Proper Sampling of Environmental Surface Using a MicroTally® MicroMitt™ Sampler

Introduction

The **MicroTally® MicroMitt™ Sampler** (Catalog Number: **MT-MM100**) is a manual surface sampling device (MSD) engineered for use in food processing and product manufacturing environments. It is specifically designed to collect microbiological samples from surfaces for the purpose of environmental monitoring and quality control. Unlike conventional sponge-on-stick samplers, the MicroMitt™ Sampler offers a direct-contact, mitt-style format that enhances sampling efficiency and coverage. After collection, the sample can be processed for downstream microbiological testing, including pathogen detection (e.g., *Listeria*, *Salmonella*) and indicator organism analysis (e.g., total aerobic count, coliforms, Enterobacteriaceae).

To ensure accurate, reliable, and reproducible results, users must strictly follow validated standard operating procedures (SOPs) for surface sampling. This user manual provides instructions for conducting environmental surface sampling using the MicroTally® MicroMitt™ Sampler. For additional applications, detailed technical guidance, or troubleshooting support, please contact FREMONTA Corporation or visit our website at www.MicroTally.com. Instructional videos and training materials are also available on FREMONTA's official YouTube channel to support proper use and compliance with best practices.

Sampler Features

- The MicroTally® MicroMitt™ Sampler measures approximately 5.25 inches x 5 inches (13.5 cm x 12.5 cm) and is constructed from a non-woven, food-contact-safe cloth material designed for effective microbial sampling.
- The sampler is designed in a mitt-style configuration, accommodating four fingers inside the mitt while leaving the thumb outside for secure grip and maneuverability. This ergonomic design allows for enhanced dexterity, flexibility, and better contact with irregular, contoured, or hard-to-reach surfaces, which is particularly advantageous when sampling for biofilms or residues.
- The MicroMitt™ Sampler is pre-saturated with a food safe, broad-spectrum neutralizing buffer, enabling it to neutralize residual sanitizers on cleaned surfaces and making it suitable for both pre- and post-sanitation sampling.
- Each MicroMitt™ Sampler is individually packaged and sterilized in a protective plastic overwrap to maintain aseptic integrity. After sample collection, the used MicroMitt™ should be placed into the provided sterile sample bag for transport and laboratory processing.
- The dual-sided MicroMitt™ allows both surfaces of the sampler to be used, enabling coverage of a larger sampling area without compromising sample integrity.
- An aggressive scrubbing motion should be applied during sampling to effectively dislodge and collect microorganisms, including those embedded in biofilms or on rough surfaces.

Safety Guidelines

The MicroMitt™ Sampler is designed to leverage the natural dexterity, reach, and maneuverability of the human hand, enabling effective contact with irregular or hard-to-reach surfaces. However, because it requires direct hand involvement—bringing gloved fingers into close contact with the sampling surface, appropriate safety precautions must be taken to prevent injury or contamination. A good rule of thumb for determining whether the MicroMitt™ Sampler is appropriate for a surface is: **"If it's safe to wipe with a gloved hand, it's safe to sample with the MicroMitt™."**

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Preparation

The MicroTally® MicroMitt™ Sampler comes pre-moistened with a broad-spectrum neutralizing buffer and is individually packaged in a sterile plastic overwrap. The packaging is designed with a tear notch for easy aseptic opening. Each unit is ready to use and does not require additional hydration or preparation. Sterile sample bags with a perforated tear-away top are provided to house the post-collection MicroMitt™ Sampler for transport to the lab and as a container for enrichment. Before entering the production or sampling area, gather and prepare the following supplies:

- MicroTally® MicroMitt™ Samplers
- Sterile sample bags – ensure one bag per sampler.
- Gloves – put on a fresh pair **prior to each sample**. Change gloves between **each sample** to prevent cross-contamination.
- Permanent marker (e.g., Sharpie®) – for manual labeling of samples if pre-printed labels are not used.
- Pre-printed sample labels (if applicable) – include sample ID, date, time, sampling location, and sampler initials.
- **Alcohol-based hand sanitizer** – for sanitizing gloves.
- Waste disposal bag – for collection of used gloves, packaging, and other disposables.
- Sampling cart or insulated sample carrying container – to organize supplies and maintain sample integrity during transport.

🔍 **Tip:** Pre-label all sample bags before entering the production area. Use clear identifiers such as zone name, equipment ID, or surface description to prevent confusion and speed up the sampling process.

Sampling Procedure

1. **Before collecting samples:**
   a. Wash hands thoroughly with soap and warm water before starting the sampling process.
   b. Dry hands with a clean paper towel.
   c. Put on gloves and apply alcohol-based (no quat) sanitizer over the gloves.
   d. Change gloves between each sample to avoid cross-contamination.

2. **MicroMitt™ Placement:**
   a. Use the sanitizer to wipe down the outside of the MicroMitt™ overwrap, then tear open the packaging at the notch to remove the sampler.
   b. Insert four fingers into the MicroMitt™, leaving your thumb outside. Use your thumb to press against your fingers to hold the MicroMitt™ securely in place during sampling
3. **Scrubbing - First Pass:**
   a. Start by firmly pressing the MicroMitt™ against the surface to be sampled.
   b. Move your hand in a steady side-to-side (horizontal) motion, covering the entire target area.
   c. Apply even pressure throughout to ensure good surface contact and effective sample collection. Scrubbing should be done with substantial

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force and pressure, sufficient for dislodging biofilms

4. **Scrubbing - Second Pass:**
   a. Rotate the MicroMitt™ to use the clean, unused side of the mitt.
   b. Press firmly and move your hand in a steady up-and-down (vertical) motion over the same surface area.
   c. This second pass collects material from a different direction to ensure more thorough sampling.
5. **Sample Handling:**
   a. After sampling, carefully fold the MicroMitt™ into half and then half once more while minimize contamination.
   b. Insert the folded MicroMitt™ horizontally into the provided sterile sample bag and close the bag securely to preserve the integrity of the sample.
6. **Sample Storage and Transportation**
   a. Keep the samples refrigerated until ready to ship to the lab.
   b. Ship the samples to the lab on ice as soon as possible, preferably on the same day of collection but no later than the next day.
   c. Pack the samples in a Styrofoam-insulated container with Sample Submission Form and enough ice packs to keep them cool. Use cardboard to separate the sample from the ice packs to prevent freezing.

Sample Testing

1. For pathogen detection, the used MicroMitt™ can be enriched with approximately 100 mL of appropriate culture broth. For enumeration purposes, where a lower detection limit is desired, 50 mL of diluent or enrichment broth can be added. The sample should then be homogenized to ensure uniform microbial distribution prior to testing.
2. Incubation times and temperatures for sample enrichment and testing should follow the specific procedures outlined by the pathogen detection test platform being used.

Technical Support

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