Highly Heat Resistant Spore Pasteurization

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SECTION 1 INTRODUCTION

1.1 Purpose

The purpose of this document is to set forth standard guidelines for performing highly heat resistant spore pasteurization for the determination of highly heat resistant 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

HHR SP – Highly Heat Resistant Spore Pasteurization

HHR MSC – Highly Heat Resistant Mesophilic spore count

HHR TSC – Highly Heat Resistant Thermophilic spore count

TC – Temperature control

SECTION 2 MATERIALS

- **Waterbath capable of reaching and maintaining 100°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 250 mL glass bottle with hole in the screw cap for thermometer.

3.2. Highly Heat Resistant Spore Pasteurization

3.2.1. Set a waterbath at 100°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.
3.2.3. Start timing the 30 minute hold time when the temperature of the TC has reached 100°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. HHR SP treated samples plated and incubated at 32°C for 24-48 hours constitutes a HHR MSC.

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

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.