

MINERALS MODIFIED GLUTAMATE BROTH (MMGB) ISO 16649-3

CAT N°: 1365

For the enumeration of coliforms in water

FORMULA IN g/l

Lactose	10.00	L-Cystine	0.02
Sodium Glutamate	6.35	Ferric Ammonium Citrate	0.01
Dipotassium Phosphate	0.90	Calcium Chloride Dehydrate	0.01
Sodium Formate	0.25	Bromocresol Purple	0.01
Heptahydrate Magnesium Sulfate	0.10	Thiamine	0.001
L(-) Aspartic Acid	0.024	Panthenic Acid	0.001
L(+) Arginine	0.02	Nicotinic Acid	0.001

Final pH 6.7 ± 0.1 at 25°C

PREPARATION

Suspend 17.7 grams of the medium in one liter of distilled water. Add 2.5 grams of Ammonium Chloride. Mix well and dissolve by heating with frequent agitation. Boil for one minute until complete dissolution. Dispense into appropriate containers and sterilize in autoclave at 116°C for 10 minutes. The prepared medium should be stored at 2-8°C. The color is clear purple.

The dehydrated medium should be homogeneous, free-flowing and beige in color. If there are any physical changes, discard the medium.

USES

MINERALS MODIFIED GLUTAMATE BROTH Base (MMGB) is recommended by ISO 16649-3 for enumeration of *E.coli* using the most probable number Method (MPN). MMGB Broth is also an alternative broth used for the presumptive identification of coliforms in water.

ISO 16649-3 recommends to inoculate three tubes of a single strength and three tubes of a double strength medium. The tubes of double- and single-strength medium are inoculated at 37 °C for 24 h. The tubes are examined for acid production, indicating lactose fermentation. Each tube of selective enrichment medium showing acid production is subcultured to TBX Chromogenic Agar (Cat. 1151).

In comparison to other media, this broth is better as it gives fewer false positive results. Sodium Glutamate and Sodium formate are the basis of the medium for the enumeration of coliform organisms in water. Lactose is the source of carbohydrates. The addition of vitamins, aminoacids and heptahidrate magnesium sulfate increase fermentation, whereas the addition of ferric ammonium citrate permits increase of gas production. The Bromocresol Purple is a pH indicator.

Incubate at 35°C ± 2°C and observe after 18-48 hours.

MICROBIOLOGICAL TEST

The following results were obtained in the performance of the medium (having added 2.5 grams of ammonium chloride per liter) from type cultures after incubation at a temperature of 35 ± 2°C and observed after 18-48 hours.

Microorganisms	Growth	Gas and Acid Production (yellow)
<i>Enterobacter aerogenes</i> ATCC 13048	Good	+
<i>Enterococcus faecalis</i> ATCC 19433	Inhibited	-
* <i>Escherichia coli</i> ATCC 25922	Good	+
* <i>Escherichia coli</i> ATCC 8739	Good	+
<i>Salmonella typhimurium</i> ATCC 14028	Good	-

* Incubate at 37°C for 24 ± 2 hours According to ISO 16649

BIBLIOGRAPHY

ISO 16649-3 Microbiology of food and animal feeding stuffs-Horizontal method for the enumeration of β -glucuronidase-positive *Escherichia coli*- Part 3: Most probable number technique using 5-bromo-4-chloro-3-indolyl- β -D-glucuronide.

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.



STORAGE

Once opened keep powdered medium closed to avoid hydration.

