70147 Milk Agar
NutriSelect® Plus

Milk Agar is recommended for the enumeration of microorganisms in milk, milk products, water, ice-cream, etc. by the plate count test.

Composition:

Ingredients	Grams/Litre
Yeast extract	3.0
Peptone	5.0
Milk solids (equivalent to 10ml fresh milk)	1.0
Agar	15.0

Final pH 7.2 +/- 0.2 at 25°C

Store dehydrated powder below 10-30°C in a tightly closed container and the prepared medium at 2-8°C. Protect from moisture and light by keeping container in a low humidity environment. Use before expiry date on the label.

Appearance(color): Faint yellow to yellow to Brown, free flowing powder
Gelling: Firm, comparable with 1.5% Agar gel
Color and Clarity: Light yellow coloured slightly opalescent gel forms in Petri plates

Directions:
Suspend 24 g in 1 litre of distilled water. Bring to the boil to dissolve completely. Sterilize by autoclaving at 121°C for 15 minutes.

Principle and Interpretation:

The milk secreted in an uninfected cow's udder is sterile. Contamination of raw milk may arise from either the soiled or diseased udder or inadequately cleaned milking or storage equipment. Bovine mastitis or udder inflammation may cause contamination with *Staphylococcus aureus*, *Streptococcus agalactiae*, *Escherichia coli* or, more rarely, *Yersinia enterocolitica* and *Leptospira* species (5). 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 (1). 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 skim milk powder is a source of casein. Dextrose is the carbon energy source. Agar is the solidifying agent. Proteolytic bacteria will be surrounded by a clear zone, due to the conversion of casein into soluble nitrogenous compounds (4).

For milk, dilutions of 1/10, 1/100 and 1/1000 are prepared with 1/4 strength Ringer solution. Pipette 1 ml of each dilution 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 (2, 3, 4). Count the colonies within 4 hours after the incubation and read it as per ml of sample.

Cultural characteristics observed after an incubation of18-48 hr at 35 - 37°C

Organisms (ATCC/WDCM)	Inoculum (CFU)	Growth	Recovery
Bacillus subtilis subsp. spizizenni (6633/ 00003)	50-100	++/+++	70%
*Lactobacilus casei (*9595/-)	50-100	++/+++	70%
Pseudomonas aeruginosa (27853/00025)	50-100	++/+++	70%
Serratia marcescens (8100/-)	50-100	++/+++	
Staphylococcus aureus subsp. aureus (25923/00034)	50-100	++/+++	70%

References:

1. Dept. of Health, 1987, Memo. 139/Foods
2. 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
3. Klose J., 1968, Susswaren, 14:778.
4. Methods of Microbiological Examination for Dairy Purposes, Diluents, Media and Apparatus and their Preparation and Sterilization, BS4285, Sec. 1.2.
5. Collee J. G., Fraser A. G., Marimon B. P., Simmons A., (Eds.), Mackie and McCartney, Practical Medical Microbiology, 1996, 14th Edition, Churchill Livingstone

Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.