54232 Lactose TTC Agar with Tergitol®-7 (M-Tergitol-7 Agar with Meat Extract)

Lactose TTC Agar with Tergitol®-7 is recommended as a selective and differential medium for the recovery of injured coliform organisms from chlorinated water by membrane filter technique. The medium is recommended from the ISO draft 9308-1 (2000) and the AFNOR norm NF 90-414 (1985) for detection and enumeration of *E. coli* and coliform in water by using the membrane filtration method.

Composition:

Ingredients	Grams/Litre
Peptone	10.0
Yeast extract	6.0
Meat extract	5.0
Lactose	20.0
Bromo thymol blue	0.05
Tergitol-7	0.1
Agar	12.7
Final pH 7.2 +/- 0.2 at 25°C	

Store prepared media below 8°C, protected from direct light. Store dehydrated powder, in a dry place, in tightly-sealed containers at 2-25°C.

Appearance: Faintly green coloured, homogeneous free flowing powder.
Colour and Clarity: Light green coloured, clear to slightly opalescent gel forms in petri plates.

Directions:
Suspend 53.85 g in 1000 ml distilled water. Heat to boiling to dissolve the medium completely. Sterilize by autoclaving at 121°C for 15 minutes. Cool to 45-50°C. Aseptically add 2.5 ml of 1% 2,3,5 Triphenyl Tetrazolium chloride (TTC) solution (Cat. No. 17779).

Principle and Interpretation:
McFeters, Cameron and LeChevallier modified Tergitol® 7 Agar by addition of more lactose and replaced the peptone with a proteose peptone. This improved the selectivity and the differential properties for the recovery of stressed coliforms from chlorinated water (1). They had reported that selective media such as M-Endo Agars used to isolate gram-negative bacteria recovered only 30% or less as compared to recovery between 71 - 100% of injured coliforms on Tergitol-7 Agar (2). In their study of surface and drinking water samples, including samples containing laboratory-stressed coliforms, M-Tergitol-7 Agar Base recovered 43% more coliforms than on M-Endo Agar and 36% more coliforms than by using M-Endo Agar with a resuscitation technique (1).
In another study of 102 drinking water samples 8 to 38 fold more yield of coliforms has been reported on M-Tergitol-7 Agars as compared to M-Endo Agar LES (3).
Peptone and Meat extract provide necessary nitrogenous growth factors. Yeast extract is the source of B-vitamins and organic nitrogen and carbon compounds. Lactose is the fermentable carbohydrate. Microorganisms fermenting lactose produces yellow colonies due to acid production and the color change of the pH indicator bromothymol blue. Sodium heptadecyl sulphate (Tergitol-7) acts as surface-active agent which inhibit growth of most gram-positive bacteria as well as swarming of Proteus (1,4). TTC is a sensitive dehydrogenase indicator (5) the reduction of TTC to insoluble formazan by lactose-negative bacteria produces dark red colonies. Lactose-positive *E. coli* and coliform bacteria reduce TTC weakly, hence their colonies are yellow-orange.

Cultural characteristics after 18-24hours at 35-37°C.

Organisms (ATCC)	Growth	Colour of Colony*
Enterobacter aerogenes (13048)	+++	dark red
Escherichia coIi (25922)	+++	light orange-yellow
S. serotype Typhimurium (14028)	+++	dark red
Shigella flexneri (12022)	+++	dark red
Enterococcus faecalis (29212)	-	-
Staphylococcus aureus (25923)	-	-

* on membrane filters

References:

1. G.A. McFeters, M.W. LeChevallier, S.C. Cameron, New medium for improved recovery of coliform bacteria from drinking water, Appl. Environ. Microbiol., 45, 484 (1983)
2. G.A. McFeters, S.C. Cameron, M.W. LeChevallier, Influence of diluents, media, and membrane filters on detection for injured waterborne coliform bacteria, Appl. Environ. Microbiol., 43, 97 (1982)
3. G.A. McFeters, J.S. Kippin, M.W. LeChevallier, Injured coliforms in drinking water, Appl. Environ. Microbiol., 51, 1 (1986)
4. A.L. Pollard, A Useful Selective Bactericidal Property of Tergitol-7, Science, 103, 758 (1946)
5. W. Kulp, C. Mascoli, O. Tavshanjian, Use of Tergitol-7 Triphenyl Tetrazolium Chloride Agar as the Coliform Confirmatory Medium in Routine Sanitary Water Analysis, Am. J. Publ. Hlth., 43, 1111-1113 (1953)
6. ISO 9308-1, Water quality- Detection and enumeration of E. coli and coliform bacteria. Part 1: membrane filtration method (2000)
7. Norme AFNOR NFT 90-414. Essais des eaux. Recherche et dénombrement des coliformes et coliformes thermotolérants. Méthode générale par filtration sur membrane (1985)

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.