

## SM Plate Count Agar, Granulated

GM1623

### Intended Use:

Recommended for determining the microbial count in milk and dairy products.

### Composition\*\*

Ingredients	g / L
Tryptone	5.000
Yeast extract	2.500
SM powder #	1.000
Dextrose (Glucose)	1.000
Agar	10.500
Final pH ( at 25°C)	7.0±0.2

\*\*Formula adjusted, standardized to suit performance parameters

# Equivalent to Skim milk powder

### Directions

Suspend 20.0 grams in 1000 ml purified/distilled water. Allow it to stand for about 15 minutes, place in a cold water bath and heat gently with frequent shaking to dissolve the medium completely. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. Cool to 45-50°C. Mix well and pour into sterile Petri plates.

### Principle And Interpretation

SM Plate Count Agar complies with the recommendation of the International Dairy Federation (1,2) and the DIN Norm 10192 (3) for the examination of milk and dairy products. The media is also recommended by ISO 4833-1:2013 and ISO 17410:2019 (4,5). Tryptone provides amino acids and other complex nitrogenous substances. Yeast extract supplies vitamin B complex. Addition of skim milk in the medium makes the conditions optimal for microorganisms which grow in milk. A wide range of microorganisms can be cultured and enumerated on this medium.

### Type of specimen

Dairy samples

### Specimen Collection and Handling:

For dairy samples, follow appropriate techniques for sample collection and processing as per guidelines (6,7). After use, contaminated materials must be sterilized by autoclaving before discarding.

### Warning and Precautions :

Read the label before opening the container. Wear protective gloves/protective clothing/eye protection/face protection. Follow good microbiological lab practices while handling specimens and culture. Standard precautions as per established guidelines should be followed while handling specimens. Safety guidelines may be referred in individual safety data sheets.

### Limitations :

1. Further biochemical and serological tests must be carried out for complete identification.
2. Individual organisms differ in their growth requirement and may show variable growth patterns on the medium.
3. Each lot of the medium has been tested for the organisms specified on the COA. It is recommended to users to validate the medium for any specific microorganism other than mentioned in the COA based on the user's unique requirement.

### Performance and Evaluation

Performance of the medium is expected when used as per the direction on the label within the expiry period when stored at recommended temperature.

### Quality Control

#### Appearance

Cream to yellow coloured granular medium

#### Gelling

Firm, comparable with 1.05% Agar gel.

#### Colour and Clarity of prepared medium

Light yellow coloured clear to slightly opalescent gel forms in Petri plates

### Reaction

Reaction of 2.0% w/v aqueous solution at 25°C. pH : 7.0±0.2

### pH

6.80-7.20

### Cultural Response

Cultural characteristics observed after an incubation at 35-37°C for 18-24 hours.

Organism	Inoculum (CFU)	Growth	Recovery
<i>Staphylococcus aureus</i> subsp. <i>aureus</i> ATCC 25923 (00034*)	50-100	luxuriant	≥70%
<i>Lactococcus lactis</i> spp. <i>lactis</i> ATCC 19435 (00016*)	50-100	luxuriant	≥70%
<i>Listeria monocytogenes</i> ATCC 19118	50-100	luxuriant	≥70%
<i>Bacillus cereus</i> ATCC 11778 (00001*)	50-100	luxuriant	≥70%
<i>Escherichia coli</i> ATCC 25922 (00013*)	50-100	luxuriant	≥70%
<i>Pseudomonas aeruginosa</i> ATCC 27853 (00025*)	50-100	luxuriant	≥70%
<i>Candida albicans</i> ATCC 10231 (00054*)	50-100	luxuriant	≥70%

Key : (\*)Corresponding WDCM numbers.

## Storage and Shelf Life

Store between 10-30°C in a tightly closed container and the prepared medium at 20-30°C. Use before expiry date on the label. On opening, product should be properly stored dry, after tightly capping the bottle in order to prevent lump formation due to the hygroscopic nature of the product. Improper storage of the product may lead to lump formation. Store in dry ventilated area protected from extremes of temperature and sources of ignition. Seal the container tightly after use. Product performance is best if used within stated expiry period.

## Disposal

User must ensure safe disposal by autoclaving and/or incineration of used or unusable preparations of this product. Follow established laboratory procedures in disposing of infectious materials and material that comes into contact with sample must be decontaminated and disposed of in accordance with current laboratory techniques (8,9).

## Reference

- DIN Deutsches Institut für Normung e.V.: Mikrobiologische Milchuntersuchung; Bestimmung der Keimzahl (Referenzverfahren) - DIN 10192.1
- Internationaler Milchwirtschaftsverband: Milch u. Milchprodukte, Zählung von Mikroorganismen (Koloniezählung bei 30°C) - Internationaler Standard 100 (1991).
- Internationaler Milchwirtschaftsverband: Flüssige Milch. Zählung von psychotrophen Mikroorganismen (Koloniezählung bei 6,5°C). - Internationaler Standard 101 (1991).
- ISO 4833-1:2013 Microbiology of the food chain — Horizontal method for the enumeration of microorganisms — Part 1: Colony count at 30°C by the pour plate technique.
- ISO 17410:2019 Microbiology of the food chain—Horizontal method for the enumeration of psychrotrophic microorganisms.
- American Public Health Association, Standard Methods for the Examination of Dairy Products, 1978, 14th Ed., Washington D.C.
- Wehr H. M. and Frank J. H., 2004, Standard Methods for the Microbiological Examination of Dairy Products, 17th Ed., APHA Inc., Washington, D.C.
- Isenberg, H.D. Clinical Microbiology Procedures Handbook 2nd Edition.
- Jorgensen, J.H., Pfaller, M.A., Carroll, K.C., Funke, G., Landry, M.L., Richter, S.S and Warnock., D.W. (2015) Manual of Clinical Microbiology, 11th Edition. Vol. 1.

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