Peel Plate® CC
COLIFORM COUNT

Plate® CC Coliform Test Peel Pl
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Interpretation Guide

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

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NOTHING WORKS LIKE A CHARM

Introduction

The Peel Plate® CC Microbial Tests diffuse the sample in media that contains selective agents and dyes designed for the determination of total coliform in dairy when incubated at 32 °C or when incubated at 35 °C with other food matrices. When incubated, coliform appear as red colonies.

Since coliform ferment lactose, they have the ability to break down the enzyme substrate salmon-gal through the production of ß-galactosidase, producing a red color.
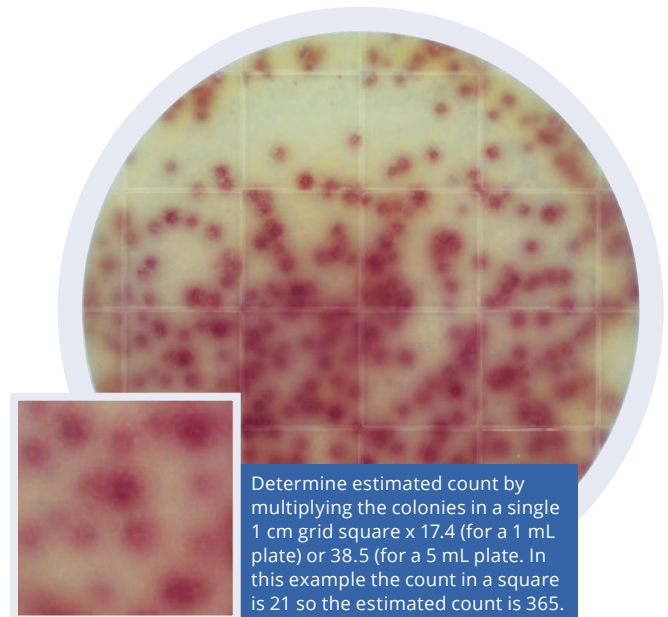
- **Sensitivity:** >1 CFU/mL of test sample
- **Accurate quantitative range:** 1 to 154 CFU/mL
- **Incubation**: 24 ± 2 hours at 35 ± 1 °C (32 ± 1 °C for dairy products)

What You Can Expect to See

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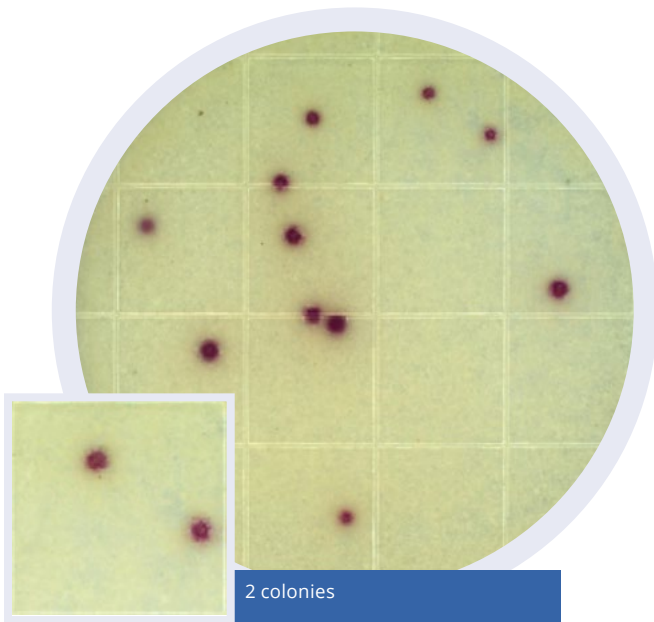

Determine estimated count by multiplying the colonies in a single 1 cm grid square x 17.4 (for a 1 mL plate) or 38.5 (for a 5 mL plate. In this example the count in a square is 21 so the estimated count is 365.
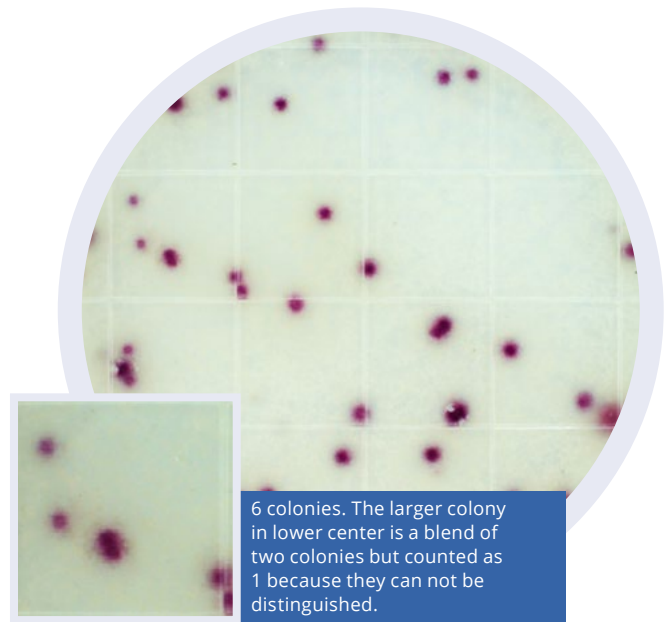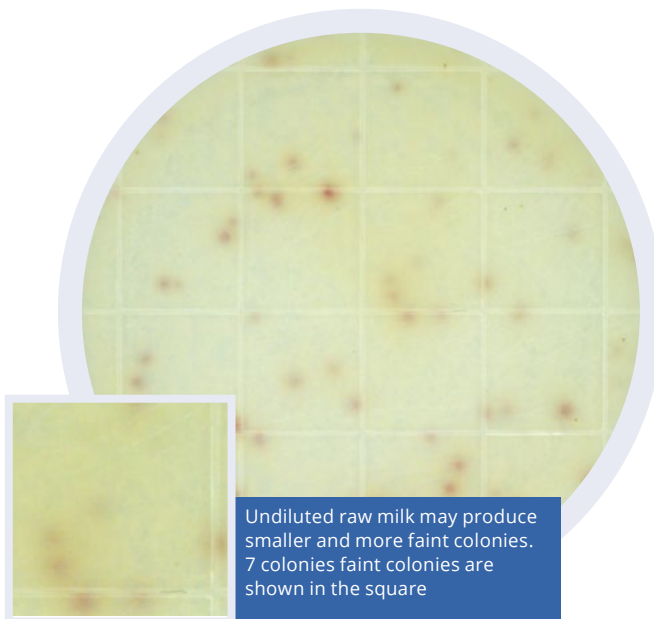
0 Colonies (No Growth)

TNTC (Too Numerous to Count)

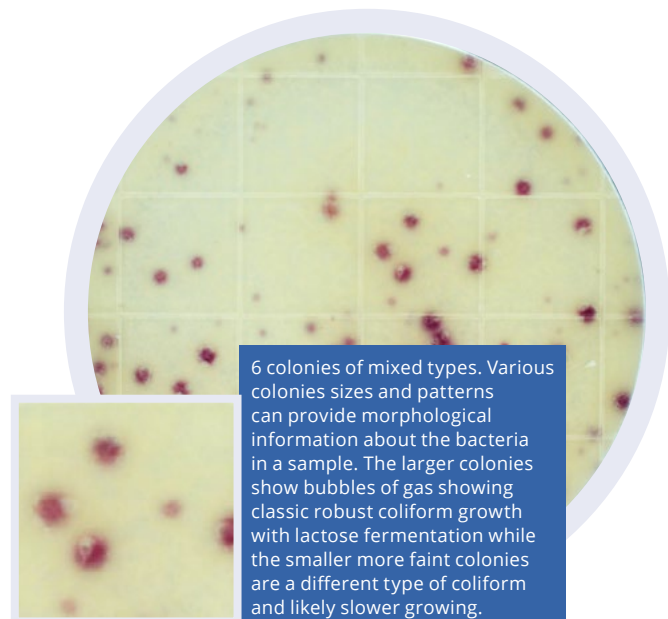**Plates can appear blurry as colonies run into each other. Additional dilution is required for an accurate count.**

2 colonies

11 Colonies (1:10 in Cream)

6 colonies. The larger colony in lower center is a blend of two colonies but counted as 1 because they can not be distinguished.

27 Colonies with 1 Pair of Blended Colonies (Raw Milk 1:100 Diluted)

Undiluted raw milk may produce smaller and more faint colonies. 7 colonies faint colonies are shown in the square

46 Colonies (Raw Milk Undiluted)

6 colonies of mixed types. Various colonies sizes and patterns can provide morphological information about the bacteria in a sample. The larger colonies show bubbles of gas showing classic robust coliform growth with lactose fermentation while the smaller more faint colonies are a different type of coliform and likely slower growing.

67 Colonies (Raw Milk Undiluted)

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 plate surface. Although incomplete wicking does not effect 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.
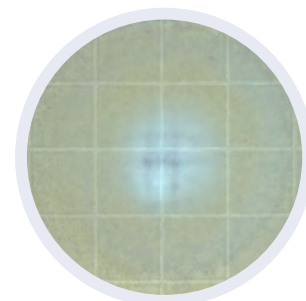
Bacterial Spreaders and Blended Colonies

Some types of samples, i.e. raw milk, can have many coliform that can spread though the plate especially on the edges. Try to count each dark spot, regardless of whether they are in contact with other colonies. This raw milk sample is not countable. Very high counts may create a completely pink/red color. The only way to accurately count a sample like this is to do an additional dilution to reduce the colonies into a countable range: 1 to 150 colonies per plate.
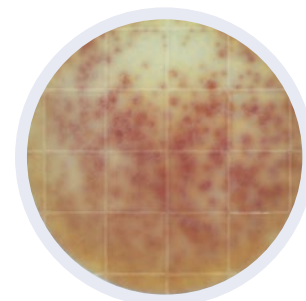
Matrix Pattern on Tests

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.
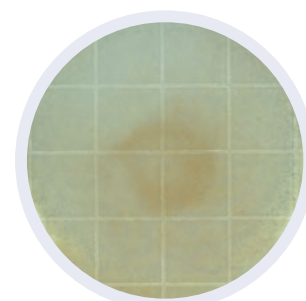
Background Color Interference

Cultured dairy products like yogurt, hard cheese, cottage cheese, and sour cream have cultures and enzymes that produce a red background. Use specially formulated Peel Plate CC Microbial Test for Cultured Dairy to reduce the red background.

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