



Spore Pasteurization

Authored by: Nicole Martin

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SECTION 1 INTRODUCTION

1.1 Purpose

The purpose of this document is to set forth standard guidelines for performing spore pasteurization for the determination of spore counts in raw, pasteurized and powdered dairy products.

1.2 Scope

This SOP applies to the Milk Quality Improvement Program (MQIP) Lab

1.3 Definitions

SP – Spore Pasteurization

MSC – Mesophilic spore count

TSC – Thermophilic spore count

PSC – Psychrotolerant spore count

TC – Temperature control



SECTION 2 MATERIALS

- **Shaking waterbath capable of reaching and maintaining 80°C**
- **Ice**
- **Thermometer**
- **Sterile 250 mL glass bottles with screw on cap**
- **Temperature control glass bottle with hole in cap**



SECTION 3 PROCEDURES

3.1. Sample preparation

3.2.1. Ensure uniform samples, shake 25 times in a 1 foot arc within 7 seconds prior to transferring sample to sterile bottles.

3.2.2. Aseptically transfer 10 mL of raw, pasteurized or hydrated powder product to a 250 mL sterile glass bottle with screw cap.

3.2.3. Prepare a TC with the same volume of raw, pasteurized or hydrated powder product to be processed, in a 2 mL glass bottle with hole in the screw cap for thermometer.

3.2. Spore Pasteurization

3.2.1. Set a waterbath at 80°C and ensure the water level will exceed the level of the product in the bottle by 4 mm.

3.2.2. Place samples and temperature control in waterbath and turn on the shaking mechanism.

3.2.3. Start timing the 12 minute hold time when the temperature of the TC has reached 80°C.

3.2.4. At the end of the hold time, immediately remove samples and TC from the waterbath and place on ice.

3.2.5. When the temperature of the samples and TC cool to 10°C or lower proceed with sample analysis.

3.2.5.1. SP treated samples plated and incubated at 32°C for 24-48 hours constitutes a MSC.

3.2.5.2. SP treated samples plated and incubated at 55°C for 24-48 hours constitutes a TSC.

3.2.5.3. SP treated samples plated and incubated at 7°C for 10 days constitutes a PSC.

SECTION 4 TROUBLESHOOTING

SECTION 5 REFERENCES

Wehr, H. M. and J. F. Frank eds. 2004. *Standard Methods for the Examination of Dairy Products*. 17th ed. American Public Health Association, Washington, DC.

MILK QUALITY IMPROVEMENT PROGRAM

CORNELL UNIVERSITY

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Created by: Nicole Martin



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