

MILLISECOND TECHNOLOGY (MST TECHNOLOGY)

WHAT IS THIS USED FOR?

Inactivating microbes in raw milk.
Extending the shelf-life of fluid milk.

APPLICATION

Pre-heated raw milk is introduced into MST chamber under pressure. In MST chamber the raw milk is depressurized while being dispersed into small droplets that go through rapid heating followed by rapid cooling as they pass through the MST chamber.

REGULATORY IMPLICATIONS

Fluid milk treated with this technology is not considered pasteurized as stated in the Pasteurized Milk Ordinance (PMO) and would have to be used in conjunction with standard HTST or Vat pasteurization to satisfy the legal requirement.

HOW DOES IT WORK?

The technology relies on rapid pressurization of the raw milk followed by rapid depressurization in combination with rapid heating and cooling to cause structural damage to the microbial cells and inactivation. The time/temperature combinations applied are at or below 72.7°C for 0.02 to 0.05s.

ASSESSMENT OF EFFECTIVENESS

This technology is not addressing post-pasteurization contamination (PPC) which is responsible for 50% of fluid milk spoilage and most common cause of rapid spoilage of fluid milk.

This technology is less effective against spore-forming bacteria (e.g.; *Bacillus* spp.) which are responsible for the other 50% of fluid milk spoilage.

Although the one scientific report from Purdue University showed more than 7-log reduction of microbial cell number and extension of fluid milk shelf life from 14 to 35 days, when used in addition to standard HTST treatment, this technology would need additional testing and validation.

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