Interpretation Guide
An introduction to using and interpreting results for Peel Plate® SA Microbial Tests.
Introduction

The Peel Plate® SA Microbial Tests are prepared culture methods used for the detection and enumeration of Staphylococcus aureus bacteria. Peel Plate SA tests use a Baird Parker based medium for Staphylococcus detection.

These tests can be used for testing liquid foods, solid foods, and environmental sponge samples. The purple colored colonies of the Peel Plate SA test are easily counted against the white background of the test plate.

At 24 hours of incubation, check the plates for growth. If there is no growth, the test is complete. If growth is present, continue incubating for additional 24 hours (48 hours total). Any purple or green (bluish) colonies with a white center after 24 hour incubation are presumptive positive for Staphylococcus aureus. Mark all presumptive colonies at 24 hours and continue incubation.

At 48 hours, all purple colonies, larger than a small dot, with or without a white center are presumptive positive for Staphylococcus aureus. Confirm that any green (bluish) colonies with a white center at 24 hours are now purple. Count the total number of purple colonies, larger than a small dot, on the plate and report as total presumptive positive for Staphylococcus aureus CFU/mL or CFU/g per dilution tested. Any red or green (bluish) colonies at 48 hours are negative and not counted as Staphylococcus aureus. If a colony is not purple (with or without a white center) at 48 hours it is not Staphylococcus aureus. A colony that is a small purple dot at 48 hours could be a non-aureus species of Staphylococcus.

- **Sensitivity:** >1 CFU/mL of test sample
- **Accurate quantitative range:** 10 – 150 CFU/plate
- **Incubation:** 24° – 48 hours at 35 – 37 °C
  
  *If no growth at 24 hours, test is complete. If growth is present, incubate for additional 24 hours (48 hours total).*

What You Can Expect to See

**0 Colonies (No Growth)**

**TNTC (Too Numerous to Count) at 24 hours**

Determine estimated count by multiplying the colonies in a single 1 cm grid square x 17.4. In this square 12 counts give an estimated count of 209 colonies on the plate.

Depending on the matrix and product contaminants, colonies may be expressed differently.
64 Colonies (24 hours)
64 colonies in spiked Gruyere cheese at 24 hours. Shown in the box are 2 presumptive positive, purple colonies with white centers, and 3 additional colonies. Incubate the plate for an additional 24 hours.

106 Colonies (48 hours)
106 total colonies in spiked Gruyere cheese at 48 hours. All 5 colonies in the box from the 24 hour check have turned a dark purple and are presumptive positive S. aureus. The pinpoint purple colonies are not S. aureus and should not be counted. There are 5 presumptive positive S. aureus colonies in the box.

14 Colonies (24 hours)
14 colonies in beef stew at 24 hours. Shown in the box are 2 presumptive positive, purple colonies with white centers, and 1 additional red/purple colony. Incubate the plate for an additional 24 hours.

16 colonies (48 hours)
16 total colonies in beef stew at 48 hours. All 3 colonies in the box from the 24 hour check have turned a dark purple and are presumptive positive S. aureus. The pinpoint purple colonies are not S. aureus and should not be counted. There are 3 presumptive positive S. aureus colonies in the box.
General Troubleshooting

Craters or Incomplete Wicking
Craters are formed when the sample is dispensed too slowly or the pipette is held too far away from the media. Samples should be dispensed within 2-3 seconds and the pipette should be held 1-2 cm above the media. Although incomplete wicking does not affect counts, best practice is to make sure the sample wicks evenly across the plate. If sample is too viscous to wick completely, additional dilution of the sample may be required or assist the wicking by lifting and rocking the plate. For more information on wicking, please contact Charm Technical Services.

Matrix Pattern on Tests
Some colloidal matrices like chocolate milk, or tomato paste, may have their particulates filter and concentrate at the site of sample delivery to the plate. This is most frequently observed with dilution pipets that inadequately mix sample during dilution. While matrix pattern does not affect the bacterial growth of plates, it can cause some interpretation questions. Matrix patterning may be reduced with mixing samples thoroughly before applying to test. Fruit and vegetable pulp that contain color may be mistaken as growth if not marked before incubation.

Growth of Other Staphylococcus Bacteria
Only the Staph aureus will turn purple in 48 hours on this test. At 48 hours, any other colored colony is not Staph aureus. Only count the purple colonies. These may or may not contain a white center.

In the image to the right there are 2 purple presumptive positive Staphylococcus aureus colonies, 7 colonies total; at 48 hours, 2 purple colonies, 2 red colonies (1 dark, 1 light), 3 blue colonies. Report only the presumptive positive Staphylococcus aureus.