3M Food Safety

3M™ Petrifilm™ Staph Express Count Plate and Disk

Interpretation Guide

3M™ Petrifilm™ Staph Express Count Plates streamline your staph testing by providing fast, confirmed results in a few simple steps.
3M™ Petrifilm™ Staph Express Count Plate

The 3M™ Petrifilm™ Staph Express Count Plate is a sample-ready culture medium system which contains a coldwater-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.

3M™ Petrifilm™ Staph Express Disk

The 3M 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.

The 3M 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.

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.
3M™ Petrifilm™ Staph Express Count Plate

**S. aureus Count: 0**
This 3M Petrifilm Staph Express Count 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 3M Petrifilm Staph Express Count Plate is 150 *S. aureus* colonies. The plate in Figure 3 is approaching the counting limit. The test is complete.

**S. aureus Count: TN TC**
When the number of *S. aureus* colonies exceeds 150, the colonies become too numerous to count (TN TC). 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.

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**3M™ Petrifilm™ Staph Express Disk**

**Figure 5a**
**Figure 5b**

*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.

**Figure 6a**
**Figure 6b**

*S. aureus* Count: 17
Count pink zones as *S. aureus*, regardless of the size of the zone. The arrows in figure 6b show gel splitting. Gel splitting does not affect the performance.

**Figure 7a**
**Figure 7b**

*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 figure 7a. Insert the disk and count pink zones as *S. aureus*.

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Reminders for Use: 3M™ Petrifilm™ Staph Express Count Plate and Disk

Storage

1. Store unopened pouches of plates and disks at ≤8°C (46°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.

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: Butterfield’s phosphate buffer (DP) phosphate buffer, KH2PO4 @ 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.

Incubation

7. Place 3M Petrifilm Staph Express Count Plate on level surface. Lift top film. With 3M™ Electronic Pipetor or equivalent held perpendicular to plate, place 1mL 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 Time and Temperature Vary by Method

Most common methods used in the U.S.

- Incubation: 24±2 hours at 35°C±1°C or 37°C±1°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 1–3 hours at 35°C±1°C or 37°C±1°C. Count pink zones as S. aureus.

Most common methods used in Europe
- 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°C±1°C for 24±2 hours.
  - Incubation of disks: 37°C±1°C for 3 hours.

Interpretation (counting range):
- ≤150 red-violet colonies and/or ≤300 total colonies.
- ≤150 pink zones.
- Read the plates within 3 hours after incubation is complete.
Reminders for Use: 3M™ Petrifilm™ Staph Express Count Plate and Disk cont.

Disk Use

13. Remove a disk from its individual package by grasping the tab. Lift the top film of the 3M Petrifilm Staph Express Count 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.

15. Incubate plates with inserted disks in stacks of no more than 20 plates. See time and temperature listed at right.

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

Further Identification

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

Order Information

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<td>3M™ Petrifilm™ Flat Spreader</td>
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To order, call 3M Food Safety Customer Service at 1-800-328-1671 or contact your local 3M representative.

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.