TM 1245 - MINERAL MODIFIED GLUTAMATE MEDIUM BASE (DOUBLE STRENGTH) (DOUBLE PACK)

INTENDED USE

For the enumeration of coliform bacteria in water and wastewater.

PRODUCT SUMMARY AND EXPLANATION

MacConkey Broth was originally used for enumeration of coliform bacteria in water. However, Folpmers described a glutamic acid based chemically defined medium for the same. This glutamate-containing medium was later modified by Gray, by the addition of lactose, which gave less false positive results when compared to MacConkey Broth. To improve gas production in the medium, it was supplemented with ammonium chloride. Mineral Modified Glutamate Medium is used for the enumeration of coliform bacteria in water. This medium gave better results than MacConkey Broth (with less false positives) while testing water samples, both chlorinated and unchlorinated. Mineral Modified Glutamate Medium is superior to other media, in testing for coliforms and *Escherichia coli* because it initiates faster growth. This medium is recommended by APHA and is also used to enrich coliform organisms present in cheese and meat. If the test water sample is supposedly of good quality, inoculate 50 ml water sample in 50 ml of medium. Also inoculate 5 tubes of 10 ml Mineral Modified Glutamate Medium Base, each with 10 ml water sample. If water sample is more polluted, inoculate 5 tubes of 5 ml of single strength medium each with 1 ml of a 1: 10 dilution of the sample. Incubate the tubes at35-37°C for 18-24 hours. Tubes showing yellow colouration, due to acid production and gas formation, (bubbles trapped in Durhams tubes) are presumptively positive. These should be further confirmed by inoculating into Brilliant Green Bile Broth 2% and by performing biochemical tests.

COMPOSITION

Ingredients	Gms / Ltr
Part I	
Lactose	20.000
Dipotassium phosphate	1.800
Sodium formate	0.500
L-Cystine	0.040
L-Aspartic acid	0.048
L-Arginine	0.040
Thiamine	0.002
Nicotinic acid	0.002
Pantothenic acid	0.002
Magnesium sulphate	0.200
Ferric ammonium citrate	0.020
Calcium chloride	0.020
Bromocresol purple	0.020
Part II	
Sodium glutamate	12.700

PRINCIPLE

This medium contains a variety of nutrients including salts, amino acids and vitamins. Lactose is the fermentable carbohydrate and bromo cresol purple is the pH indicator. Because of the nutrients, this medium is superior for enumerating coliforms in water and wastewater as it satisfies most of the nutritional requirements of coliforms.

INSTRUCTION FOR USE

- Dissolve 22.69 grams of Part I and 12.7 grams of Part II in 1000ml distilled water containing 5 grams of ammonium chloride.
- Heat if necessary to dissolve the medium completely.
- Dispense in tubes containing inverted Durhams tubes.
- Sterilize by autoclaving at 115°C for 10 minutes.
- For single strength medium use 11.35 grams of Part A and 6.35 grams of Part B in 1000 ml distilled water containing 2.5 grams' ammonium chloride.

QUALITY CONTROL SPECIFICATIONS

Appearance of Powder : Part I: Light yellow to green homogeneous free flowing powder
Part II: White to cream homogeneous free flowing powder.

Appearance of prepared medium : Purple coloured clear solution without any precipitate.

pH (at 25°C) : 6.7±0.2

INTERPRETATION

Cultural characteristics observed after an incubation.

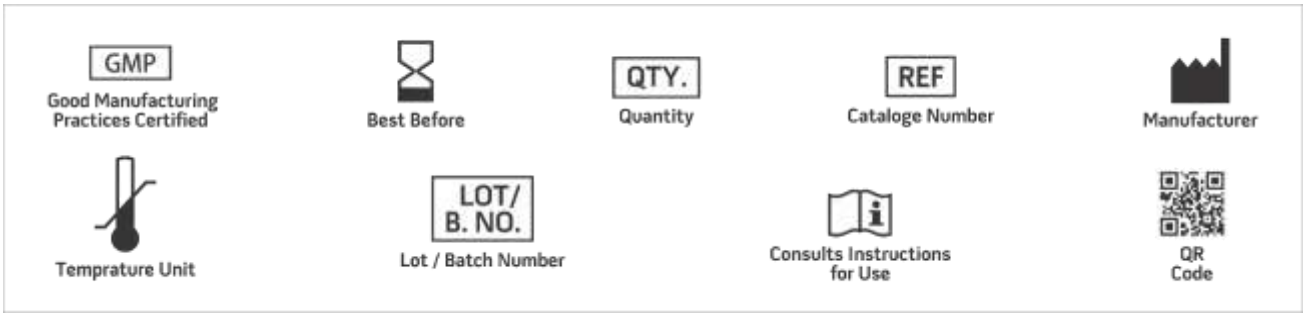
Microorganism	ATCC	Inoculum (CFU/ml)	Growth	Acid	Gas	Incubation Temperature	Incubation Period
Enterobacter aerogenes	13048	50-100	Luxuriant	Positive reaction	Negative reaction	35-37°C	18-48 Hours
Enterococcus faecalis	29212	>=10^3	Inhibited	-	-	35-37°C	18-48 Hours
Escherichia coli	25922	50-100	Luxuriant	Positive reaction	Positive reaction	35-37°C	18-48 Hours
Salmonella Typhi	6539	50-100	Luxuriant	Negative reaction	Negative reaction	35-37°C	18-48 Hours
Shigella flexneri	12022	50-100	Luxuriant	Negative reaction	Negative reaction	35-37°C	18-48 Hours
Staphylococcus aureus	25923	>=10^3	Inhibited	-	-	35-37°C	18-48 Hours

PACKAGING:
In pack size of 500 gm bottles.

STORAGE
Dehydrated powder, hygroscopic in nature, store in a dry place, in tightly-sealed containers between 25-30°C and protect from direct sunlight. Under optimal conditions, the medium has a shelf life of 4 years. When the container is opened for the first time, note the time and date on the label space provided on the container. After the desired amount of medium has been taken out replace the cap tightly to protect from hydration.
Product Deterioration: Do not use if they show evidence of microbial contamination, discoloration, drying or any other signs of deterioration.

DISPOSAL
After use, prepared plates, specimen/sample containers and other contaminated materials must be sterilized before discarding.

REFERENCES
1. Folpmers T., 1948, J. Microbiol. Serol., 14.58-64
2. 2. Gray R. D., 1959, J. Hyg. Camb. 57:249.
3. Gray R. D., 1964, J. Hyg. Camb., 62:495.
4. P. H. L. S. Standing Committee on the Bacteriological Examination of Water Supplies, 1968, J. Hyg. Camb. 65:67.
5. Abbiss J. S., Wilson J. M., Blood R. M. and Jarvis B., 1981, J. Appl. Bacteriol., 51:121.
6. Department of Environment, Health and Social Security and P. H. L. S., 1982, The Bacteriological Examination of Water Supplies, Report on Public Health and Medical Subjects No. 71, H.M.S.O., London, England
7. Downes F. P. and Ito K., (Ed.), 2001, Compendium of Methods for the Microbiological Examination of Foods, 4th Ed. American Public Health Association, Washington, D.C.



NOTE: Please consult the Material Safety Data Sheet for information regarding hazards and safe handling Practices.
***For Lab Use Only**
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