



FOOD SAFETY LAB / MILK QUALITY
IMPROVEMENT PROGRAM

Standard Operating Procedure



Title: **Lab Pasteurization**

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SECTION 1 INTRODUCTION

1.1 Purpose

The purpose of this document is to set forth standard guidelines for performing lab pasteurization for the determination of thermophilic bacterial counts in raw milk after a laboratory heat treatment.

1.2 Scope

This SOP applies to the Food Safety Lab and the Milk Quality Improvement Program. The protocols may also be used by laboratory members from other locations.

1.3 Definitions

LPC- Lab Pasteurization Count

TC- Temperature Control

1.4 Safety

Wear gloves, safety glasses, and other appropriate personal protective equipment for the entire procedure.



SECTION 2 MATERIALS

- **Shaking water bath capable of reaching and maintaining 63°C**
- **Ice**
- **Thermometer**
- **Sterile 10 mL glass vials with screw on cap**
- **5 mL stripette or serological pipette and pipette filler**
- **Micropipette and sterile filter tips**



SECTION 3 PROCEDURES

3.1. Sample preparation

- 3.1.1. To ensure uniform samples, shake 25 times in a 1-foot arc within 7 seconds prior to transferring sample to sterile glass vials with screw cap in accordance with *Standard Methods for the Examination of Dairy Products* (Laird et al., 2004).
- 3.1.2. Aseptically transfer 5 mL of raw milk to a 10 mL sterile glass vial with screw cap using a sterile stripette.
- 3.1.3. Prepare a TC with the same volume of raw milk in a 10 mL glass vial and leave cap off for thermometer.

3.2. Laboratory Pasteurization

- 3.2.1. Set a water bath at 63°C and ensure the water level will exceed the level of the product in the vial by 4 mm.
- 3.2.2. Place samples and temperature control in water bath and turn on the shaking mechanism.
- 3.2.3. Start timing the 30-minute hold time when the temperature of the TC has reached 63°C. Maintain the temperature at 63°C ± 1°C for the duration of the hold time.
- 3.2.4. At the end of the hold time, immediately remove samples and TC from the water bath and place on ice.
- 3.2.5. When the temperature of the samples and TC cool to 6°C or lower proceed with sample plating and analysis.
 - 3.2.5.1. Plate using a spiral plater (see 5.3.5-Eddy Jet 2 Spiral Plater and SphereFlash Colony Counter SOP for plating and enumeration information)
 - 3.2.5.2. Plate on Standard Plate Count agar
 - 3.2.5.3. Incubate at 32°C for 48 hours



SECTION 4

TROUBLESHOOTING

SECTION 5

REFERENCES

Laird, D. T., A. Gambrel-Lenarz, F. M. Scher, T. E. Graham, and R. Reddy. 2004. Microbiological Methods for Dairy Products. Pages 249–252 in Standard Methods for the Examination of Dairy Products. 17th ed. H. M. Wehr and J. F. Frank, ed. Am. Public Health Assoc., Washington, DC.

Wehr, H. M. and J. F. Frank eds. 2004. “Chapter 8: Tests for Groups of Microorganisms.” Standard Methods for the Examination of Dairy Products. 17th ed. American Public Health Association, Washington, DC. pp. 229-230.

SECTION 6

METHOD VERSION & CHANGES

VERSION	DATE	EDITOR	COMMENTS
Version 1	10/16/2012	PMW	Original SOP
Version 2	05/08/2020	Rachel E.	Edited to SOP formatting
Version 3			