

Environmental Monitoring Procedures

3M™ Petrifilm™ Plates are a convenient and reliable way to help detect environmental microbial contamination. The construction of 3M™ Petrifilm™ Plates allows them to be used for direct contact or swab contact monitoring procedures, as well as air sampling procedures.



Air Sampling



Surface Contact



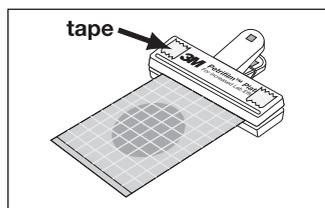
Swabbing

Hydration Procedures for Air or Direct Contact Methods

3M™ Petrifilm™ Plate	Hydration*	Storage
Aerobic Count Coliform Count <i>E. coli</i> /Coliform Count Rapid Coliform Count <i>Enterobacteriaceae</i> Count Yeast and Mould Count Rapid Yeast and Mould Count Rapid <i>E. coli</i> /Coliform Count	Hydrate plates with 1 mL of appropriate sterile diluent for a minimum of 1 hour before use. Allow hydrated plates to remain closed for a minimum of 1 hour before use.	Store all hydrated 3M™ Petrifilm™ Plates in sealed pouch or plastic bag. Protect plates from light and refrigerate at 2-8°C (36-46°F). Hydrated 3M™ Petrifilm™ Aerobic Count Plates may be refrigerated up to 14 days, 3M™ Petrifilm™ Rapid Yeast and Mould Count Plates may be refrigerated up to 1 day (24 hours) and all other hydrated 3M Petrifilm Plates may be refrigerated up to 7 days.
Staph Express System	Hydrate plates with 1 mL of appropriate sterile diluent. Refrigerate hydrated plates at 2-8°C (36-36°F) for a minimum of 3 hours before use.	
Rapid Aerobic Count	Hydrate plates with 1 mL of appropriate sterile diluent. For air sampling, refrigerate at 2-8°C (36-46°F) for a minimum of 1 day (24 hours) before use. For direct contact samples, refrigerate at 2-8° C (36-46°F) for a minimum of 3 days before use.	

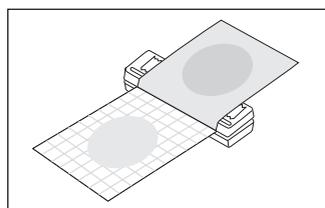
*See relevant 3M™ Petrifilm™ Plate product instructions for details and listing of appropriate diluents. If sanitizers are present, use letheen broth for both the direct contact and swab contact methods.

3M™ Petrifilm™ Plate Air Sampling Method

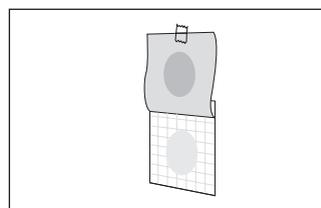


- 1 Use a 3M™ Petrifilm™ Plate clip in combination with double-sided tape. Position hinged edge of hydrated 3M™ Petrifilm™ Plate into clip. Apply a small piece of double-sided tape to each end of the clip handle.

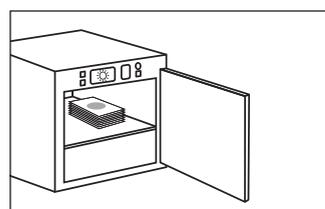
Double-sided tape can also be used with or without clip for positioning of 3M™ Petrifilm™ Plates for air sampling.



- 2 **Without touching circular growth area**, lift top film portion of hydrated plate and peel back until outer portion of film adheres to the tape. Make sure top film lies flat across clip.



- 3 Expose 3M™ Petrifilm™ Plate to air for no longer than 15 minutes. Remove tape and rejoin the top and bottom films.



- 4 Incubate and enumerate as directed in product instructions. Refer to 3M™ Petrifilm™ Plate Interpretation Guide when enumerating results.

Air Sampling Method Results

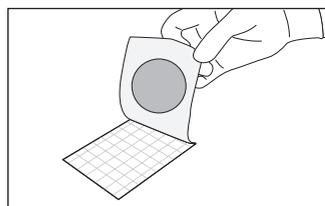
3M™ Petrifilm™ Plates: Aerobic Count, Coliform Count, *E. coli*/Coliform Count, Rapid Coliform Count, *Enterobacteriaceae* Count

Results: count/40 cm²

3M™ Petrifilm™ Plates: Staph Express Count, Yeast and Mould Count, Rapid Yeast and Mould Count, Rapid Aerobic Count, Rapid *E. coli*/Coliform Count

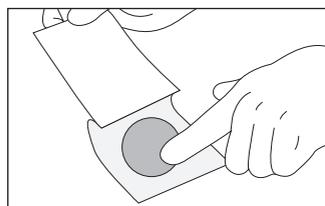
Results: count/60 cm²

3M™ Petrifilm™ Plate Direct Contact Method

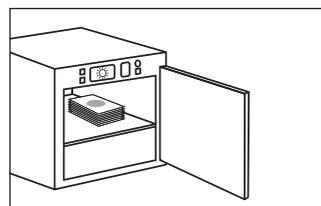


- 1 Using a hydrated 3M™ Petrifilm™ Plate, carefully lift top film. Avoid touching circular growth area. Gel will adhere to top film.

3M™ Petrifilm™ Yeast and Mould Count Plates: On occasion, the gel may split (adhering to both the top and bottom films) when the top film is lifted. If this happens, the plate with gel splitting may still be used for air testing, but is not recommended for direct contact use.



- 2 Allow the circular gel portion of the top film to contact the surface being tested. Gently rub fingers parallel to the surface over the outer film side of the gelled area to ensure good contact with surface. Rejoin the top and bottom films.



- 3 Incubate and enumerate as directed in product instructions. Refer to 3M™ Petrifilm™ Plate Interpretation Guide when enumerating results.

Direct Contact Method Results

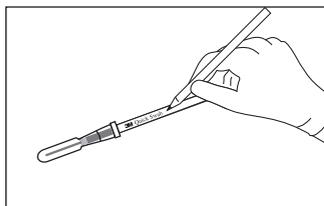
3M™ Petrifilm™ Plates: Aerobic Count, Coliform Count, *E. coli*/Coliform Count, Rapid Coliform Count, *Enterobacteriaceae* Count

Results: count/20 cm²

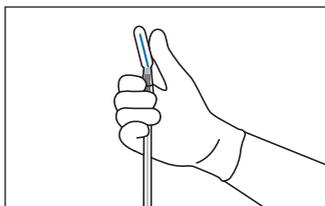
3M™ Petrifilm™ Plates: Staph Express Count, Yeast and Mould Count, Rapid Yeast and Mould Count, Rapid Aerobic Count, Rapid *E. coli*/Coliform Count

Results: count/30 cm²

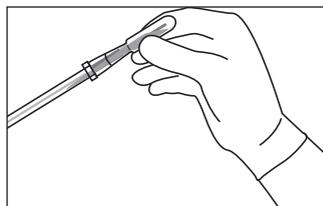
3M™ Quick Swab Method (wet swabbing method)*



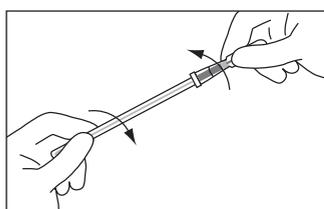
1 Remove the desired quantity of 3M™ Quick Swabs from the resealable plastic bag. Label the swab.



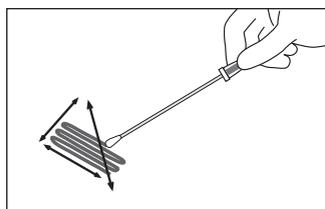
2 At the sampling location, prepare the swab by holding it with the bulb end near your thumb. Bend the red snap valve at a 45° angle until you hear the valve break. This allows the letheen broth to flow into the tube and wet the swab head.



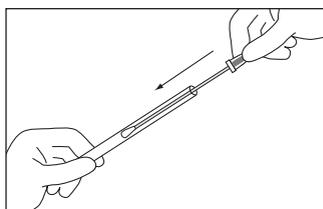
3 Squeeze the bulb of the swab to transfer all of the letheen broth to the tube end of the swab.



4 Twist and pull apart the bulb end of the swab from the tube end of the swab which contains the letheen broth.



5 Hold the swab handle to make a 30° angle with the surface. Firmly rub the swab head slowly and thoroughly over the desired surface area. Rub the head of the swab three times over the surface, reversing direction between alternating strokes.



6 After sampling is complete, securely insert the swab head back into the swab tube and transport to the lab for plating. Plate the letheen broth swab solution as soon as possible.

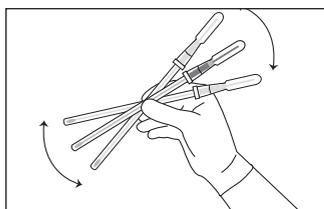
Alternative Swab Method

3M™ Petrifilm™ Plates can be used with other swabbing techniques, however the rinse solution used must be compatible with 3M™ Petrifilm™ Plates.

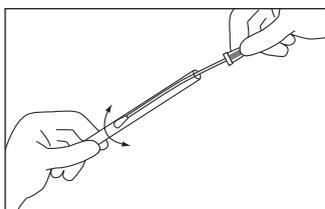
*For 3M™ Quick Swab dry swabbing method, see 3M™ Quick Swab product instructions.

Inoculation Procedures

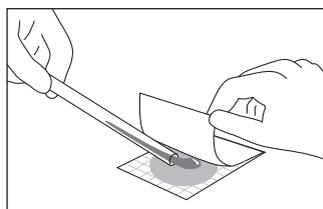
1 mL Inoculation Procedure



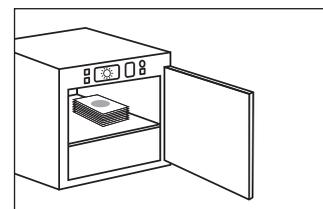
7a In the lab, vigorously shake or vortex the swab for 10 seconds, to release bacteria from the swab tip.



8a Release the contents of the swab tip by pressing and twisting the swab against the wall of the tube.

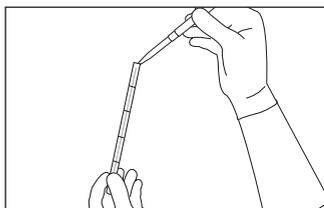


9a Carefully pour entire contents of the tube onto a 1 mL 3M™ Petrifilm™ Plate. Follow current industry standards for disposal.

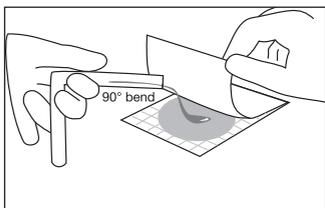


10a Incubate and enumerate as directed in product instructions. Refer to 3M™ Petrifilm™ Plate Interpretation Guide when enumerating results.

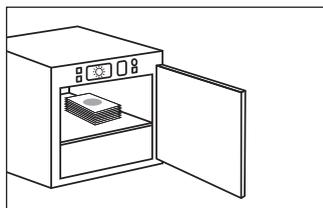
Multi-mL Inoculation Procedure



7b Remove the swab from the tube. Add 1–3 mL of sterile diluent to the swab tube. Replace the swab in the tube. Complete steps 7a and 8a of the 1 mL Inoculation Procedure from above.



8b Use your thumb to bend the swab tube at a 90° angle at the highest mark that has diluent above it. Pour off a 1 mL aliquot onto a 3M™ Petrifilm™ Plate. Repeat onto a new plate until the entire sample is used.



9b Incubate and enumerate as directed in product instructions. Refer to 3M™ Petrifilm™ Plate Interpretation Guide when reading results.

3M™ Quick Swab Method Results

1 mL Inoculation Procedures:

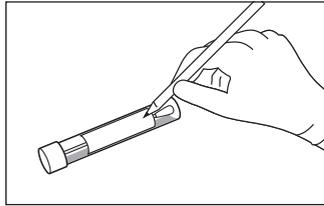
3M Petrifilm Plate count x volume of diluent (1 mL) = total count/area sampled.

Example: If area tested was 5cm² and number of colonies on plate after incubation was 100, your result would be: 100 CFU x 1 mL = 100 CFU/5 cm²

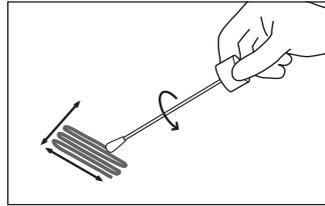
Multi-mL Inoculation Procedures: 3M Petrifilm Plate count x volume of diluent (1 mL + added) = total count/area sampled.

Example: If area tested was 5cm² and 2 mL were added (for total of 3 mL) and number of colonies after incubation was 100, your result would be: 100 CFU x 3 mL = 300 CFU/5 cm²

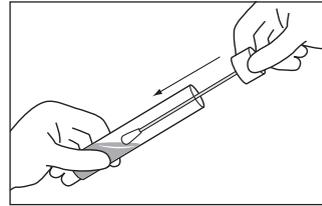
3M™ Swab Sampler Method



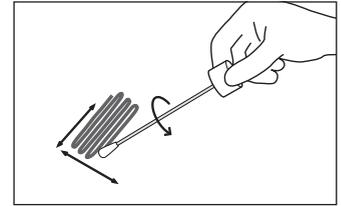
- 1** Label the 3M™ Swab Sampler. Unscrew the cap from the tube and aseptically remove the swab from the tube.



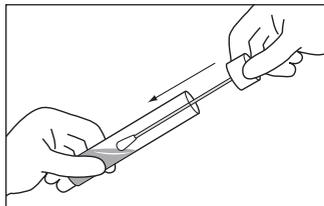
- 2** Aseptically swab across the sampling surface while rotating the swab.



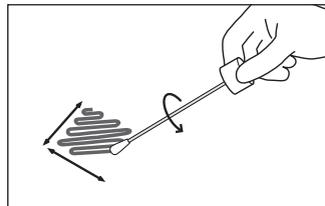
- 3** Return swab to the tube.



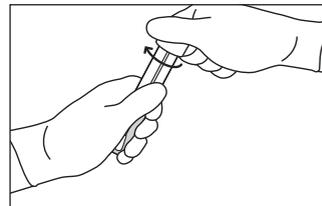
- 4** Repeat Step 2. Change direction 90° and aseptically swab the surface while rotating the swab.



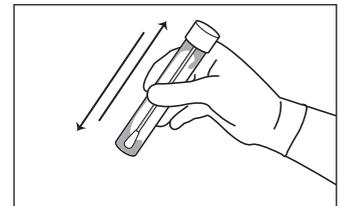
- 5** Return swab to the tube.



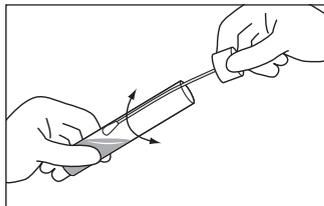
- 6** Repeat Step 2. Change direction 45° and aseptically swab the same sampling surface while rotating the swab.



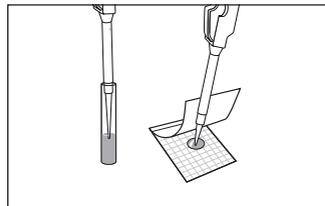
- 7** Return swab to the tube. Screw cap tight to close.



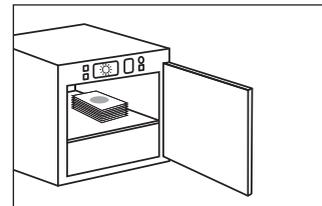
- 8** In the lab, vigorously shake or vortex the swab for 10 seconds, to release bacteria from the swab tip.



- 9** Unscrew the cap, release out the contents of the swab tip by pressing and twisting the swab against the wall of the tube. Remove swab from tube.



- 10** Using a pipettor with a sterile tip, draw 1 mL from the tube and dispense onto a 3M™ Petrifilm™ Plate. Repeat for additional plates as needed.



- 11** Incubate and enumerate as directed in product instructions. Refer to 3M™ Petrifilm™ Plate Interpretation Guide when reading results.

3M™ Swab Sampler Results

3M™ Petrifilm™ Plate count x volume of 3M Swab Sampler = total count/area sampled.

Example: If area tested was 5 cm² and a 4 mL 3M Swab Sampler was used and number of colonies on plate after incubation was 100, your result would be: 100 CFU x 4 mL = 400 CFU/5 cm²

Lethen broth 3M™ Swab Samplers are available in variety of sizes: 1 mL, 4 mL, 5 mL, 10 mL

3M Food Safety offers a full line of products to accomplish a variety of your microbial testing needs. For more product information, visit us at www.3M.ca/FoodSafety.



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