



Microbiological Grading and Legal Standards of Raw and Processed milk

- 1. Different national and international organizations has given various standards to achieve good quality dairy products. As raw milk is widely adopted, standard for Grade A raw milk is the SPC of $<1 \times 10^5$ /ml and this may be for raw milk intended for heat treatment before liquid consumption but for raw milk to be consumed directly a more stringent standard is required.**
- 2. The quality of milk is judged by certain standards and it is known as grading milk. Grading of milk is based upon regulations pertaining to production, processing and distribution. This includes sanitation, pasteurization, holding conditions and microbiological standards.**

Clump counts per ml	Bacteriological quality of milk
<5,00,000	Good
5,00,000 to 40,00,000	Fair
40,00,000 to 2,00,00,000	Poor
>2,00,00,000	Very Poor

Grading of milk based on DMC (BIS standards)

Standard plate count/ml	Grading of milk
<2,00,000	Very good
2,00,00-10,00,000	Good
10,00,000-50,00,000	Fair
>50,00,000	Poor

Grading of milk based on standard plate count test (BIS Standards)

MBR Time (hr)	Quality of raw milk
5 and above	Very good
3 and 4	Good
1 and 2	Fair
1/2 and below	Poor

Grading of milk based on MBRT as per BIS standard

Quality of milk	Reduction time	Approx. keeping quality/ml	Approx. bacterial count per ml
Good	5 ½ hour or more	40 hrs	Below 5,00,000
Fair	2 to 5 ½ hours	30 hrs	5,00,000 to 40,00,000
Bad	20 minutes to 2 hrs	10 hrs	40,00,000 to 2,00,00,000
Very bad	20 minutes or less	Less than 10 hrs	Above 2,00,00,000

Grading of milk in MBR test

Resazurin disc No	Quality of milk
4 or higher	Good
3½ to 1	Fair
½ and below	Poor

Grading of milk based on RRT as per BIS standard

Grading of Milk by Resazurin test

Disc no.	Colour	Bacterial quality of milk
6.	Blue	Excellent
5.	Lilac	Very good
4.	Mauve	Good
3.	Pink mauve	Fair
2.	Mauve pink	Poor
1.	Pink	Bad
0.	White	Very bad

Grading of milk based on thermoturiccouns

Thermoturics (cfu/ml)	Grade of milk
<10,000	Good
10,000 to 30,000	Fair
>30,000	Poor

Types	Count	Grade
Coliforms	Absent in 0.001 ml	Satisfactory
Leucocyte count	<5,00,000 per ml	Normal milk
	>5,00,000 per ml	Mastitic milk

Pasteurized milk

Types	Count/ml	Grade
SPC	<30,000	Satisfactory
Coliforms	Absent in 1:10 dilution	Satisfactory