



Rapid Aerobic Count

Interpretation Guide

The 3M™ Petrifilm™ Rapid Aerobic Count Plate is a sample-ready culture medium system which contains nutrients, a cold-water-soluble gelling agent and a dual-sensing indicator technology that facilitates aerobic enumeration in 24 hours for most food matrices.



Interpretation Guide: 3M™ Petrifilm™ Rapid Aerobic Count Plate

3M™ Petrifilm™ Rapid Aerobic Count Plates can be counted using a standard colony counter or other illuminated magnifier. Count all colonies regardless of colour, size or intensity.

Where necessary, colonies may be isolated for further identification. Lift the top film and pick the colony from the gel. Test using standard procedures.

If the 3M Petrifilm Rapid Aerobic Count Plates cannot be counted within 1 hour of removal from the incubator, they may be stored for later enumeration by freezing in a sealable container at temperatures less than or equal to -15°C (5°F) for no longer than one week.

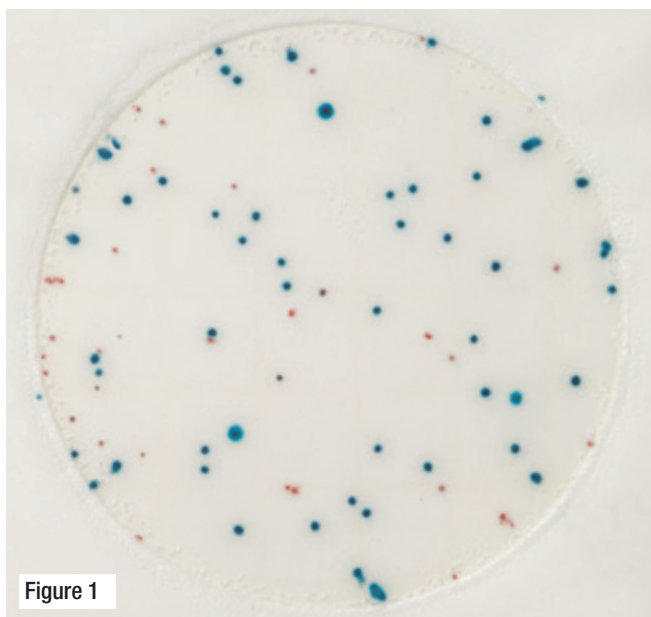


Figure 1

Aerobic Bacteria Count = 88

Blue and red indicator dyes in the plate colour the colonies. Count all colonies regardless of their size or colour intensity.

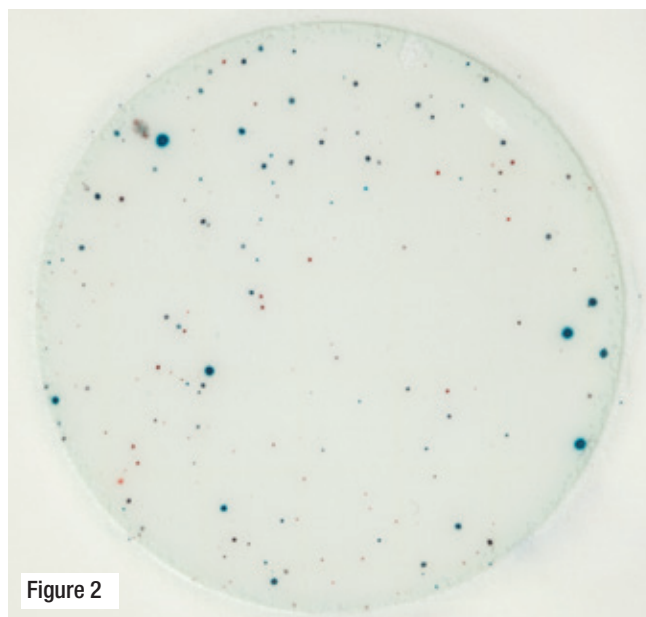


Figure 2

Aerobic Bacteria Count = 204

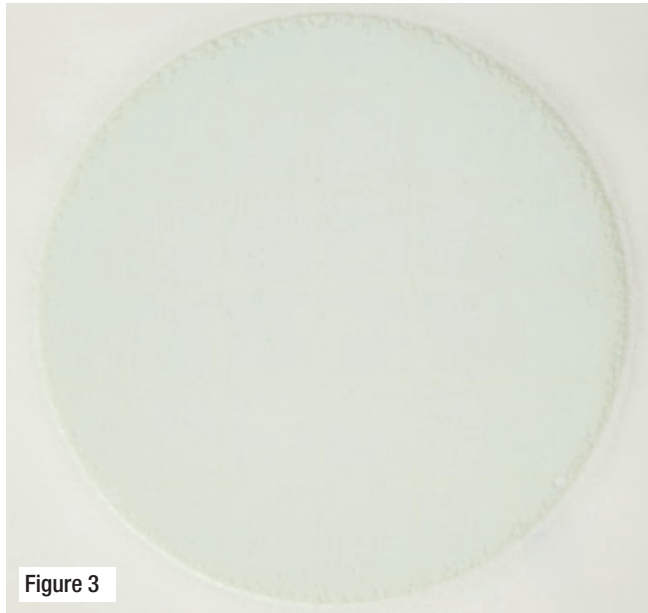


Figure 3

Aerobic Bacteria Count = 0

Figure 3 shows a 3M Petrifilm Rapid Aerobic Count Plate without colonies.

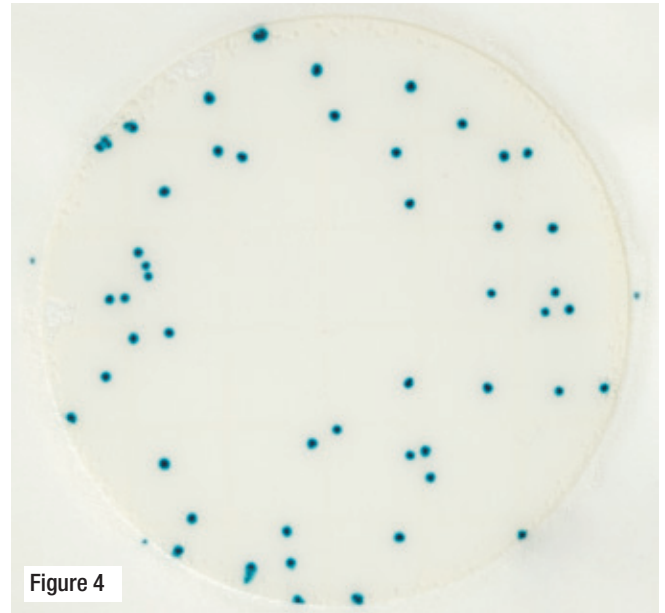


Figure 4

Aerobic Bacteria Count = 49

Figure 4 shows a 3M Petrifilm Rapid Aerobic Count Plate with a few bacterial colonies.

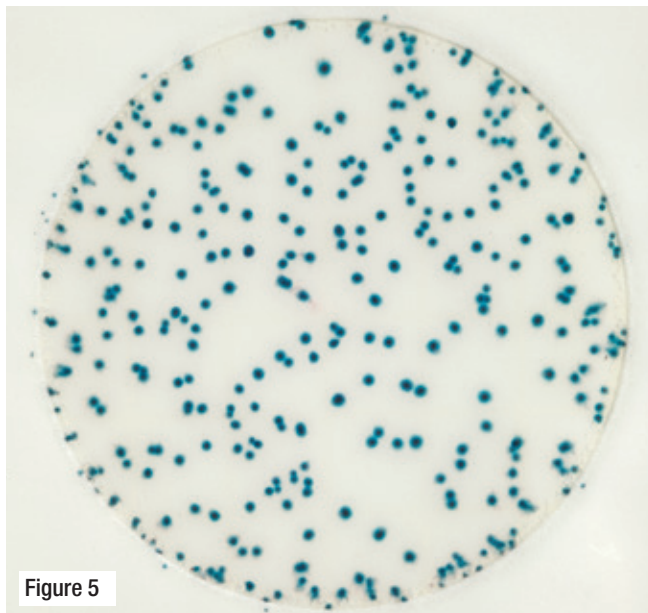


Figure 5

Aerobic Plate Under Normal Lighting

The counting range on a 3M Petrifilm Rapid Aerobic Count Plate is 25–300 colonies.

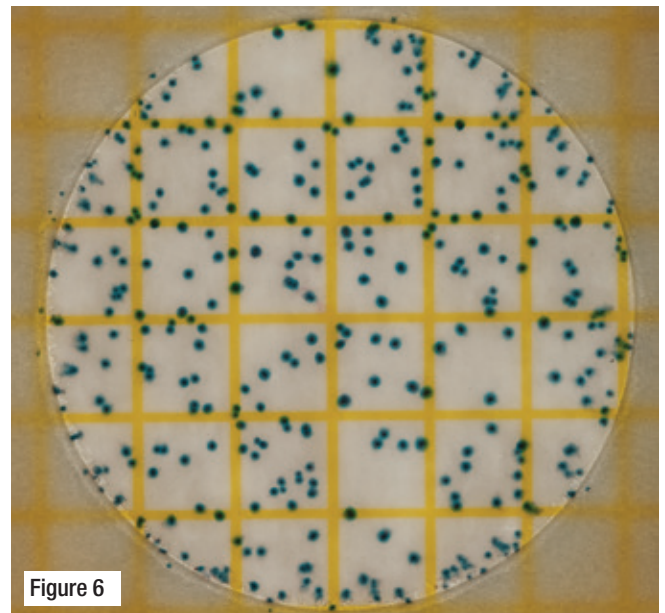


Figure 6

Aerobic Plate with Backlighting

The circular growth area is approximately 30cm². Gridlines are visible with the use of a backlight to assist with estimated enumeration. Estimates can be made on 3M Petrifilm Rapid Aerobic Count Plates by counting the number of colonies in two or more representative squares and determining the average number per square. Multiply the average number by 30 to determine the estimated count per plate.

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 colour quality.

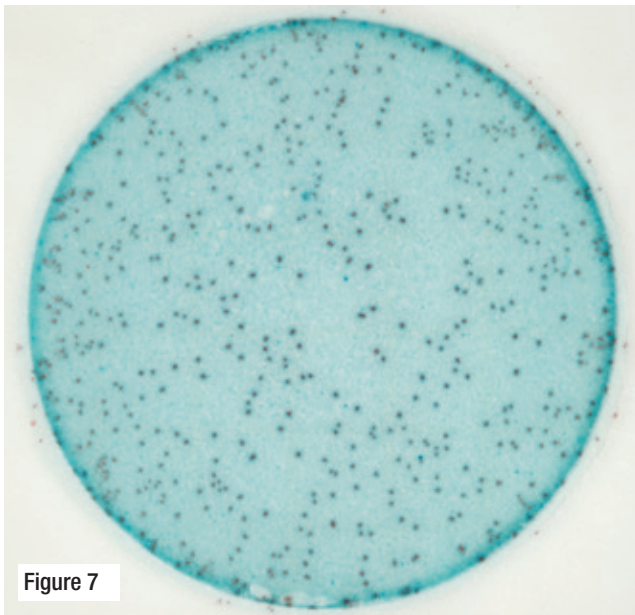


Figure 7

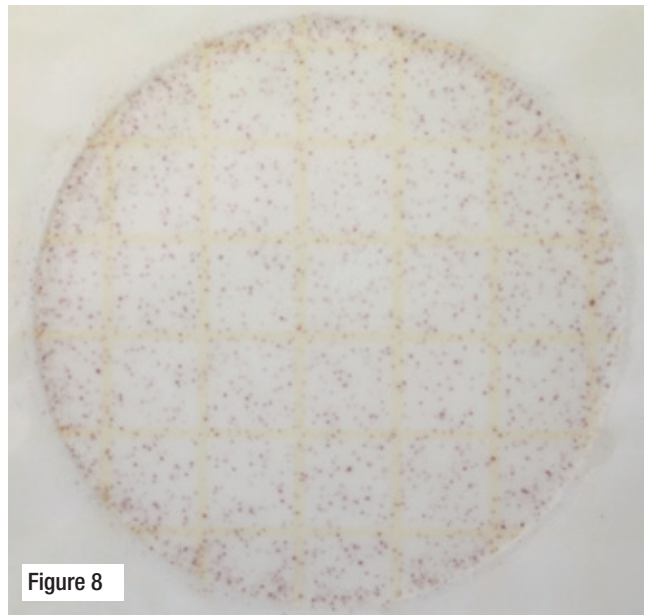


Figure 8

Aerobic Bacteria Count = TNTC

High concentrations of colonies on the 3M Petrifilm Rapid Aerobic Count Plates will cause the entire growth area to become blue or red. Occasionally, on overcrowded 3M Petrifilm Rapid Aerobic Count Plates, the center may lack visible colonies, but many small colonies can be seen on the edges. When any of these occurs, record results as too numerous to count (TNTC). When an actual count is required, plate at a higher dilution.

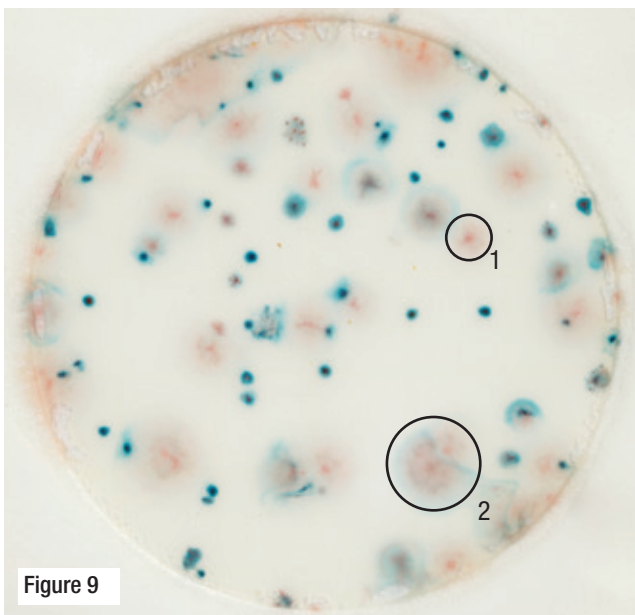


Figure 9

Aerobic Bacteria Count = 80

Colonies may spread, creating a halo. These colonies should be counted by counting each foci or point in a spread zone. A single colony can be seen in Circle 1, two colonies are present in Circle 2.

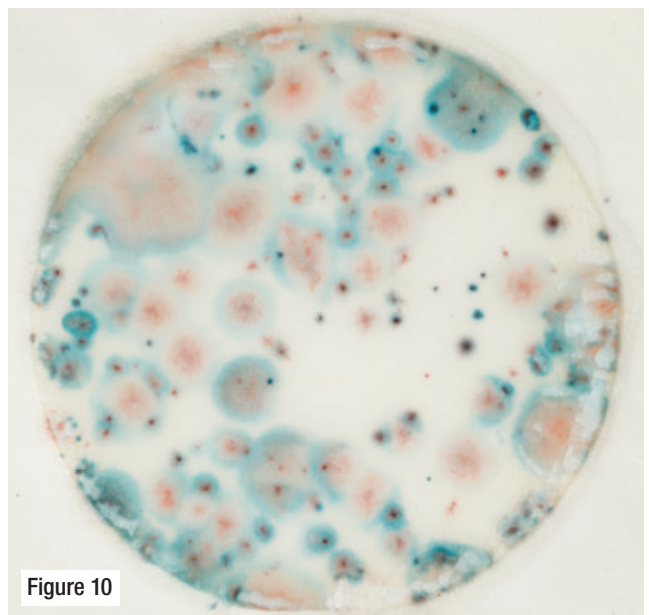


Figure 10

An example of a non-countable plate due to spreading morphology. If an estimate cannot be made, read the next dilution.

Food samples may occasionally show interference on the 3M Petrifilm Rapid Aerobic Count Plates, for example:

- a. A uniform light blue background colour (often seen from the organisms used in cultured products) should not be counted as TNTC.
- b. Intense, pinpoint blue specs (often seen with spices or granulated products) should not be counted as colonies.

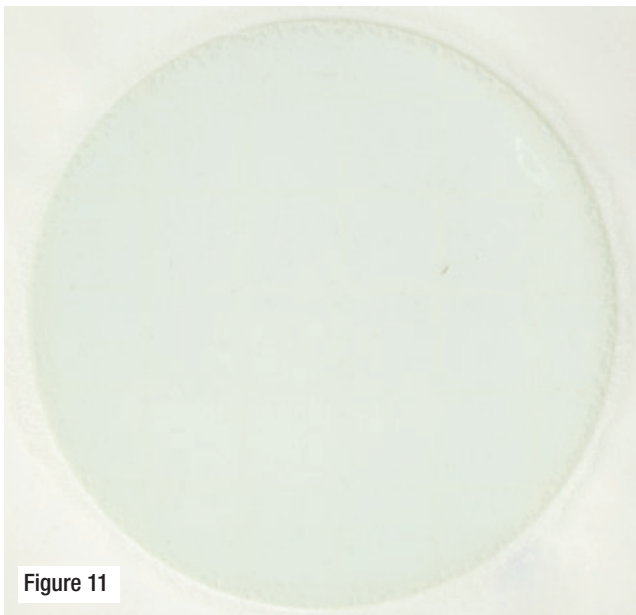


Figure 11

Aerobic Bacteria Count = 0
No enzymatic reaction present.

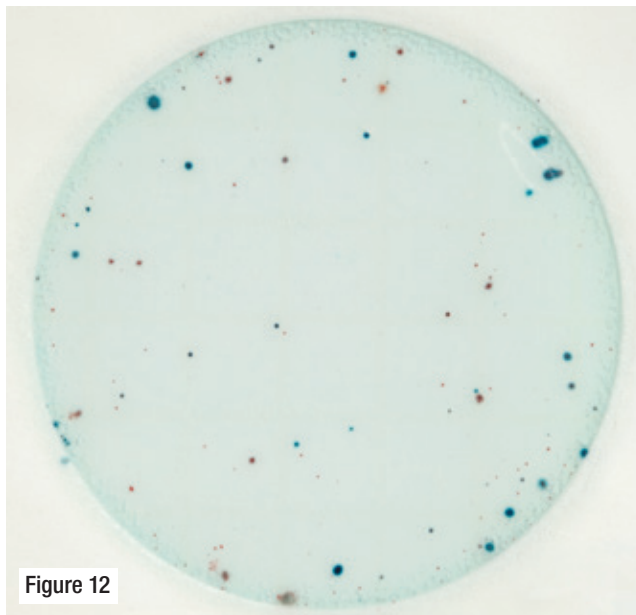


Figure 12

Aerobic Bacteria Count = 110
A uniform blue background with countable colonies.

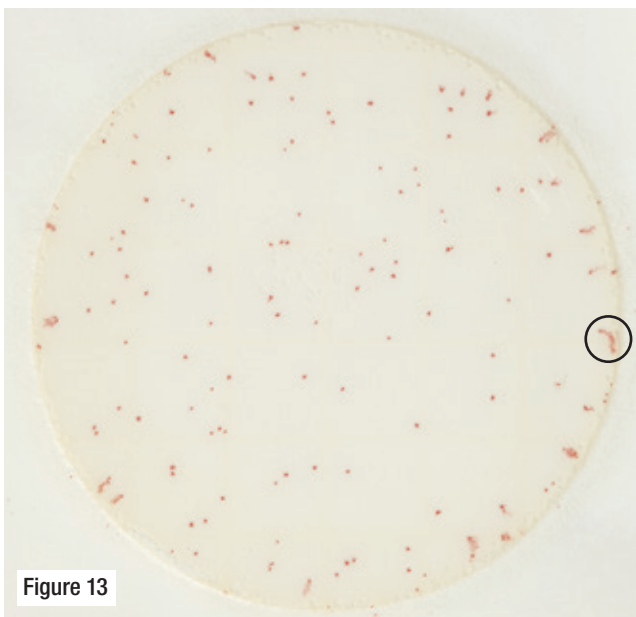


Figure 13

Aerobic Bacteria Count = 136
Colonies along the edges of the plate may appear in lines or streaks. These should be counted as a single colony.

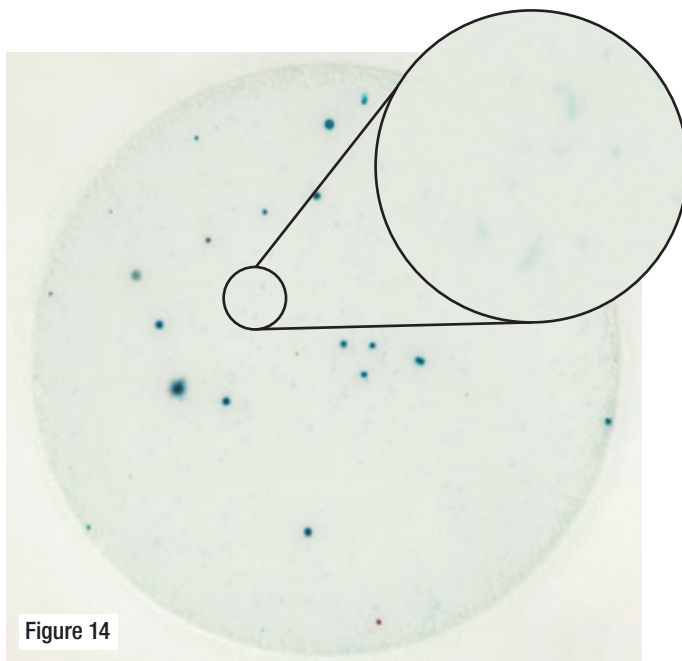


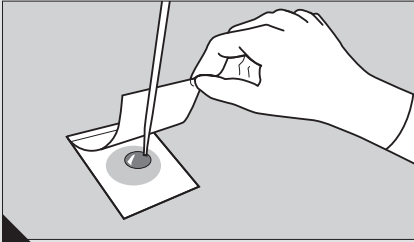
Figure 14

Food particles may produce blue specs (circled) and should not be counted as colonies.

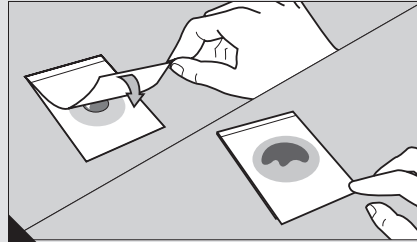
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Reminders for Use: 3M™ Petrifilm™ Rapid Aerobic Count Plate

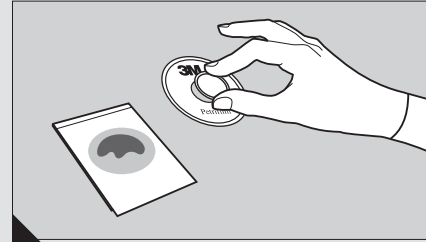
Inoculation Procedure



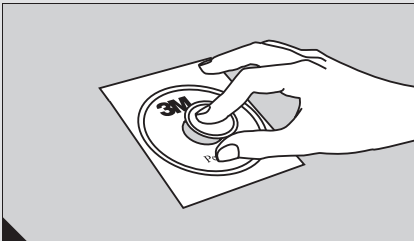
1 Place the 3M Petrifilm Rapid Aerobic Count Plate on **level** surface. Lift the top film. With 3M™ Electronic Pipettor or equivalent held **perpendicular** to plate, place 1mL of sample or diluted sample onto center of bottom film.



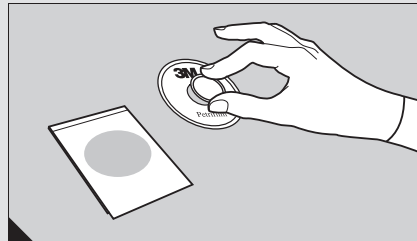
2 Roll top film down onto sample **gently** to prevent pushing sample off film and to avoid entrapping air bubbles. **Do not** let top film drop.



3 Place the 3M™ Petrifilm™ Flat Spreader (6425) or other flat spreader on the center of the 3M Petrifilm Rapid Aerobic Count Plate.



4 **Gently** apply pressure on spreader to distribute inoculum over circular area. Do not twist or slide the spreader.

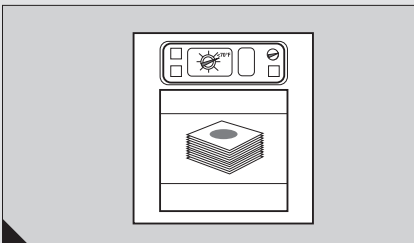


5 Lift spreader. Wait a minimum of 1 minute for gel to solidify.

Use appropriate sterile diluents:

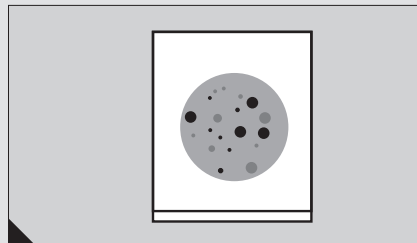
Butterfield's phosphate buffer (ISO 5541-1), Buffered Peptone Water (ISO), 0.1% peptone water, peptone salt diluent, saline solution (0.85–0.90%), bisulphite-free letheen broth or distilled water. **Do not use diluents containing citrate, bisulphite or thiosulfate with 3M Petrifilm Rapid Aerobic Count Plates;** they can inhibit growth. If citrate buffer is indicated in the standard procedure, substitute with 0.1% peptone water, warmed to 40–45°C.

Incubation



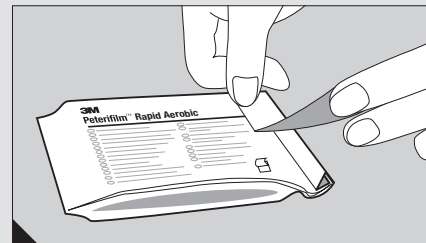
6 Incubate plates with clear sides up in stacks up to 40. When following Standard Methods for the Examination of Dairy Products, plates should be incubated in stacks up to 20. It may be necessary to humidify incubator to minimise moisture loss.

Interpretation



7 3M Petrifilm Rapid Aerobic Count Plate can be counted on a standard colony counter or other magnified light source. Refer to the *Interpretation Guide* section when reading results.

Storage



8 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 (20–25°C/<60% RH) for no longer than 4 weeks.

For more product information, visit our website or call your local 3M representative



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