

MMGM (Minerals Modified Glutamate Medium) Broth



Medium used for the cultivation and enumeration of coliform organisms in water.

*Equally use with MFDS (MB-M0791K).

• CONTENTS (Liter)

Lactose	10.0 g
L(+) Glutamic Acid	6.35 g
L(+) Arginine Monohydrochloride	0.02 g
L(-) Aspartic Acid	0.024 g
L-Cystine	0.02 g
Sodium Formate	0.25 g
Dipotassium Hydrogen Phosphate	0.9 g
Ammonium Chloride	2.5 g
Magnesium Sulfate Heptahydrate	0.1 g
Calcium Chloride Dihydrate	0.01 g
Ferric Citrate Scales	0.01 g
Nicotinic Acid	0.001 g
Thiamine (Aneurin Hydrochloride)	0.001 g
Pantothenic Acid	0.001 g
Bromocresol Purple	0.01 g
Final pH = 6.7 ± 0.2 at 25°C	

• PROCEDURE

Suspend 20.2 G of powder in 1 L of distilled or deionized water. Heat to boiling until completely dissolved. Sterilize by autoclave at 115°C for 10 minutes. Cool to 45 - 50°C in water bath. Pour into tubes with Durham tubes.

• INTERPRETATION

MMGM (Minerals Modified Glutamate Medium) Broth is a medium used for the cultivation and enumeration of coliform organisms in water. Lactose is the fermentable carbohydrate. L(+) Glutamic acid and sodium formate are the basis of a minimal medium for the enumeration of coliform organisms. L(+) Arginine monohydrochloride, L(-) aspartic acid, L-cystine, magnesium sulfate heptahydrate, nicotinic acid, thiamine (Aneurin hydrochloride) and pantothenic acid allow an increased rate of fermentation, Dipotassium hydrogen phosphate is the buffering agent. Ammonium chloride allows increased gas production by coliform organisms. Calcium chloride dihydrate and ferric citrate scales are inorganic salts essential for the growth of coliform organisms. Bromocresol purple is the pH indicator.

• TECHNIC

Inoculate the specimen using a sterile needle to the medium. Incubate at 37 ± 1°C for 24 ± 2 hours. Refer appropriate references for recommended test procedure.

• QUALITY CONTROL FOR USE

Dehydrated medium

Appearance: free-flowing, homogeneous

Color: beigish green

Prepared medium

Appearance: clear

Color: purple

Incubation conditions: $37 \pm 1^\circ\text{C}$ / 24 ± 2 hours

Microorganism	ATCC	Inoculum CFU	Growth	Acid	Gas
<i>Enterobacter aerogenes</i>	13048	10^2 - 10^3	good	+ (yellow)	+
<i>Escherichia coli</i>	25922	50-100	good	+ (yellow)	+
<i>Salmonella typhimurium</i>	14028	50-100	good	-	-
<i>Enterococcus faecalis</i>	29212	10^3	inhibited	-	-

• STORE

The powder is very hygroscopic. Store the powder at room temperature, in a dry environment, in its original container tightly closed and use it before the expiry date on the label. Store prepared medium at $2 - 8^\circ\text{C}$.

• REFERENCES

1. Gray. 1959. J. Hyg., Camb. 57:249.
2. Gray. 1964. J. Hyg., Camb. 62:495.
3. P. H. L. S. Standing Committee on the Bacteriological Examination of Water Supplies. 1968. J. Hyg., Camb. 65:67.
4. Joint Committee of the P. H. L. S. and the Standing Committee of Analysts. 1980. J. Hyg., Camb. 85:35.
5. Abbiss, Wilson, Blood and Jarvis. 1981. J. Appl. Bact. 51:121.
6. Holbrook, Anderson and Baird-Parker. 1980. Food Technol. Aust. 32:78.
7. Departments of the Environment, Health & Social Security, and P.H.L.S. 1982. The bacteriological examination of drinking water supplies. Report on Public Health and Medical Subjects No. 71., H.M.S.O., London, England.
8. Refer to the MFDS.

• PACKAGE

Cat. No : MB-M0791 MMGM (Minerals Modified Glutamate Medium) Broth	500 G
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