17171 Mineral modified Glutamate Broth (Base)

For the enumeration of coliform bacteria in water and waste water samples.

Composition (double strength):

Ingredients		Grams/Litre
Part A:	Lactose	20.0
(Cat. No.28226; 321g)	Dipotassium phosphate	1.8
	Sodium formate	0.5
	L-Cystine	0.04
	L-Aspartic	0.048
	L-Arginine	0.04
	Thiamine	0.002
	Nicotinic acid	0.002
	Pantothenic	0.002
	Magnesium sulfate	0.2
	Ferric ammonium citrate	0.02
	Calcium chloride	0.02
	Bromocresol Purple	0.02
Part B:	Sodium glutamate	12.7
(Cat. No. 28227; 179g)		

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.

Directions :
Suspend 22.7 g of Part A and 12.7 g of Part B in 1 litre distilled water containing 5 g of ammonium chloride. Heat if necessary to dissolve the medium completely. Dispense in tubes containing inverted Durham's tubes. Sterilize by autoclaving at 115°C for 10 minutes. For single strength medium use 11.35 g of Part A and 6.35 g of Part B in 1 litre distilled water containing 2.5 g of ammonium chloride.

Principle and Interpretation:
Folpmers first described a chemically defined medium based on glutamic acid for enumerating coliforms in water (1). However in the early days following its discovery, it was seen that the medium containing glucose gave many false positive results in 48 hours (2). It was then modified by Gray who incorporated formate and lactose in the medium which gave improved performance (3). The major feature of this medium is its superiority in initiating growth of *Escherichia coli* after exposure to chlorine. It is better than Lauryl Tryptose Lactose Broth for the detection of small numbers of *Escherichia coli*.
This medium contains sodium glutamate and formate as base nutrients. Lactose is the fermentable carbohydrate and the amino acids, vitamins and magnesium ions allows an increased rate of fermentation. Bromocresol purple is the pH indicator. Phosphate control the pH during the fermentation of Lactose. The addition of ammonium chloride results in increased gas production. Presumptive positive tubes must be subcultured into Lauryl Tryptose Mannitol Broth and Brilliant Green Bile Broth (Cat. No. 16025) and incubated at 44°C to detect indole formation at this temperature before identifying *Escherichia coli*

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

Organisms (ATCC)	Growth	Acid production	Gas production
Escherichia coli (25922)	+++	+	+
Enterobacter aerogenes (13048)	+++	+	-
Salmonella typhi (6539)	+++	-	-
Shigella flexneri (12022)	+++	-	-
Staphylococcus aureus (25923)	-	-	-
Enterococcus faecalis (29212)	-	-	-

References:

1. T. Folpmers, Ant. V. Leeuwenhoek, J. Microbiol. Serol., 14, 58 (1948)
2. Public Health Laboratory Service, Water Committee, J. Hyg. Camb., 56, 377(1958)
3. R.D. Gray, J. Hyg. Camb., 57, 249 (1959)
4. ISO 16649-3:2015, Microbiology of the food chain — Horizontal method for the enumeration of beta-glucuronidase-positive Escherichia coli — Part 3: Detection and most probable number technique using 5-bromo-4-chloro-3-indolyl-ß-D-glucuronide

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.