

# Charm Sciences Peel Plate User Guide

*By Kelsey Barefoot, from The Barefoot Cow Farm*

## Materials Needed:

- **PeelPlate EC (E.coli and Coliform) discs:**  
<https://www.weberscientific.com/charm-peel-plate-microbial-test>



- **PeelPlate AC (Aerobic count):**  
<https://www.weberscientific.com/charm-peel-plate-microbial-test>



- **Pipettes:** <https://www.uline.com/Product/Detail/S-24318/Labware/Transfer-Pipette-3-mL>

**Transfer Pipette - 3 mL**



- **Bottles of sterile water:**  
<https://www.weberscientific.com/an-exclusive-weber-product-weber-db-sterilized-pre-filled-dilution-bottles>

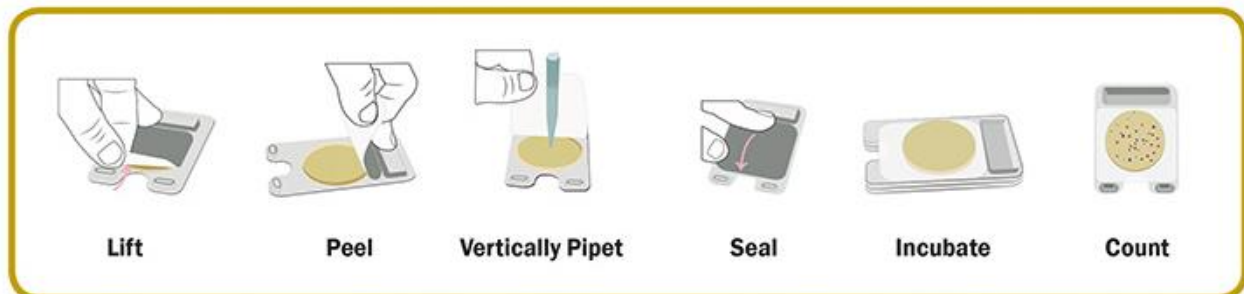


- **Sterile container for mixing sample** (if pouring from sterile water container) - Can boil glass container prior to testing to sterilize
- **Milk sample** (directly from teat, jar, or bulk tank)
- **Clean area** in which to work (kitchen-clean area where environment cannot influence test results) i.e. → Not in the milking barn 😊

## Information from Charm Sciences

- **Instructional Video:** <https://youtu.be/LNyyx08e2Ds>

## Simple Procedure



## Milk Testing Instructions:

### 1.) Turn incubator on to appropriate temperature:

- ✓ 32 degrees +/- 1 degree Celsius/90 degrees +/- 1 degree Fahrenheit

### 2.) Prepare a clean surface in a clean environment to test milk sample:

- ✓ Stainless steel surface that has been wiped with sanitizer works best.
- ✓ Have 2 new pipettes ready to use.
- ✓ Lay Peel Plates down with the peel paper facing up, to easily peel up during testing.
- ✓ Testing should be done in an area without wind (as the blowing particles from the environment could contaminate the results).

### 3.) Prepare milk sample for testing with proper dilution:

#### **SPC (Standard Plate Count): Aerobic Count 48H Peel Plate with a 1:10 Dilution**

**NOTE:** The 1:10 dilution generally works best for SPC testing of clean, well-produced milk. This allows the bacteria to be counted appropriately and to ensure a representative sample is achieved. Other dilutions, such as 1:100, can be used if the bacterial colonies are too numerous to count.

Diluting the sample too much (such as with a 1:100 dilution) may result in a misrepresentative test. Performing no dilution will likely result in the bacteria being too numerous to count easily.

- Put on clean disposable gloves.
- Prior to collecting the milk sample, gently shake or swirl milk to provide a representative sample.
- Draw 1mL of milk into clean pipette.
- Add 1mL milk to 9mL sterile water in a sterile container.
- Gently mix the sample solution by either using the clean pipette or putting on a lid and gently shaking the milk/water solution.
- Using your nondominant hand and [sterile technique](#), press back and lift the peel paper tab to expose the culture disk while holding the edges down to keep the test flat.
- Using your dominant hand, draw 1mL of the sample solution into the second, clean pipette.
- Vertically hold the pipette 1-2 cm from the surface of the peel plate, directly over the center of the culture disc.
- Take 2-3 seconds to completely squeeze the pipette sample onto the culture disc.
- Quickly cover plate with adhesive peel paper by securing the adhesive around the edges of the disc with your fingers
- (\*Optional) Use a Sharpie marker to label time and date of sample.
- Immediately place the sealed peel plate in the incubator. Close the incubator and leave the sample undisturbed for 48 hours.
- After 48 hours, take the peel plate out of incubator and read results (see below).

### **E. coli/Coliform: 24H Peel Plate**

**NOTE:** A “neat” sample with no dilution works best for coliform testing with clean, well-produced milk.

- i. Put on clean disposable gloves.
- ii. Prior to collecting the milk sample, gently shake or swirl milk to provide a representative sample.
- iii. Draw 1mL of milk into clean pipette
- iv. Using your nondominant hand and [sterile technique](#), press back and lift peel paper tab to expose culture disk while holding the edges down to keep the test flat.
- v. Using your dominant hand, draw 1mL of milk into the second, clean pipette.
- vi. Vertically hold the pipette 1-2 cm from the surface of the peel plate, directly over the center of the culture disc.
- vii. Take 2-3 seconds to completely squeeze the pipette sample onto culture disc.
- viii. Quickly cover plate with adhesive peel paper by securing the adhesive around the edges of the disc with your fingers.
- ix. (\*Optional) Use a Sharpie marker to label time and date of sample.
- x. Immediately place the sealed peel plate in the incubator. Close the incubator and leave the sample undisturbed for 24 hours.
- xi. After 24 hours, take the peel plate out of the incubator and read results (see below).

### **4.) Reading Results:**

- i. Count the spots on the plate. Each spot represents 1 cfu (colony forming unit).
- ii. For SPC tests, multiply the number of spots by the dilution to calculate CFU/mL.

Examples:

- 1:10 dilution SPC plate: Each spot counts for 10 cfu
- \*Example: 31 spots X 10 = SPC of 310 cfu/mL
  
- “Neat” sample (no dilution) for coliform testing: Each spot counts for 1 cfu/mL
- \*Example: 11 spots = coliform count of 11 cfu/mL
  
- 1:100 dilution SPC plate: Each spot counts for 100 cfu
- \*Example: 12 spots X 100 = SPC of 1200 cfu/mL

### **5.) Record results and turn off incubator until next use**