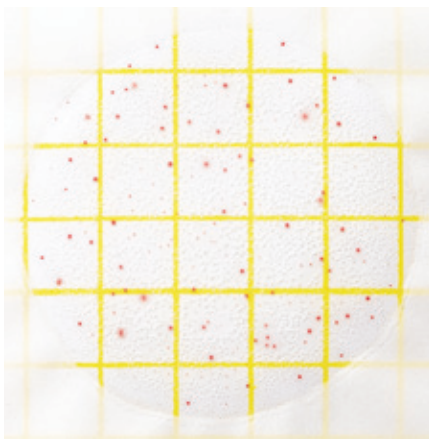


3M Food Safety

3M™ Petrifilm™ Aerobic Count Plate

Aerobic Count



Aerobic Bacteria Count: 152

Interpretation Guide

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

It is easy to interpret the 3M Petrifilm AC Plate. A red indicator dye in the plate colors the colonies. Count all red colonies regardless of their size or color intensity.

3M

3M™ Petrifilm™ Aerobic Count (AC) Plates

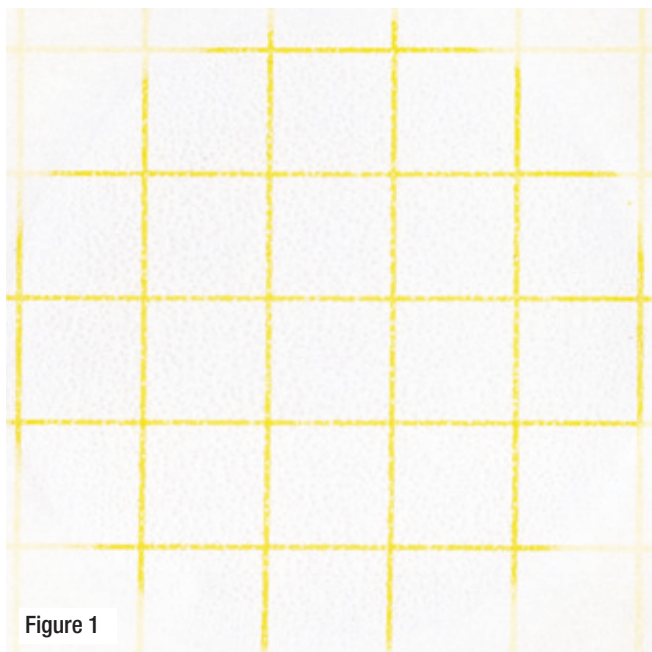


Figure 1

Count: 0
3M Petrifilm AC Plate without colonies.

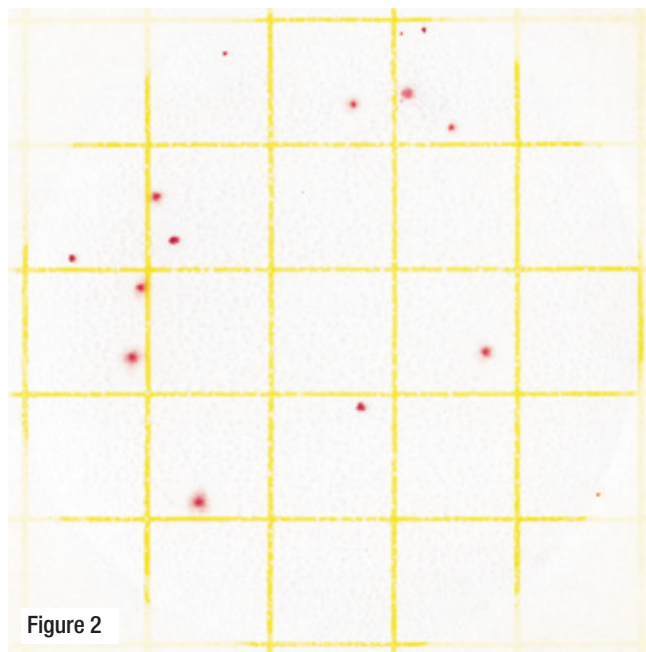


Figure 2

Count: 16
3M Petrifilm AC Plate with a few bacterial colonies.

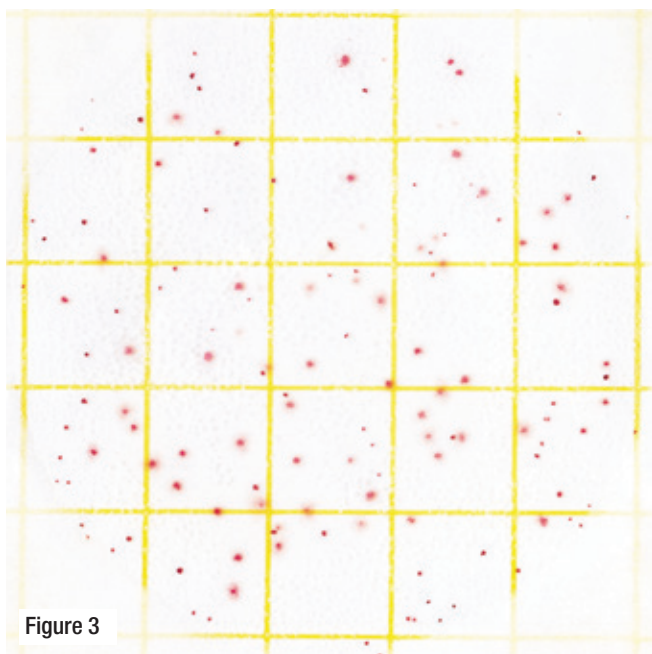


Figure 3

Count: 143
The preferable counting range on a 3M Petrifilm AC Plate is 25–250 colonies.

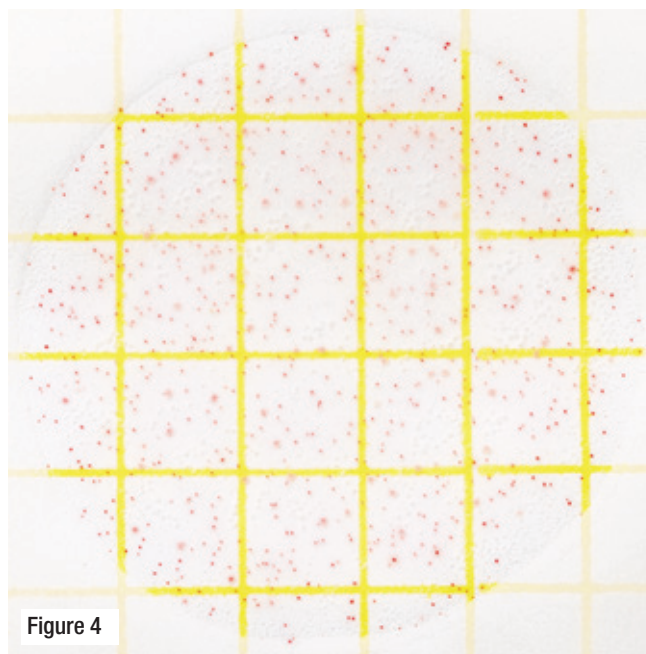


Figure 4

Count: ~560
When colonies number more than 250, estimate the count. Determine the average number of colonies in one square (1cm²) and multiply it by 20 to obtain the total count per plate. The inoculated area on a 3M Petrifilm AC plate is approximately 20cm².

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.

TNTC (Too Numerous to Count) To obtain a more accurate count, dilute the sample further.

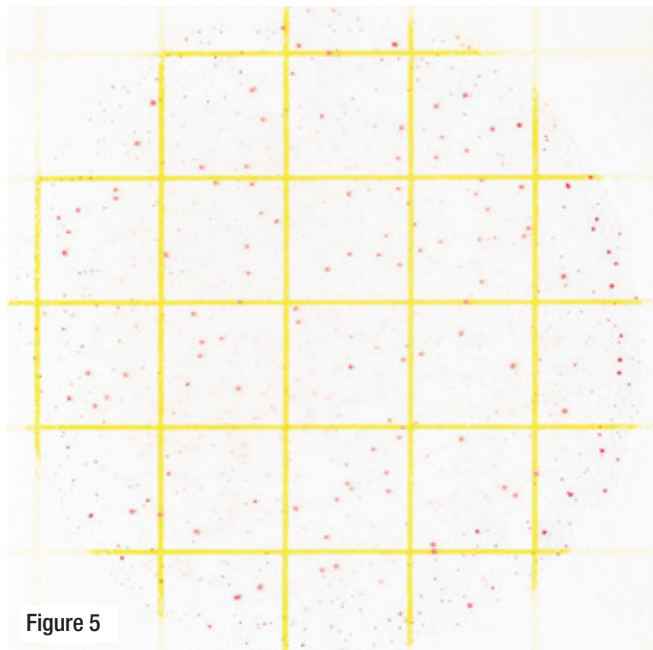


Figure 5

Count: TNTC (Estimated count = 10^3)
3M Petrifilm AC Plate with colonies that are TNTC.

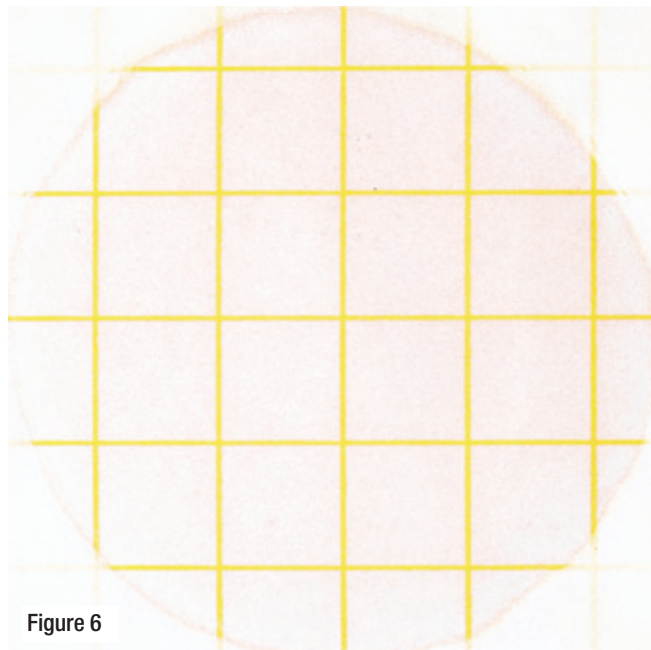


Figure 6

Count: TNTC (Estimated count = 10^5)
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.

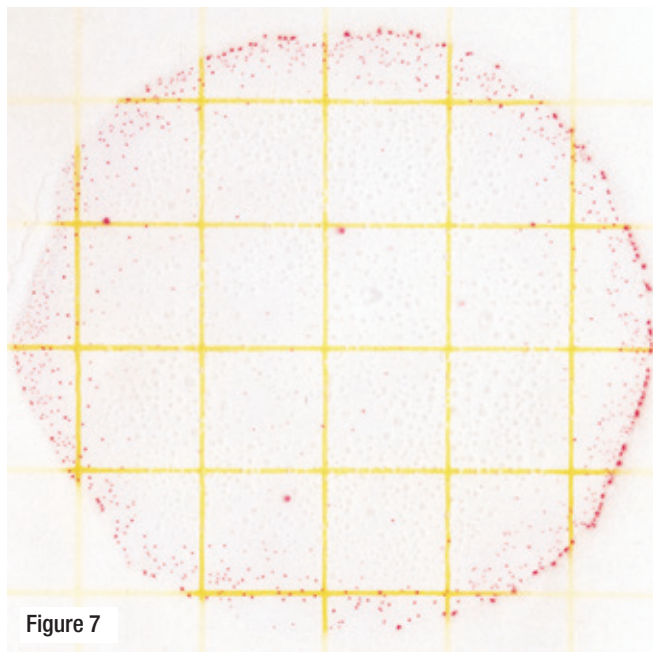


Figure 7

Count: TNTC (Estimated count = 10^3)
Occasionally, distribution of colonies appears uneven. This is also an indication of a TNTC result.

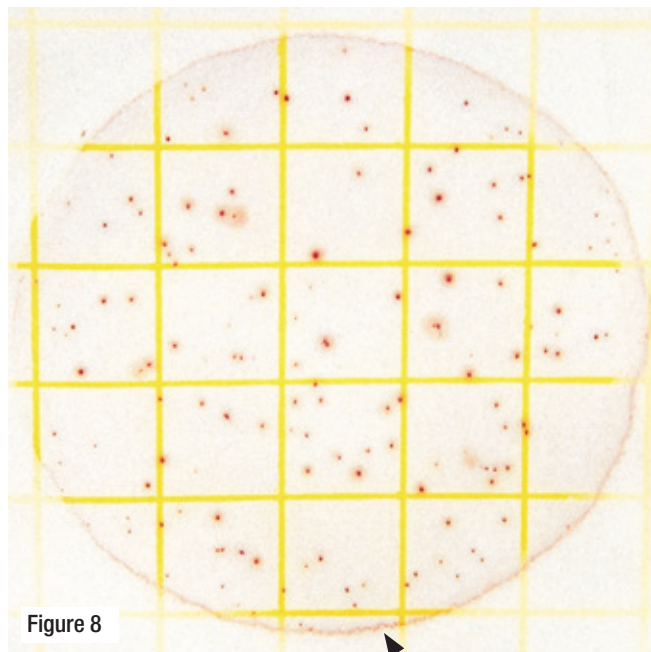


Figure 8

Count: TNTC (Estimated count = 10^7)
The colonies on the 3M Petrifilm AC 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.

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.

Gel Liquefaction and Food Particles

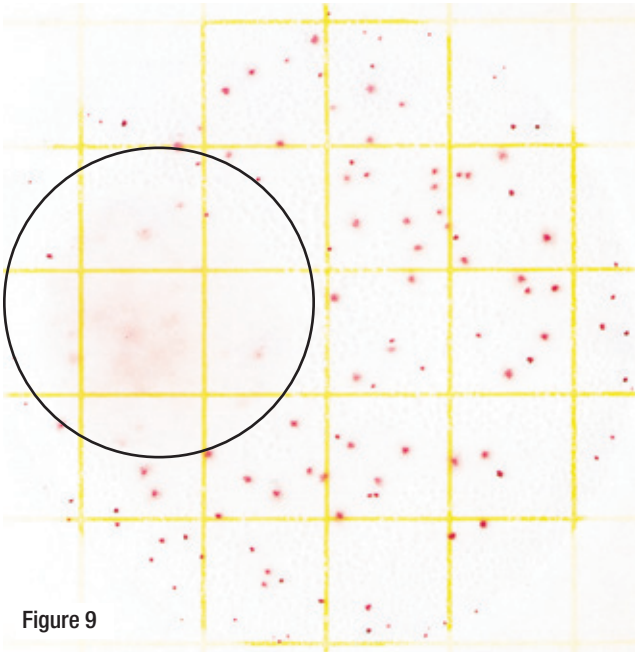


Figure 9

Count: ~160

A few species of bacteria liquify the gel in the 3M Petrifilm AC 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.

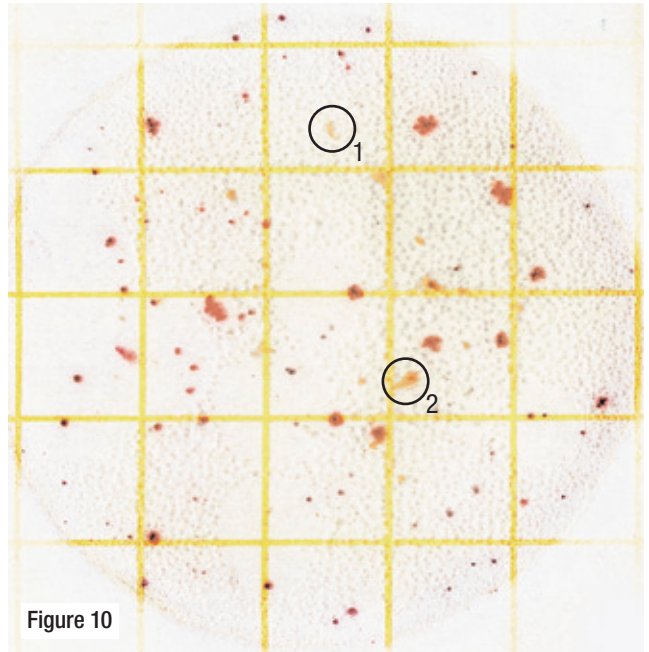


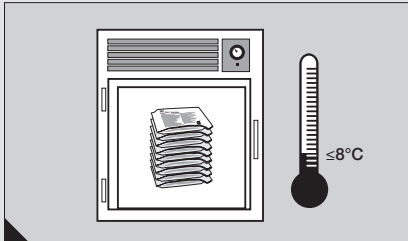
Figure 10

Count: 83

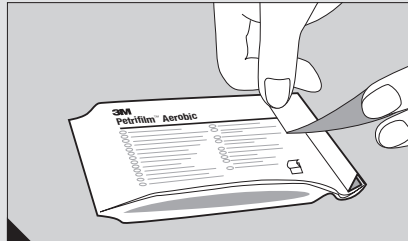
Because colonies on 3M Petrifilm AC Plate are red, you can distinguish them from opaque, irregularly shaped food particles. See Circles 1 and 2.

Reminders for Use: 3M™ Petrifilm™ Aerobic Count (AC) Plate

Storage



1 Store unopened pouches of plates at $\leq 8^{\circ}\text{C}$ ($\leq 46^{\circ}\text{F}$). Use before expiration date on package. In areas of high humidity where condensate may be an issue, it is best to allow pouches to reach room temperature before opening.

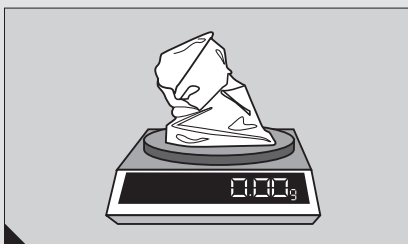


2 To seal opened pouch, fold end over and tape shut.



3 To prevent exposure to moisture, do not refrigerate opened pouches. Store resealed pouches in a cool, dry place. Use plates within one month after opening. Avoid exposure of plates to temperatures $> 25^{\circ}\text{C}$ ($> 77^{\circ}\text{F}$) and/or relative humidity $> 50\%$.

Sample Preparation

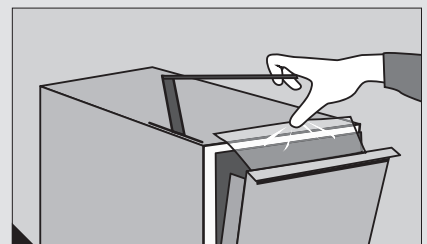


4 Prepare a dilution of food product.* Weigh or pipette food product into an appropriate container such as a stomacher bag, dilution bottle, Whirl-Pak® bag, or other sterile container.

*See Petrifilm Use with Dairy and Juice Products sheet for recommended dilutions.



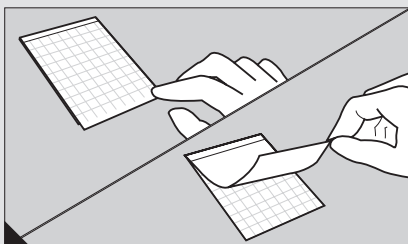
5 Add appropriate quantity of one of the following **sterile diluents**: Butterfield's phosphate buffer (IDF phosphate buffer, KH_2PO_4 @ 0.0425 g/L, adjust to pH 7.2), 0.1% peptone water, peptone salt diluent (ISO method 6887-1), buffered peptone water (ISO 6887-1), saline solution (0.85–0.90%), bisulfite-free lathen broth or distilled water. **Do not use buffers containing citrate, bisulfite or thiosulfate; they can inhibit growth.**



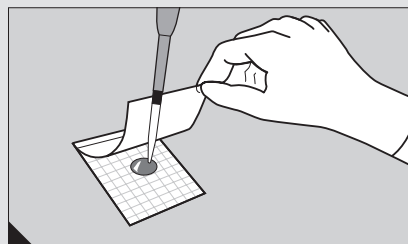
6 Blend or homogenize sample per current procedure. **For optimal growth and recovery of microorganisms, adjust the pH of the sample suspension to 6.6–7.2:**

- For acidic products, adjust the pH with 1N NaOH
- For alkaline products, adjust the pH with 1N HCl

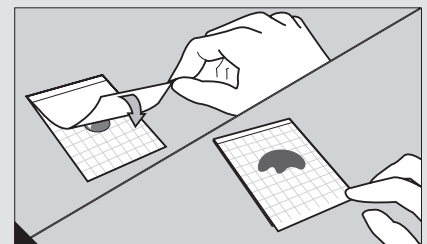
Inoculation



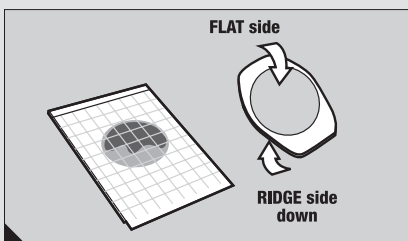
7 Place 3M Petrifilm Aerobic Count Plate on **level** surface. Lift top film.



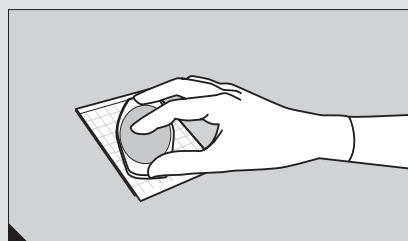
8 With 3M™ Electronic Pipettor or equivalent held **perpendicular** to plate, place 1mL of sample or diluted sample onto center of bottom film.



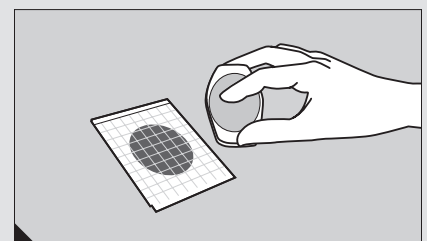
9 **Roll** top film down onto sample **gently** to prevent pushing sample off film and to avoid entrapping air bubbles. **Do not** let top film drop.



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



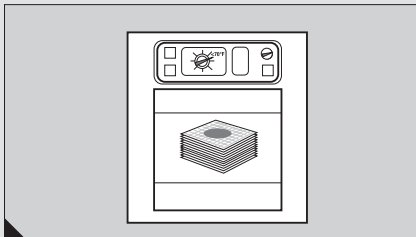
11 **Gently** apply pressure on 3M Petrifilm Spreader to distribute inoculum over circular area before gel is formed. **Do not** twist or slide the spreader.



12 Lift 3M Petrifilm Spreader. Wait a minimum of 1 minute for gel to solidify.

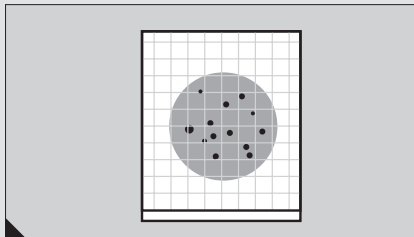
Reminders for Use: 3M™ Petrifilm™ Aerobic Count (AC) Plate *cont.*

Incubation

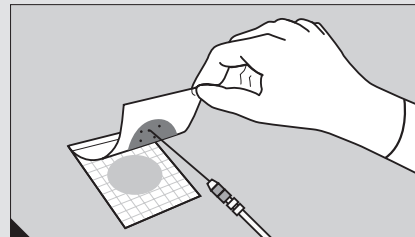


- 13** Incubate plates with clear side up in stacks of up to 20 at time and temperature listed below. It may be necessary to humidify incubator to minimize moisture loss.

Interpretation



- 14** 3M Petrifilm Aerobic Count Plates can be counted on a standard colony counter or other illuminated magnifier. Refer to the **Interpretation Guide** section when reading results.



- 15** Colonies may be isolated for further identification. Lift top film and pick the colony from the gel.

Incubation Time and Temperature Vary by Method

Most common approved methods:

AOAC® Official Method 986.33 and 989.10 (milk and dairy products)

- Incubate 48±3 hours at 32°±1°C

AOAC® Official Method 990.12

- Incubate 48±3 hours at 35°±1°C

AFNOR Validated Method 3M 01/1-09/89

- Incubate 72±3 hours at 30°±1°C

For detailed CAUTIONS, DISCLAIMER OF WARRANTIES/LIMITED REMEDY and LIMITATION OF 3M LIABILITY, STORAGE AND DISPOSAL information and INSTRUCTIONS FOR USE, see Product's package insert.



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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.com/foodsafety or call 1-800-328-6553.

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