

Interpretation Guide

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

Introduction

The Peel Plate® SA Microbial Test is a prepared culture medium used for the enzymatic detection and enumeration of *Staphylococcus aureus* bacteria in foods. Peel Plate SA tests have incorporated several features of Baird-Parker agar for the growth of *Staphylococci* and selective inhibition of closely related bacterial genus.

SA plates are used for testing liquid foods, solid foods, and environmental sponge samples. The purple colored colonies of coagulase positive *Staphylococcus aureus* are easily distinguished against the light background of the SA Peel Plate and easily differentiated from the green and green-blue colonies of coagulase negative *Staphylococci* and related *Enterococci* species.

At the end of the 24 hour period, observe plates for growth as viewed through the clear side of plate. If there is no growth, the test is complete. If colonies are visible, see below and continue incubation for an additional 24 hours (48 hours total).

At 48 hours, all purple colonies larger than a small pin point are presumptive positive for *Staphylococcus aureus*. Presumptive positive colonies may or may not contain a white center. Do not count any purple colonies that are only a small pin point, as these may be non-aureus staphylococcus. Count the total number of purple colonies, larger than a small pin point, on the plate and report as total presumptive positive for *Staphylococcus aureus*.

- **Sensitivity:** >1 CFU/mL of test sample
- **Accurate quantitative range:** 10 – 150 CFU/plate
- **Incubation:** 24 – 48 hours at 35 – 37 °C

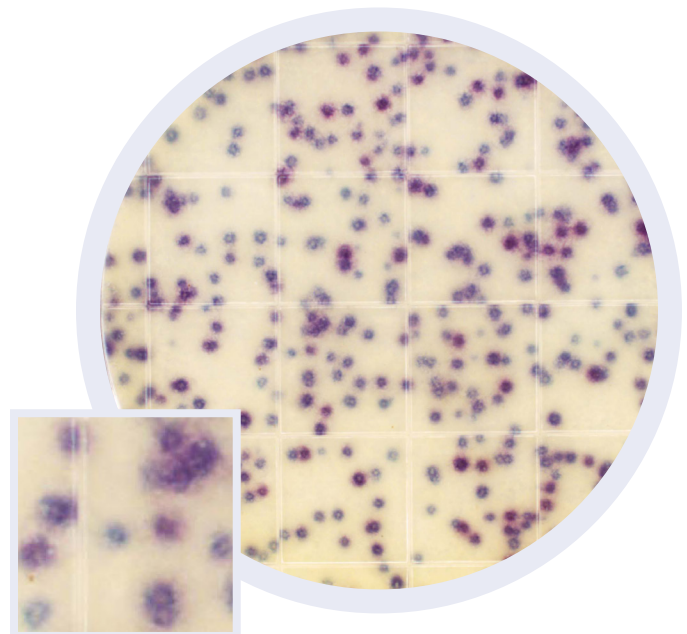
What You Can Expect to See

Depending on the matrix and product contaminants, colonies may be expressed differently.

0 Colonies (No Growth)



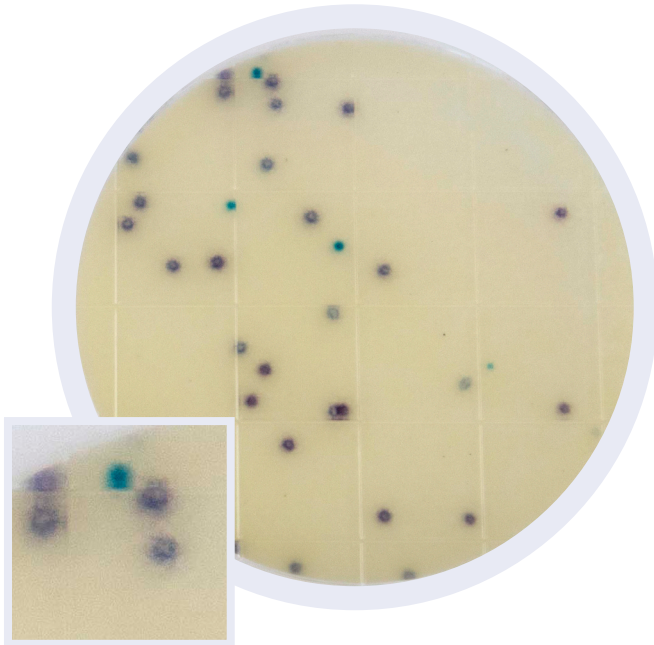
TNTC (Too Numerous to Count) at 24 hours



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.

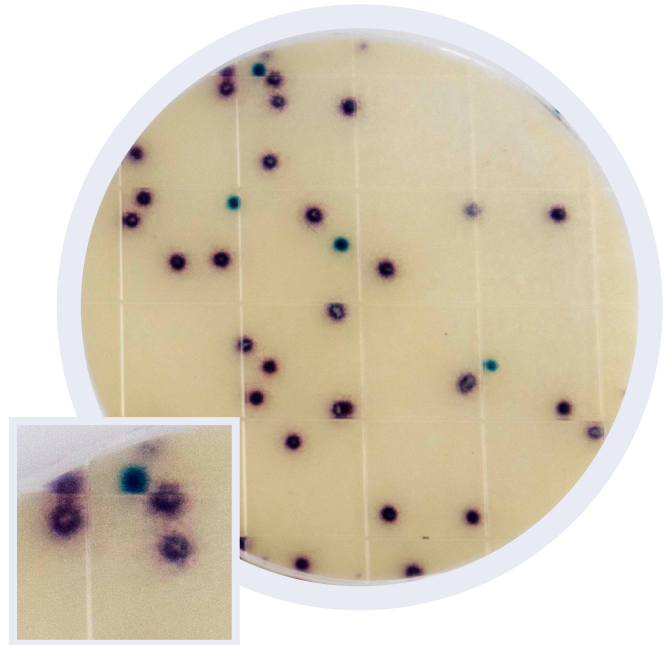


32 Colonies at 24 hours



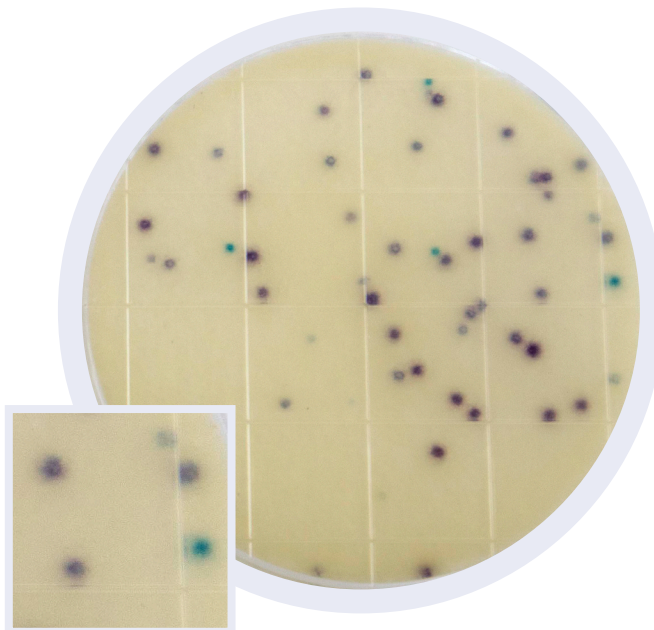
24 hour incubation: SA plate shows 28 purple colonies that are presumptive positive *Staphylococcus aureus*. There are 4 green-blue colonies that are not presumptive positive. Shown in the box are 4 purple colonies with white centers and 1 green-blue colony.

37 Colonies at 48 hours



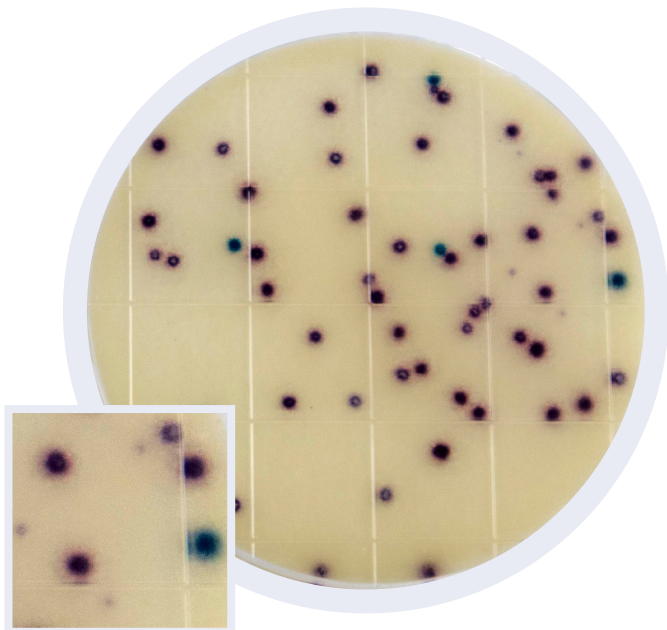
Same sample at 48 hr incubation: 28 purple colonies (all noted at 24 hour incubation) are confirmed as presumptive positive *Staphylococcus aureus*. 4 green-blue colonies are not reported as *S. aureus*. 5 pin point/shadowy purple colonies that were not visible at 24 hours are not reported as *S. aureus*. Shown in box are 4 purple confirmed presumptive positive *S. aureus*, 1 green-blue non-aureus, and 1 pin point/shadowy purple non-aureus on edge that was not present at 24 hour.

51 Colonies at 24 hours



24 hour incubation: SA plate shows 47 purple colonies that are presumptive positive *Staphylococcus aureus* and 4 green-blue colonies that are not *S. aureus*. Shown in box are 4 purple and 1 green-blue colony.

57 Colonies at 48 hours



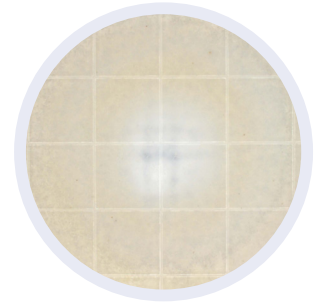
Same sample at 48 hr incubation: 49 purple colonies are confirmed presumptive positive *Staphylococcus aureus*, including the 47 presumptive positives noted at 24 hour incubation. 4 green-blue are not reported as *S. aureus*. 4 pin point purple colonies that were not present at 24 hours are not reported as *S. aureus*. Shown in box are 4 purple colonies, 1 green-blue colony and 3 pinpoint purple colonies.



General Troubleshooting

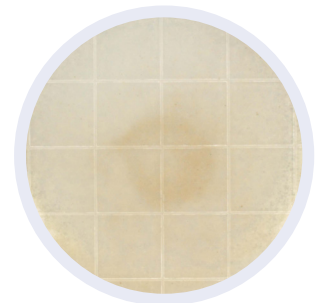
Craters or Incomplete Wicking

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 the 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

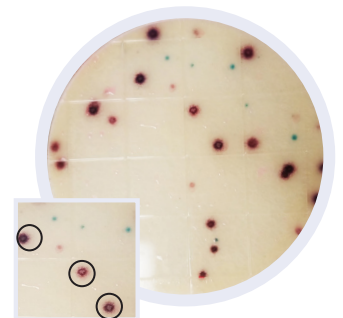
Some colloidal matrices, like chocolate milk or tomato paste, may contain particulates that filter and concentrate at the site of sample delivery to the plate. This is most frequently observed with dilution pipets that inadequately mix sample during dilution. While matrix pattern does not affect the bacterial growth of plates, it can cause some interpretation questions. Matrix patterning may be reduced by 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 *Staphylococcus aureus* will be larger than a pin point and turn purple in 48 hours on this test. At 48 hours, any other colored colony is not *Staph aureus*. Only count the large purple colonies. These may or may not contain a white center.

In the box image to the right, there are 3 purple presumptive positive *Staphylococcus aureus* colonies, 7 colonies total; at 48 hours, 3 purple colonies, 1 red pinpoint colony, and 3 green-blue colonies. Report only the 3 presumptive positive *Staphylococcus aureus*.



Blue Color Development Observed

If a strong blue color is observed throughout the plate after incubation or within a few hours of rehydration this is an indication of fermentative bacteria interference seen with cultured dairy products like yogurt and hard Italian cheeses. If this is observed the product should be tested on Peel Plate SA-CD test.

