk or cream to 138–150 °C (280–302 °F) for one or two seconds. Packaged in sterile, hermetically sealed containers, UHT milk may be stored without refrigeration for months. Ultrapasteurized milk and cream are heated to at least 138 °C for at least two seconds, but, because of less stringent packaging, they must be refrigerated. Shelf life is extended to 60–90 days. After opening, spoilage times for both UHT and ultrapasteurized products are similar to those of conventionally pasteurized products.

Pasteurization of some solid foods involves a mild heat treatment, the exact definition of which depends on the food. Radiation pasteurization refers to the application of small amounts of beta or gamma rays to foods to increase their storage time.

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