

Milk Plate Count Agar (NCM0119)

Intended Use

Milk Plate Count Agar is used for the isolation and enumeration of microorganisms in milk and dairy products and is not intended for use in the diagnosis of disease or other conditions in humans.

Description

A medium recommended by the British Standards Institute and the International Organization for Standardization for the enumeration of viable bacteria in milk and other dairy products.

Typical Formulation

Tryptone	5.0 g/L
Yeast Extract	2.5 g/L
Dextrose	1.0 g/L
Antibiotic Free Skim Milk Powder	1.0 g/L
Agar	10.0 g/L

Final pH: 6.9 ± 0.2 at 25°C

Formula may be adjusted and/or supplemented as required to meet performance specifications.

Precaution

Refer to SDS

Preparation

1. Suspend 19.5 grams of the medium in one liter of purified water.
2. Heat with frequent agitation and boil for one minute to completely dissolve the medium.
3. Autoclave at 121°C for 15 minutes.
4. Cool to 45-50°C.

Test Procedure

Perform total counts using the pour plate method or spread plate procedure.

1. Prepare milk dilutions of 1:10, 1:100, 1:1000, in ¼ strength Ringer's solution. Use this inoculum within 15 minutes.
2. **Pour Plates:** Pipette 1 mL of each dilution into Petri dishes. Add 10 – 12 mL of Milk Plate Count Agar, cooled to 45-50°C. Mix thoroughly.
3. **Spread Plates:** Spread 1 mL of each milk dilution over the surface of each prepared and solidified Milk Plate Count Agar.
4. Incubate inoculated medium at 35 ± 2°C and examine for growth.

Quality Control Specifications

Dehydrated Appearance: Powder is homogeneous, free flowing, and beige.

Prepared Appearance: Prepared medium is slight opaque with no precipitate and pale yellow.

Expected Cultural Response: Cultural response on Milk Plate Count Agar was performed with raw milk dilutions. Raw milk dilutions were prepared and tested following the standardized test method as outlined in Milk Plate Agar for the Microbiological Examination of Dairy Products, incubated at 32 ± 1°C, and examined for growth at 48 hours. The medium was also inoculated with the organisms listed below. Cultures were incubated aerobically at 30 ± 1°C and examined for growth at 69-75 hours.

Technical Specification Sheet



Test Sample	Expected Result
Unpasteurized (raw) milk	t-value <2.70

Microorganism	Approx. Inoculum (CFU)	Expected Recovery
<i>Bacillus subtilis</i> ATCC® 6633	50-200	>70%
<i>Escherichia coli</i> ATCC® 25922	50-200	>70%
<i>Escherichia coli</i> ATCC® 8739	50-200	>70%
<i>Staphylococcus aureus</i> ATCC® 6538	50-200	>70%
<i>Staphylococcus epidermidis</i> ATCC® 14990	50-200	>70%
<i>Streptococcus pneumoniae</i> ATCC® 6305	50-200	>70%

The organisms listed are the minimum that should be used for quality control testing.

Results

Select plates containing 10 – 300 colonies. Results are expressed as colonies per mL of product tested. Proteolytic psychrotrophic colonies may be enhanced by flooding the plates with a solution of 1% hydrochloric acid or 10% acetic acid. Pour off the excess acid solution and count the colonies surrounded by clear zones.

Expiration

Refer to expiration date stamped on the container. The dehydrated medium should be discarded if not free flowing, or if appearance has changed from the original color. Expiry applies to medium in its intact container when stored as directed.

Limitations of the Procedure

Due to nutritional variation, some strains may be encountered that grow poorly or fail to grow on this medium.

Storage

Store dehydrated culture media at 2 – 30°C away from direct sunlight. Once opened and recapped, place the container in a low humidity environment at the same storage temperature. Protect from moisture and light by keeping container tightly closed.

References

1. British Standards Institute. (1984). BS 4285 Section 1.2. International Organisation for Standardisation Draft International Standard. (1982) ISO/DIS 6610. D.I.N. 10192.
2. International Dairy Federation. 1020 Brussels, Belgium.
3. Marshall, R. T. (ed.). 2004. Standard methods for the examination of dairy products, 17th ed. American Public Health Association, Washington.



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