



Ready Prepared Media

## Technical Information

### Modified Plate Count Agar Plate

**Product Code: PM 1163**

**Application:** Recommended for enumeration of bacteria in milk and milk products, rinse waters, icecreams etc.

### Composition\*\*

Ingredients	Gms / Litre
Proteose peptone	7.000
Peptone	5.000
Yeast extract	3.000
M-protein solids#	1.000
Agar	15.000
Final pH ( at 25°C)	7.2±0.2

\*\*Formula adjusted, standardized to suit performance parameters  
#- Equivalent to Milk solids

### Principle & Interpretation

The milk secreted in an uninfected cow's udder is sterile. Contamination of this milk can occur during milking, cooling and storage (1). Milk is an excellent medium for bacteria, yeast and moulds. Their rapid growth can cause marked deterioration, spoiling the milk for liquid consumption or manufacture into dairy products. Human infection can occur by consumption of such contaminated milk or milk products. Milk Agar is recommended for performing plate count tests on milk, rinse waters and dairy products. It is formulated as per the official medium described by Department of Health Memo (3). It is also recommended by EUROGLACE (EEC Ice Cream Industries) for the examination of ice cream (3). Peptone and yeast extract provide essential nutrients while M-Protein solids are a source of casein. Dextrose is the carbon and energy source. Proteolytic bacteria will be surrounded by a clear zone, due to the conversion of casein into soluble nitrogenous compounds (7).

For milk, dilutions of 1/10, 1/100 and 1/1000 are prepared with 1/4 strength Ringer solution. 1 ml of each dilution is pipetted aseptically into sterile Petri plates to which 10 ml of sterile and cooled Milk Agar is added and mixed well. Plates should be poured within 15 minutes of dilution preparation. After solidification of medium the plates are allowed to stand for 1 hour before transferring to the incubator. Incubate at 35°C for 2 or 3 days at 30°C. Higher counts may be obtained after an incubation at 22°C and 30°C temperature rather than at 35°C (5, 6, 7). Count the colonies within 4 hours after the incubation and read it as per ml of sample.

### Type of specimen

Milk and milk products, rinse waters, ice creams etc.

### Specimen Collection and Handling

For milk and dairy samples, follow appropriate techniques for sample collection and processing as per guidelines (2,8,9). After use, contaminated materials must be sterilized by autoclaving before discarding.

### Warning and Precautions

Read the label before opening the pack. 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.



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## Limitations

1. Individual organisms differ in their growth requirement and may show variable growth patterns on the medium
2. 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.
3. It is recommended to store the plates at 24-30°C to avoid minimum condensation.

## 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

## Methodology

Either streak, inoculate or surface spread the test inoculum (50-100 CFU) aseptically on the plate .

## Quality Control

### Appearance

Sterile Modified Plate Count Agar in 90 mm disposable plates

### Colour of medium

Light yellow coloured medium

### Quantity of medium

25 ml of medium in 90 mm disposable plates

### pH

7.00 - 7.40

### Sterility test

Passes release criteria

### Cultural Response

Cultural characteristics observed after an incubation at 35-37°C for 18-48 hours.

Organism	Inoculum (CFU)	Growth	Recovery
<i>Bacillus subtilis subsp.spizizenii</i> ATCC 6633 (00003*)	50-100	Good-Luxuriant	>=70%
<i>Pseudomonas aeruginosa</i> ATCC 27853 (00025*)	50-100	Good-Luxuriant	>=70%
<i>Lactobacillus casei</i> ATCC9595	50-100	Good-Luxuriant	>=70%
<i>Staphylococcus aureus subsp. aureus</i> ATCC 25923 (00034*)	50-100	Good-Luxuriant	>=70%
<i>Serratia marcescens</i> ATCC8100	50-100	Good-Luxuriant	>=70%

Key : (\*) Corresponding WDCM numbers.

## Storage and Shelf Life

On receipt store between 20-30°C. Use before expiry date on the label. Product performance is best if used within stated expiry period.



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## 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 clinical sample must be decontaminated and disposed of in accordance with current laboratory techniques (4,5).

## Further Reading

1. Collee J. G., Fraser A. G., Marimon B. P., Simmons A., (Eds.), Mackie and McCartney, Practical Medical Microbiology, 1996, 14th Edition, Churchill Livingstone.
2. Davis J. G., 1959, Milk Testing, 2nd Ed., Dairy Industries Ltd., London, Pg. 175.
3. Dept. of Health, 1987, Memo. 139/Foods.
4. Isenberg, H.D. Clinical Microbiology Procedures Handbook 2<sup>nd</sup> Edition.
5. 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.
6. Klose J., 1968, Susswaren, 14:778.
7. Methods of Microbiological Examination for Dairy Purposes, Diluents, Media and Apparatus and their Preparation and Sterilization, BS4285, Sec. 1.2.
8. Thomas S. B. and Jenkins E., 1940, Proc. Soc. Appl. Agric., 38:40.
9. Wilson G. S., 1935, Bacteriological Grading of Milk, HMSO, London.

## Disclaimer :

- User must ensure suitability of the product(s) in their application prior to use.
- The product conform solely to the technical information provided in this booklet and to the best of knowledge research and development work carried at **CDH** is true and accurate
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