

Standard Plate Count of Milk

The bacterial count in milk is the most reliable indication we have of its sanitary quality. It is for this reason that the American Public Health Association recognizes the standard plate count as the official method in its *Milk Ordinance and Code*. Although human pathogens may not be present in a high count, it may indicate a diseased udder, unsanitary handling of milk, or unfavorable storage temperatures. In general, therefore, a high count means that there is a greater likelihood of disease transmission. On the other hand, it is necessary to avoid the wrong interpretation of low plate counts, since it is possible to have pathogens such as the brucellosis and tuberculosis organisms when counts are within acceptable numbers. Routine examination and testing of animals act as safeguards against the later situation.

In this exercise, standard plate counts will be made of two sample of milk: a supposedly good sample and one of known poor quality.

High Quality Milk

Materials:

- Milk sample
- 1 sterile water blank (99mL)
- 4 sterile Petri plates
- 1.0mL dilution pipettes
- 4 tubes of TGEA (20mL)
- Quebec colony counter
- Mechanical hand counter

1. Set up a dilution scheme using the above materials and with a final plating of four pour plates with dilutions of **1:1**, **1:10**, **1:100**, and **1:1000**. Before starting the dilution procedures, shake the milk sample 25 times in the customary manner.

2. Incubate the plates at 35°C for 24 hours then count the colonies on a plate that has between 30 and 300 colonies.

Poor Quality Milk

Materials:

- Milk Sample
- 3 sterile water blanks (99mL)
- 4 sterile Petri plates
- 1.0mL dilution pipettes
- 4 tubes of TGEA (20mL)
- Quebec colony counter
- Mechanical hand counter

1. Set up a dilution scheme using the above materials and with a final plating of four pour plates with dilutions of **1:1000**, **1:10,000**, **1:100,000**, and **1:1,000,000**. Before starting the dilution procedures, shake the milk sample 25 times in the customary manner.

2. Incubate the plates at 35°C for 24 hours then count the colonies on a plate that has between 30 and 300 colonies.