

Testing of Dairy Products

1 - Standard Plate Count

2 - Lab Pasteurized Count

3 - Coliform Plate Count



Standard Plate Count

(also called aerobic plate count - APC)

- Used to determine living bacteria – growing under specified conditions
- Pour plate method using specified growth food (agar)
- Dilute food if count expected to be high
- Aerobic incubation at 32°c for 48 hr



Quality Control

- **Sterility Checks**
 - pipettes
 - petri plates
 - diluents
 - Media
- **Toxicity Checks**
 - Diluents
- **Acidity/ pH Checks**
 - glassware
 - media

Quality Control

- **Temperature Checks**
 - samples
 - media
 - water baths
 - Incubators
- **Selectivity/Productivity Checks**
 - Media
- **Lab air quality**
- **Certified technicians to do “official” testing**

Standard Plate Count

(also called aerobic plate count - APC)

- **No direct correlation between count and possible presence of pathogens – at levels encountered with today's dairy foods**
- **Not used with cultured products**
- **Used to test both raw and pasteurized products**

Other Counting Methods

Screening methods

- **Plate loop**
- **Dry Rehydratable film (Petrifilm™)**
- **Electronic methods**

Laboratory Pasteurization Count (LPC)

- Simulates low temperature pasteurization
 - 62.8°C (145F) for 30 min
- Selects for thermoduric bacteria
- Pour plate method using standard method procedures
- May not recover heat-injured bacteria



Heat-Injured Bacteria

- **Not dead, but have repairable injuries**
- **May take hours to weeks for “recover” from injury**
 - **Protein disruption**
 - **Cell wall breaks**
 - **Genetic injury**
- **After repair, can grow and cause spoilage**

Laboratory Pasteurization Count (LPC)

- High LPC indicates long-time contaminated equipment

Coliform Testing

- **Incubated at 32°C (90 F) for 24 hr**
- **VRB agar - Coliforms**
 - **acid production (red colonies)**
 - **precipitation of bile salts**
 - **colonies ≥ 0.5 mm**



Alternative Methods

- **Dry Rehydratable Film (PetrifilmTM)**
- **Multiple Tube Fermentation (Most Probable Number)**

Standards (per gram or mL)

	APC	LPC	COLIFORM
Raw for Past.	>50,000	>750	>750
Milk and Flavored Milk	>15,000	N/A	>10
Most Cultured Products	N/A	N/A	>10
Cream:			
Light			
Lt Whipping	>20,000	N/A	>10
Heavy			
Ice Cream	>75,000	N/A	N/A