17162 m-Endo Broth NutriSelect® Plus

For estimation of coliforms in water samples using membrane filter technique.

Composition:

Ingredients	Grams/Litre
Peptic digest of animal tissue	20.0
Yeast extract	6.0
Lactose	25.0
Dipotassium phosphate	7.0
Basic fuchsin	1.0
Sodium sulfite	2.5

Final pH 7.5 +/- 0.2 at 25°C

Store dehydrated powder between 10- 30°C in a tightly closed container and the prepared medium at 15-25°C. Protect from moisture and light by keeping container in a low humidity environment. Use before expiry date on the label.

Appearance(color): Faint Purple to Light purple & Pink, free flowing powder
Color and Clarity: Pinkish orange coloured opalescent solution in tubes

Directions:
Suspend 61.5 g in 1 litre distilled water. Heat to dissolve the medium completely. Sterilize by autoclaving at 121°C for 5 minutes. The medium should be used on the same day of its rehydration. Caution: Basic fuchsin is a potential carcinogen and care should be taken to avoid inhalation of the powdered dye and contamination of the skin.

Principle and Interpretation:
It is possible to remove bacteria from fluids by passing them through filters with such small pore size that bacteria are retained. This filtration technique enables quite large volumes of water to pass rapidly under pressure but prevents the passage of any bacteria present. These nutrients are retained on the surface of the membrane which is then brought into contact with suitable liquid nutrients. These diffuse upwards through the pores thereby inducing the organisms to grow as surface colonies which can be counted (1).
This medium is prepared according to the formula of Fifield and Schaufus (2) and used for the detection of coliforms in water. It is recommended by the American Public Health Association (APHA) in total coliform membrane filtration procedure for testing water, wastewater, and foods (3,4) The US Environmental Protection Agency (EPA) specifies using m-Endo broth in the total coliform methods for testing drinking water, surface water, and saline water(5,6) The total coliform test is the primary indicator of bacteriological quality for potable water, distribution system water, and public water supplies because it is a larger measure of pollution than the fecal coliform test(5,6)
Peptone and yeast extract provide essential nutrients especially nitrogenous and carbonaceous compounds, long chain amino acids and other essential nutrients for the coliforms. Lactose is the fermentable carbohydrate. Sodium sulphite and basic fuchsin inhibit the growth of gram-positive organisms. Dipotassium phosphate buffers the medium. Coliforms ferment lactose and the resulting acetaldehyde reacts with sodium sulphite and basic fuchsin to form red colonies and similar coloration of the medium. Lactose non-fermenting bacteria form clear, colorless colonies.

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

Organisms (ATCC/WDCM)	Inoculum (CFU)	Growth	Color of the colony (on membrane filter)
Escherichia coli (25922/ 00013)	50-100	++/+++	pink with metallic sheen
*Klebsiella aerogenes (*13048/00175)	50-100	++/+++	pink to red (may have sheen)
Staphylococcus aureus subsp. aureus (25923/00034)	>=10^4	-	
Salmonella Typhi (6539/-)	50-100	+++	colorless to very light pink
Klebsiella pneumoniae (13883/00097)	50-100	++/+++	pink to red
Salmonella Typhimurium (14028/ 00031)	50-100	+++	colorless to very light pink

References:

1. Cruickshank R., Duguid J. P., Marmion B. P., Swain R. H. A., (Eds.), Medical Microbiology, 1975, 12th Ed. Vol. II, Churchill Livingstone.
2. Fifield, C. W., and C. P. Schaufus. 1958. J. Am. Water Works Assoc. 50:193-196.
3. Eaton, A. D., L. S. Clesceri, and A. E. Greenberg (eds.). 1998. Standard methods for the examination of water and wastewater, 20th ed. American Public Health Association, Washington, D.C.
4. Bordner, R., and J. Winter (eds.). 1978. Microbiological methods for monitoring the environment, water, wastes. EPA-600/8-78-017 Environmental Monitoring and Support Laboratory, Office of Research and Development, U. S. Environmental Protection Agency, Cincinnati, OH.
5. U. S. Environmental Protection Agency. 2007. R9 Laboratory SOP1101. Membrane filtration coliform analysis.
6. U. S. Environmental Protection Agency. 1992. Manual for the certification of laboratories analyzing drinking water. EPA

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.