

Low Temperature Long Time Pasteurisation of Milk

This Technical Standard is limited to milk with a fat content of less than 10%, with no added sweeteners (eg: sucrose or flavoured sugar syrups) or particles (eg: fruit). It provides time and temperature parameters that will ensure pasteurisation is achieved.

Low Temperature Long Time (LTLT) pasteurisation describes a batch process that heats the milk to a minimum temperature and then holds it for the required time.

The minimum heat process for the holding time and temperature combination of pasteurisation from the Food Standards Code is¹:

- 72°C for 15 seconds

The holding time and temperature combination of 72°C for 15 seconds is often referred to as High Temperature Short Time (HTST) pasteurisation.

The Food Standards Code also allows for:

- Heating using any other time and temperature combination of equal or greater lethal effect on bacteria.¹

The minimum temperature and holding time for a LTLT process that provides equivalence to the heat process parameters of pasteurisation in the Food Standards Code is:

- 63°C for 30 minutes.

To determine the required minimum holding time for higher temperatures, an extrapolation between 63°C for 30 minutes and 72°C for 15 seconds yields the following equation²:

$$\text{Log}_{10}t = -0.23102T + 16.03139$$

Where: T = minimum temperature in °C; and
t = minimum holding time in minutes.

Using this equation, alternative minimum holding times and minimum temperatures for a LTLT process are listed in Table 1.

The equation is only valid at temperatures between 63° and 72°C, and pasteurisation must always be undertaken at a temperature of 63°C or above.

Table 1 – Alternative minimum LTLT treatments

Min. holding time (Minutes)	Min. temperature (°C)
1	69.4
2	68.1
5	66.4
10	65.1
15	64.3
20	63.8
25	63.3
30	63.0

References

1. Food Standards Australia New Zealand (2003) 'Food Standards Code' Vol. 2 – Standard 1.6.2
2. New Zealand Food Safety Authority (2003) 'D121.1 Dairy Heat Treatments'

Further information

Other Technical Standards on pasteurisation and dairy food safety topics are available.

For further food safety information, please contact:

Dairy Food Safety Victoria
info@dairysafe.vic.gov.au
 tel (03) 9810 5900
 PO Box 840
 Hawthorn 3122
www.dairysafe.vic.gov.au