



Petrifilm™

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# Interpretation Guide

The 3M™ Petrifilm™ Aerobic Count Plate is a ready-made culture medium system that contains modified Standard Methods nutrients, a cold-water-soluble gelling agent and an indicator that facilitates colony enumeration. 3M Petrifilm Aerobic Count Plates are used for the enumeration of aerobic bacteria.



**AC**  
Aerobic Count Plate

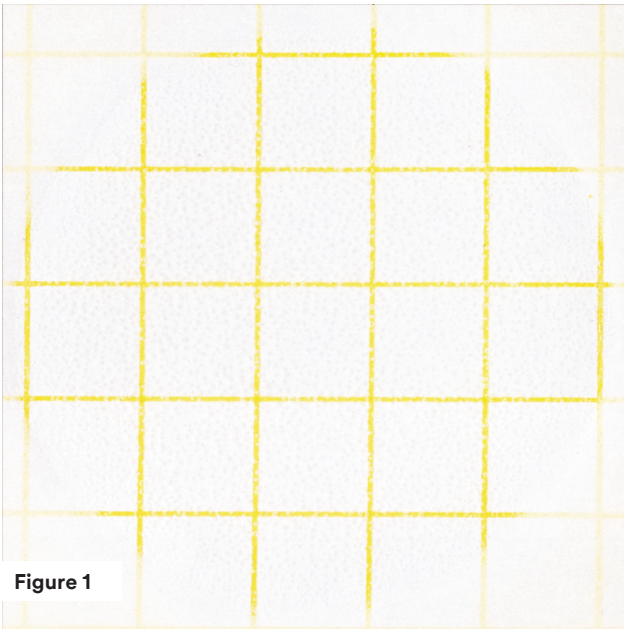


Figure 1

**Aerobic bacteria count = 0**

3M Petrifilm Aerobic Count Plate without colonies.

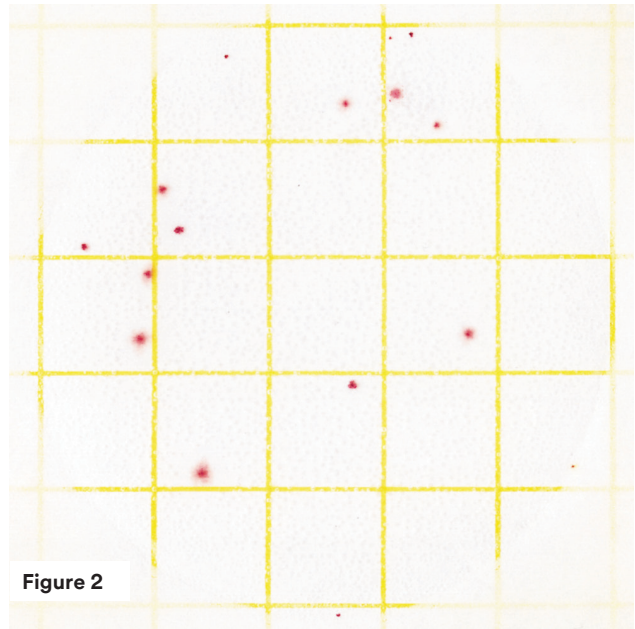


Figure 2

**Aerobic bacteria count = 16**

3M Petrifilm Aerobic Count Plate with a few bacterial colonies.

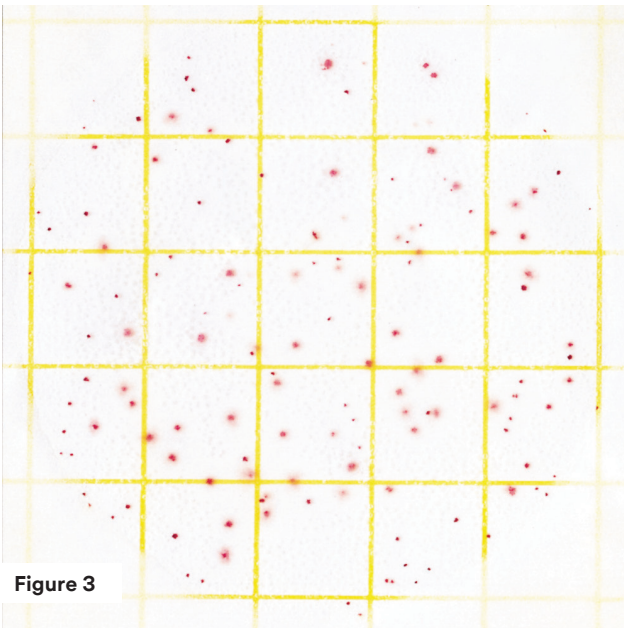


Figure 3

**Aerobic bacteria count = 143**

The preferable counting range on a 3M Petrifilm Aerobic Count Plate is less than or equal to 300 colonies.

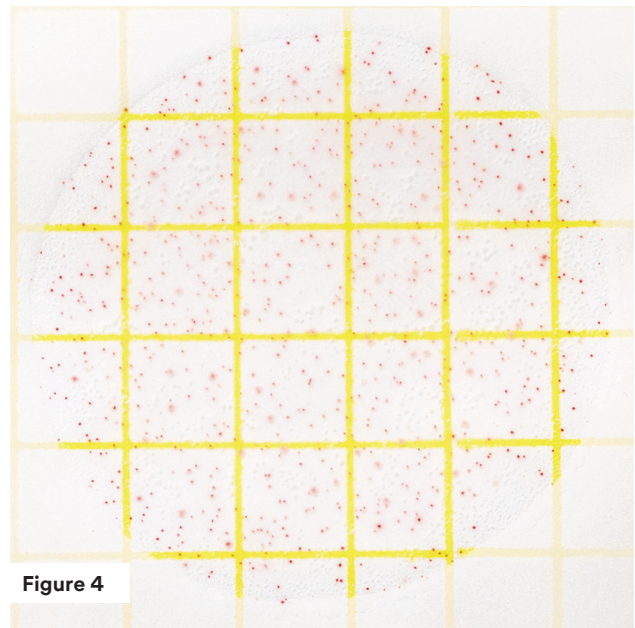


Figure 4

**Estimated aerobic bacteria count = 560**

When colonies number more than 300, estimate the count. Determine the average number of colonies in one square (1cm<sup>2</sup>) and multiply it by 20 to obtain the total count per plate. The inoculated area on a 3M Petrifilm Aerobic Count Plate is approximately 20cm<sup>2</sup>.

*For a more accurate count, further dilution of the sample may be necessary.*

# Too Numerous to Count (TNTC)

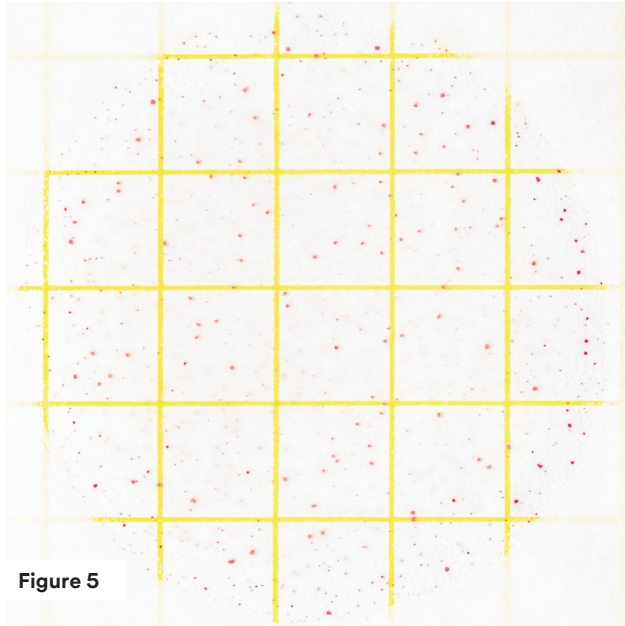


Figure 5

## Aerobic bacteria count = TNTC

3M Petrifilm Aerobic Count Plate with colonies that are TNTC.

*For a more accurate count, further dilution of the sample may be necessary.*

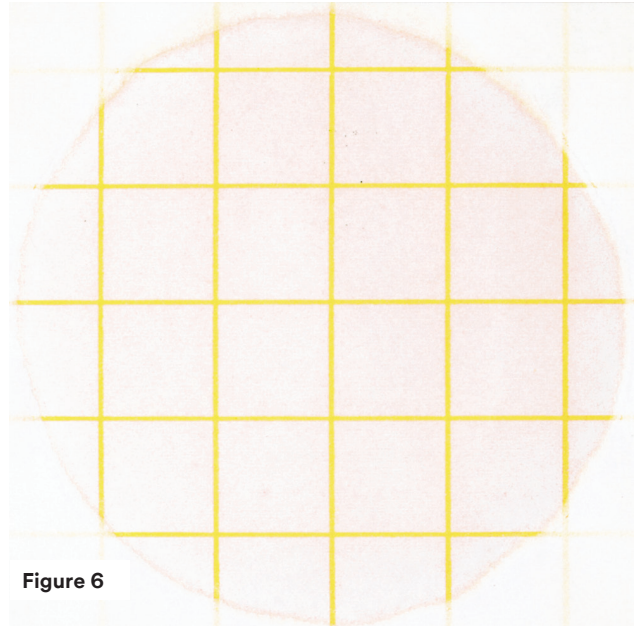


Figure 6

## Aerobic bacteria count = TNTC

With very high counts, the entire growth area may turn pink. You might observe individual colonies only at the edge of the growth area. Record this as a TNTC result.

*For a more accurate count, further dilution of the sample may be necessary.*

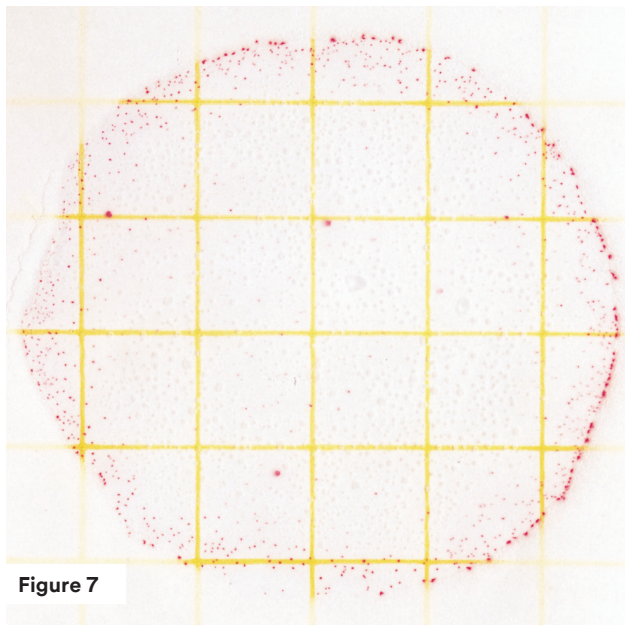


Figure 7

## Aerobic bacteria count = TNTC

Occasionally, distribution of colonies appears uneven. This is also an indication of a TNTC result.

*For a more accurate count, further dilution of the sample may be necessary.*

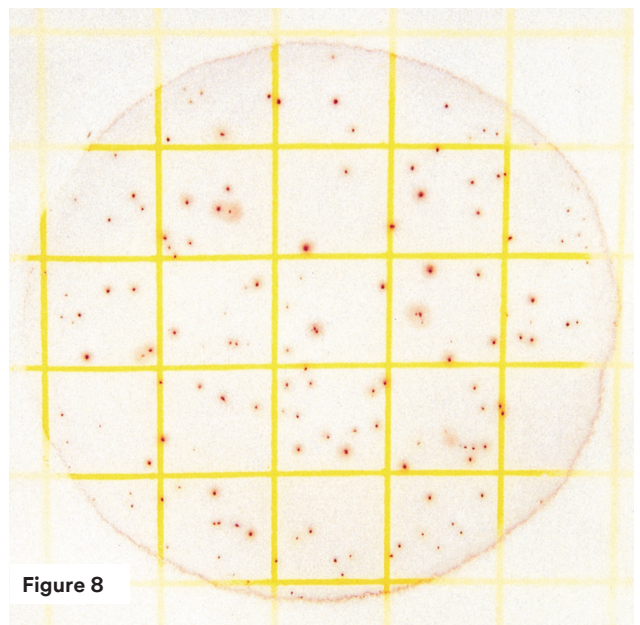


Figure 8

## Aerobic bacteria count = TNTC

The colonies on the 3M Petrifilm Aerobic Count Plate may appear countable at first glance. However, when you look closely at the edge of the growth area, you can see a high concentration of colonies. Record this as a TNTC result.

*For a more accurate count, further dilution of the sample may be necessary.*

# Gel Liquefaction and Food Particles

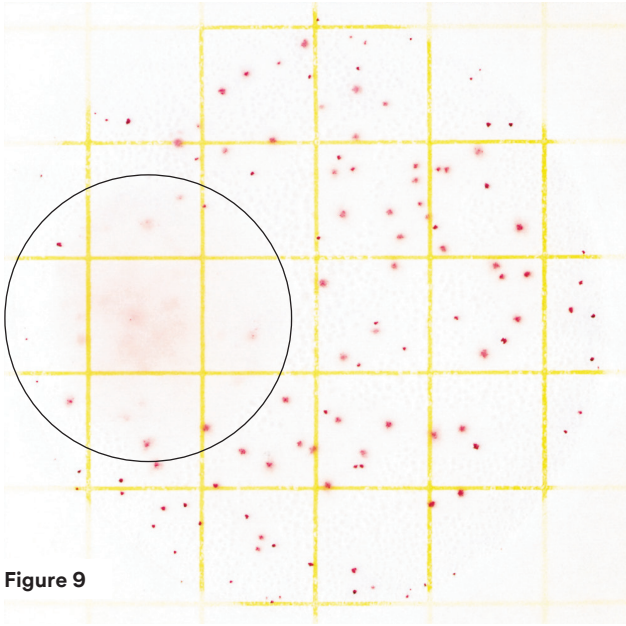


Figure 9

## Estimated aerobic bacteria count = 160

A few species of bacteria liquify the gel in the 3M Petrifilm Aerobic Count Plate. When this occurs, determine the average count in a few unaffected squares and then multiply it by 20 to obtain the estimated count. Do not count red spots within the liquified area.

*For a more accurate count, further dilution of the sample may be necessary.*

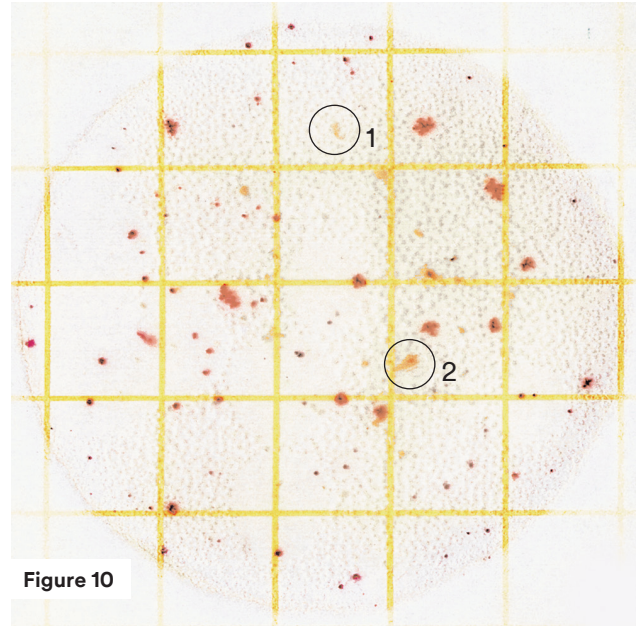


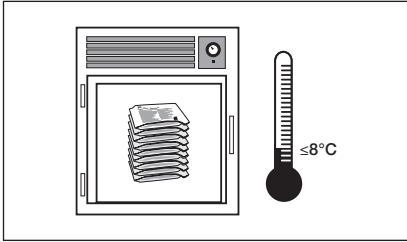
Figure 10

## Aerobic bacteria count = 83

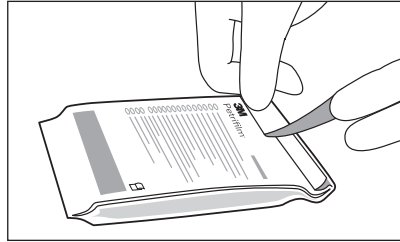
Because colonies on 3M Petrifilm Aerobic Count Plate are red, you can distinguish them from opaque, irregularly shaped food particles (circles 1 and 2).

# Reminders for Use

## Storage

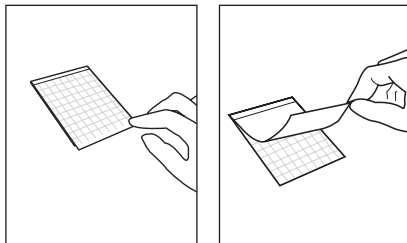


- 1 Store unopened pouches of plates refrigerated or frozen at temperatures lower than or equal to 8°C (46°F). Use before expiration date on package. Just prior to use, allow unopened pouches to come to room temperature before opening.

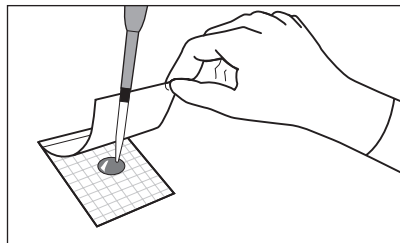


- 2 Seal by folding the end of the pouch over and applying adhesive tape. **To prevent exposure to moisture, do not refrigerate opened pouches.** Store resealed pouches in a cool, dry place for no longer than four weeks. Avoid exposure of plates to temperatures >25°C (>77°F) and/or relative humidity >50%.

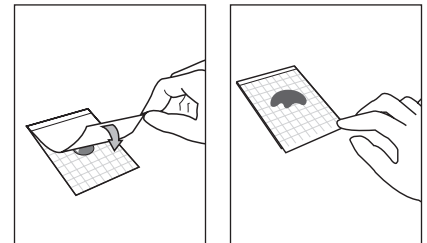
## Inoculation



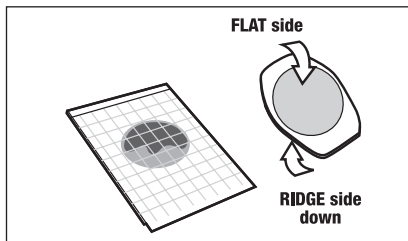
- 3 Place 3M Petrifilm Aerobic Count Plate on level surface. Lift top film.



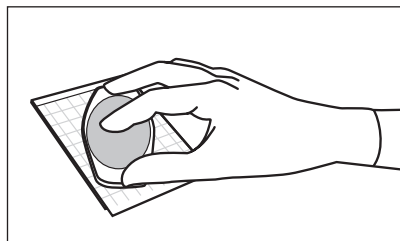
- 4 With 3M™ Electronic Pipettor or equivalent held perpendicular to plate, place 1mL of sample or diluted sample onto center of bottom film.



- 5 Drop the top film down onto the sample.

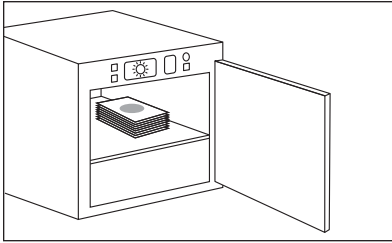


- 6 With ridge side down, place 3M™ Petrifilm™ Spreader on top film over inoculum.



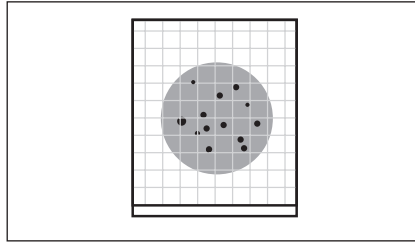
- 7 Gently apply pressure on 3M Petrifilm Spreader to distribute inoculum over circular area before gel is formed. Do not twist or slide the spreader. Lift 3M Petrifilm Spreader. Wait a minimum of 1 minute for gel to solidify.

## Incubation



- 8** Incubate plates with clear side up in stacks of up to 20. It may be necessary to humidify incubator to minimize moisture loss. **Please refer to the product instructions for third party validated methods.**

## Interpretation



- 9** 3M Petrifilm Aerobic Count Plates can be counted with the 3M™ Petrifilm™ Plate Reader, on a standard colony counter or other illuminated magnifier.

## Use Appropriate Sterile Diluents

Butterfield's phosphate buffered dilution water, 0.1% peptone water, peptone salt diluent, buffered peptone water, dipotassium hydrogen phosphate solution, saline solution (0.85-0.90%), bisulfite-free letheen broth or distilled water.

For optimal growth and recovery of the microorganisms, adjust the pH of the sample suspension to 6.6–7.2.

Do not use diluents containing citrate, bisulfite or thiosulfate with 3M Petrifilm Aerobic Count Plates; they can inhibit growth.

If citrate buffer is indicated in the standard procedure, substitute with one of the buffers listed above, warmed to 40–45°C.

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 [3M.com/foodsafety/Petrifilm](http://3M.com/foodsafety/Petrifilm) or call 1-800-328-6553.



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**User's Responsibilities:** 3M Petrifilm Plate performance has not been evaluated with all combinations of microbial flora, incubation conditions and food matrices. It is the user's responsibility to determine that any test methods and results meet the user's requirements. Should re-printing of this Interpretation Guide be necessary, user's print settings may impact picture and color quality.

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