



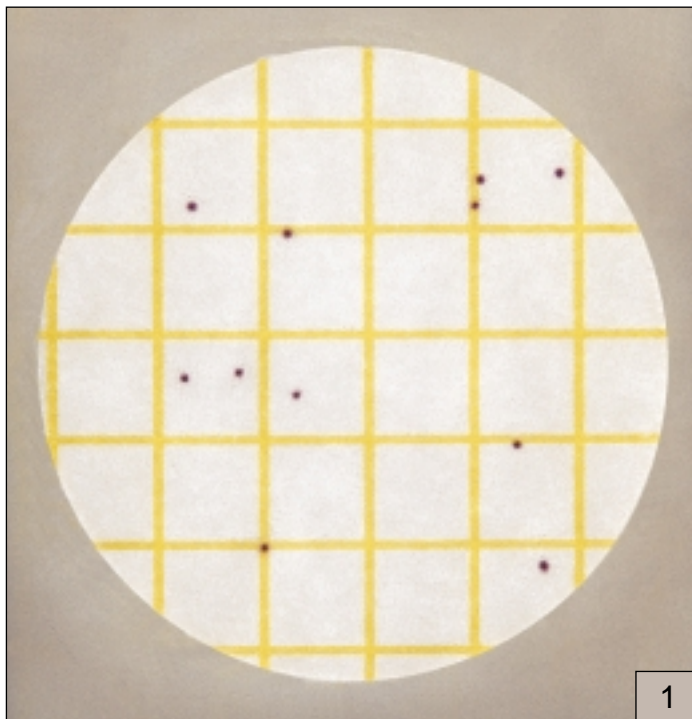
# Petrifilm™

## Staph Express Count Plate

This guide familiarizes you with results on 3M™ Petrifilm™ Staph Express Count Plates. For more information, contact the 3M Microbiology representative nearest you.

The Petrifilm™ Staph Express Count Plate is a sample-ready culture medium system which contains a cold-water-soluble gelling agent. The chromogenic, modified Baird-Parker medium in the plate is selective and differential for *Staphylococcus aureus*. Red-violet colonies on the plate are *S. aureus*.

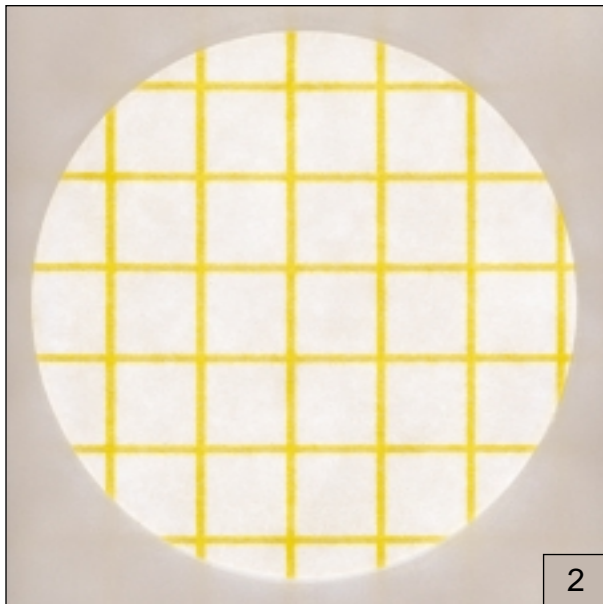
If you encounter background flora in your staph testing, the 3M Petrifilm Staph Express Disk may be used to identify *S. aureus* from all suspect colonies. The Petrifilm Staph Express Disk should be used whenever colonies other than red-violet are present on the plate; for example, black colonies or blue-green colonies. The Petrifilm Staph Express Disk contains a dye and deoxyribonucleic acid (DNA). *S. aureus* produces deoxyribonuclease (DNase) and the DNase reacts with the dye to form pink zones. When the disk is inserted into the plate, *S. aureus* (and occasionally, *Staphylococcus hyicus* and *Staphylococcus intermedius*) produce a pink zone. *S. aureus*, *S. hyicus*, and *S. intermedius* comprise the majority of the group of organisms commonly known as coagulase-positive staphylococci. Most other types of bacteria do not produce pink zones.



### ***S. aureus* Count = 11**

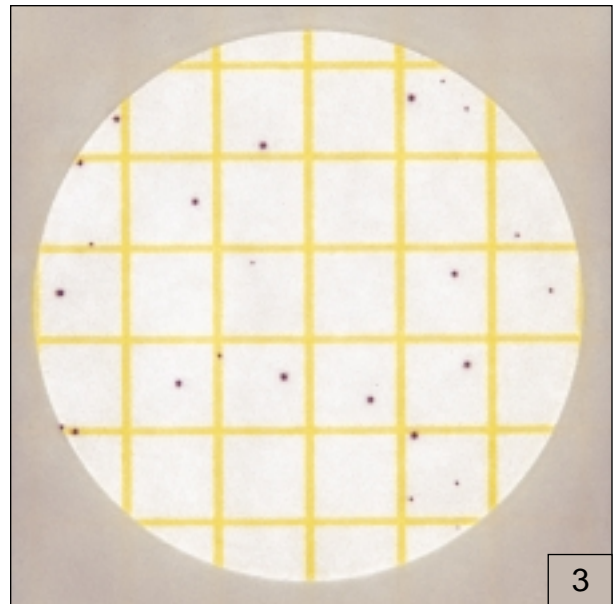
This picture shows only red-violet colonies. Count all red-violet colonies as *S. aureus*. The test is complete.

# 3M™ Petrifilm™ Staph Express Count Plate



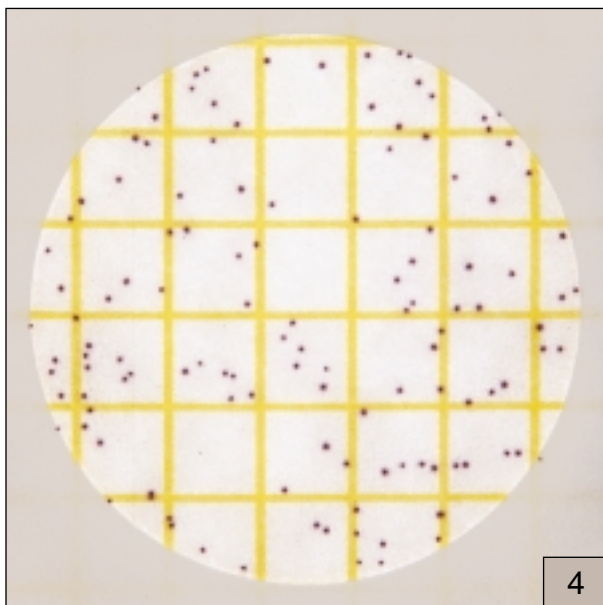
## ***S. aureus* Count = 0**

This Petrifilm Plate has no colonies after 24 hours of incubation. The test is complete.



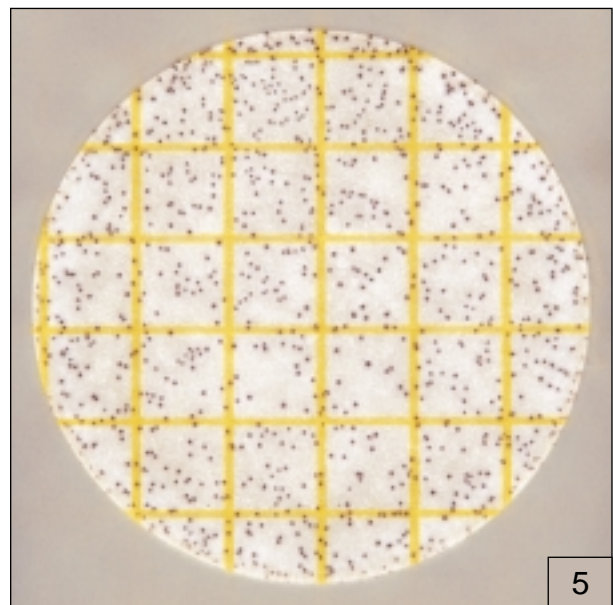
## ***S. aureus* Count = 24**

*S. aureus* colonies may vary in size. Count all red-violet colonies regardless of size. Use an illuminated magnifier so that the colonies are easier to see. The test is complete.



## ***S. aureus* Count = 122**

The recommended counting limit on a Petrifilm Staph Express Count Plate is 150 *S. aureus* colonies. The plate in Figure 4 is approaching the counting limit. The test is complete.



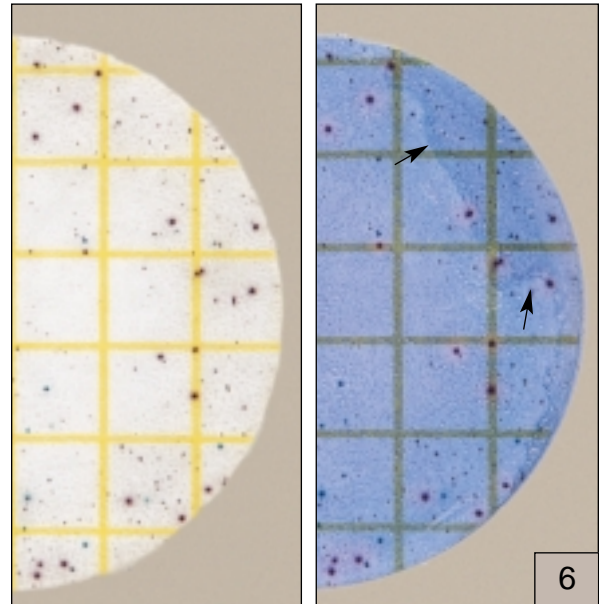
## **Estimated *S. aureus* Count ~ 850E**

When the number of *S. aureus* colonies exceeds 150, the colonies become too numerous to count (TNTC). Estimate the count or dilute your sample further. To estimate the count, count the colonies in one representative square and multiply that number by 30.

# 3M™ Petrifilm™ Staph Express Disk

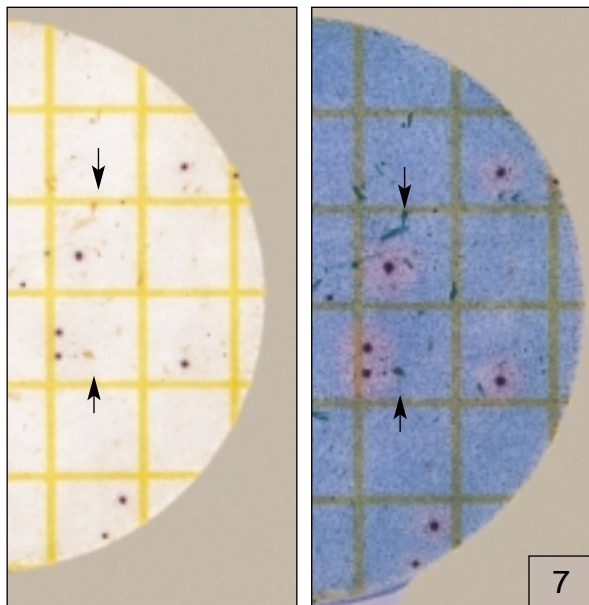
The Petrifilm Staph Express Disk should be used whenever colonies other than red-violet are present on the plate – for example, black or blue-green colonies – as they may obscure *S. aureus*. Black colonies may or may not be *S. aureus*. Blue-green colonies are not *S. aureus*.

When the disk is inserted into the plate and they are incubated, pink DNase zones form. Pink zones are *S. aureus* the majority of the time but occasionally may be *S. hyicus* or *S. intermedius*. The group of organisms commonly known as coagulase - positive staphylococci is mainly comprised of *S. aureus*, *S. hyicus* and *S. intermedius*.



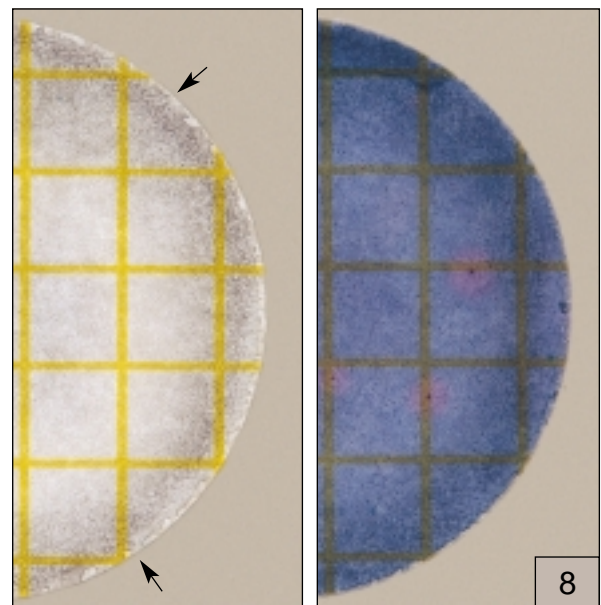
***S. aureus* Count = 17**

Count pink zones as *S. aureus*, regardless of the size of the zone. The arrows in the figure show gel splitting. Gel splitting does not affect the performance.



***S. aureus* Count = 7**

Food particles in this figure are irregularly shaped. *S. aureus* is easier to enumerate once the disk has been inserted because the zones are more clearly distinguished from the food.



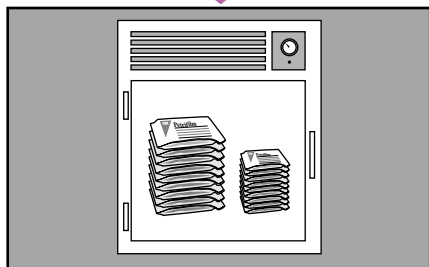
***S. aureus* Count = 3**

Individual colonies are difficult to see due to food and/or large numbers of background bacteria as depicted by discoloration of the plate in this figure. Insert the disk and count pink zones as *S. aureus*.

# 3M Petrifilm™ Staph Express Count Plates and Disks Reminders for Use

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

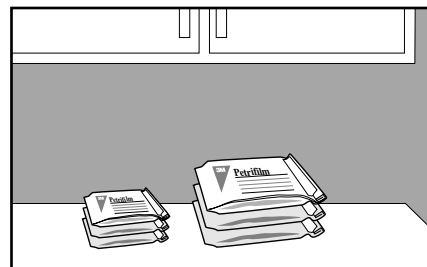
## Storage



**1** Store unopened pouches of plates and disks 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.

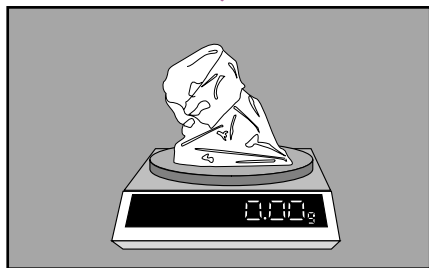


**2** To seal opened pouch, fold end over and tape shut.

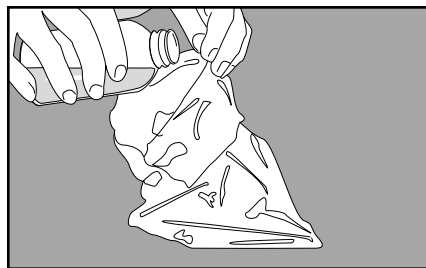


**3** **Plates and Disks: To prevent exposure to moisture, do not refrigerate opened pouches.** Store resealed pouches in a cool, dry place. Use plates within one month after opening. Use disks within 6 months after opening. Avoid exposure of plates and disks to temperature  $> 25^{\circ}\text{C}$  ( $> 77^{\circ}\text{F}$ ) and/or relative humidity  $> 50\%$ .

## Sample Preparation

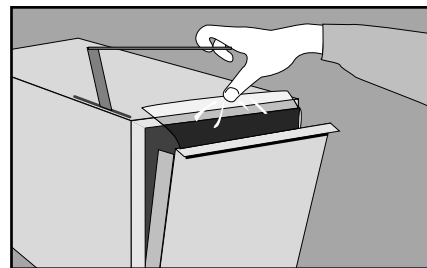


**4** Prepare dilution of food product. Weigh or pipette food product into a sterile container such as a homogenizer bag or dilution bottle.



**5** Add appropriate quantity of one of the following **sterile** diluents: Butterfields phosphate buffer (IDF phosphate buffer,  $\text{KH}_2\text{PO}_4$  @ 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 letheen broth or distilled water.

Do not use buffers containing citrate, bisulfite, or thiosulfate; they can inhibit growth.

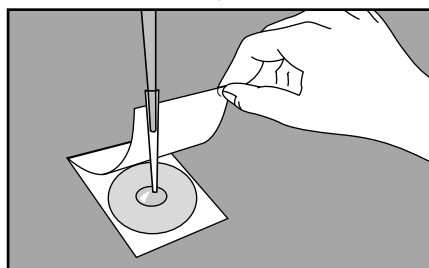


**6** Blend or homogenize sample per current procedure.

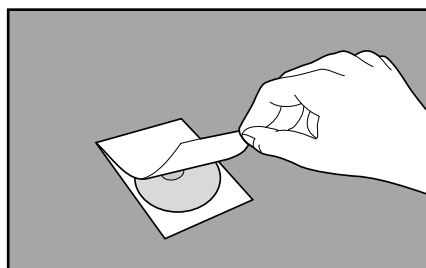
For optimal growth and recovery of microorganisms, adjust the pH of the sample suspension to 6-8.

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

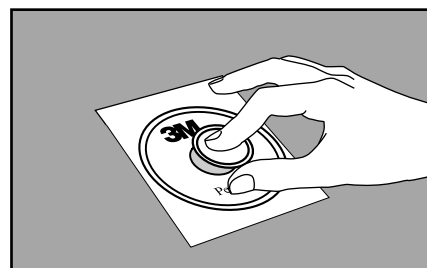
## Inoculation



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

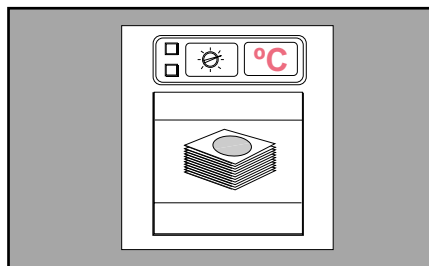


**8** **ROLL** top film down onto sample **gently** to prevent pushing sample off film and to avoid entrapping air bubbles. Do **not** let top film drop.



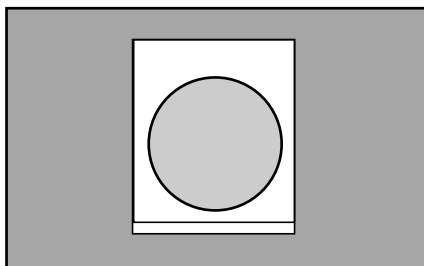
**9** **Gently** apply pressure on spreader to distribute inoculum over circular area. Do not twist or slide the spreader. Lift spreader. Wait a minimum of 1 minute for gel to solidify.

## Incubation

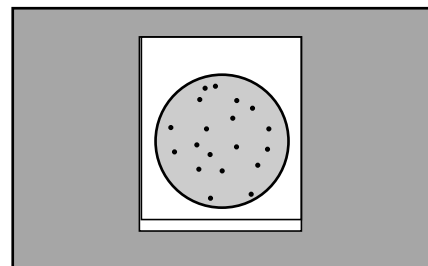


**10** Incubate plates with clear side up in stacks of up to 20 at time and temperature listed below. It may be necessary to humidify incubator to minimize moisture loss.

## Interpretation



**11** If no colonies are present after  $24 \pm 2$  hours of incubation, the count is zero and the test is complete.



**12** Count red-violet colonies as *S. aureus*. Petrifilm Plates can be counted on a standard colony counter or other illuminated magnifier.

### INCUBATION TIME AND TEMPERATURE VARY BY METHOD.

#### Most common methods used in the United States:

- AOAC Official Method 2003.07 for the Enumeration of *Staphylococcus aureus* in Selected Types of Processed and Prepared Foods
- AOAC Official Method 2003.08 for the Enumeration of *Staphylococcus aureus* in Selected Dairy Foods
- AOAC Official Method 2003.11 for the Enumeration of *Staphylococcus aureus* in Selected Meat, Seafood and Poultry

Incubate  $24\text{h} \pm 2\text{h}$  at  $35^\circ\text{C} \pm 1^\circ\text{C}$  or  $37^\circ\text{C} \pm 1^\circ\text{C}$

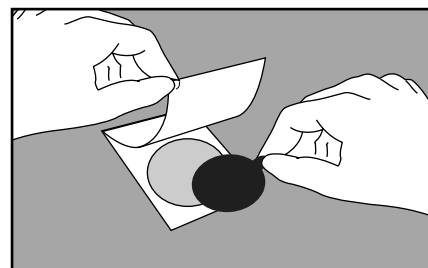
- If no colonies or only red-violet colonies appear, test is complete, no need to use disk. Count red-violet colonies as *S. aureus*.
- If colony colors besides red-violet appear, insert disk and re-incubate 1 to 3 hours at  $35^\circ\text{C} \pm 1^\circ\text{C}$  or  $37^\circ\text{C} \pm 1^\circ\text{C}$ . Count pink zones as *S. aureus*.

#### Most common methods used in Europe:

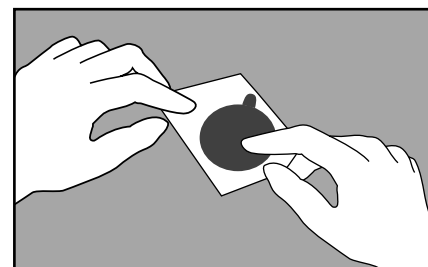
- Nordic System for validation of alternative microbiological methods, NordVal Validation (Ref. No.: 2003-20-5408-00019) for all foods. Refer to NordVal validation for Petrifilm Staph Express Plate method details.
- AFNOR validated method (3M-01/19-04/03) Use the following details when implementing the Instructions for Use.
  - **Sample Preparation:** Use only ISO listed diluents. See ISO 6887-1:1999 (peptone salt diluent and buffered peptone water)
  - **Incubation:**  
Incubation of tests:  $37^\circ\text{C} \pm 1^\circ\text{C}$  for  $24\text{h} \pm 2\text{h}$   
Incubation of disks:  $37^\circ\text{C} \pm 1^\circ\text{C}$  for 3 hours
  - **Interpretation:**  
Counting range is:  
 $\leq 150$  red-violet colonies and/or  $\leq 300$  total colonies  
 $\leq 150$  pink zones  
Read the plates within 3 hours after incubation is complete.

## Disk Use

If colony colors besides red-violet are present, they may obscure *S. aureus*. Use a Petrifilm Staph Express Disk (see 13-16).

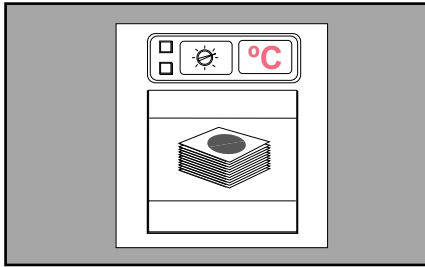


**13** Remove a disk from its individual package by grasping the tab. Lift the top film of the Petrifilm Plate and place the disk in the well of the plate. Lower the top film.

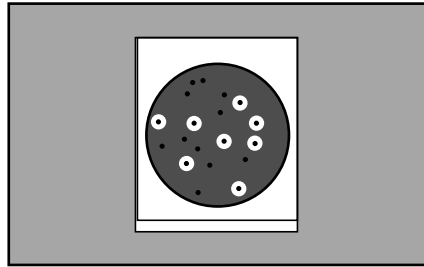


**14** Apply gentle pressure to the disk area, including the edges of the disk, by sliding a finger firmly across the top film. This will ensure uniform contact of the disk with the gel and will eliminate any air bubbles.

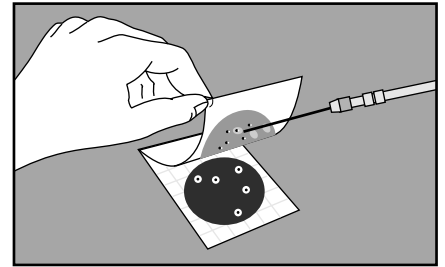
## Further Identification



**15** Incubate plates with inserted disks in stacks of no more than 20 plates see time and temperature listed on previous page.



**16** Count all pink zones whether or not a colony is present.



**17** If further identification is desired, lift top film and pick the colony from the gel.

## Additional Comments

- Questions? U.S., call **1-800-328-6553**.
- To order Petrifilm Plates in the U.S., call **1-800-328-1671**.
- 3M Microbiology offers a full line of products to accomplish a variety of your microbial testing needs. For more information, visit us at **[www.3M.com/microbiology](http://www.3M.com/microbiology)**

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