Sodium Glutamate (NCM0181)

Intended Use
Sodium Glutamate is used in the preparation of Minerals Modified Glutamate Agar (NCM0179) and Minerals Modified Glutamate Broth (NCM0186). Sodium Glutamate is not intended for use in the diagnosis of disease or other conditions in humans.

Description
Sodium Glutamate can be used in the preparation of two key media.

Minerals Modified Glutamate Agar is a highly defined medium recommended in ISO 16649-1:2018, containing various amino acids, vitamins and salts formulated to promote the recovery of stressed or damaged organisms. According to ISO 16649-1 organisms are inoculated onto a cellulose membrane overlaid on MMGA for a resuscitation stage, followed by transfer of the membrane onto Tryptone Bile Glucuronide Agar (TBX) for isolation and counting.

Minerals Modified Glutamate Broth was developed for use with the Most Probable Numbers Technique (M.P.N.) for the enumeration of coliforms in water supplies. The medium is an improved version of the chemically defined glutamic acid medium described by Gray in 1964. The product is supplied in three parts because it has been shown that separating the sodium glutamate from the base improves its stability.

Typical Formulation

Sodium Glutamate	100%

Final pH as part of Minerals Modified Glutamate Agar: 6.7 ± 0.2 at 25°C
Final pH as part of Minerals Modified Glutamate Broth: 6.7 ± 0.2 at 25°C

Formula may be adjusted and/or supplemented as required to meet performance specifications.

Precaution
1. Refer to SDS

Preparation in Minerals Modified Glutamate Agar:
1. Suspend 23.5 grams of base medium together with 6.35 grams of sodium glutamate (NCM0181) in one liter of purified water containing 2.5 grams of ammonium chloride (NCM0178).
2. Heat with frequent agitation and boil for one minute to completely dissolve the medium.
3. Autoclave at 121°C for 15 minutes.
4. Cool to 45-50°C.

Preparation in Minerals Modified Glutamate Broth:
Double strength:
1. Dissolve 22.7 grams of base medium (NCM0186) together with 12.7 grams of sodium glutamate (NCM0181) in one liter of purified water containing 5 grams of ammonium chloride (NCM0178).
2. Heat with frequent agitation to completely dissolve the medium if necessary.
3. Dispense 10ml and 50ml volumes into tubes with inverted Durham tube.
4. Sterilize by autoclaving for 10 minutes at 115°C. Alternatively heat to 100°C for 30 minutes on three successive days.

Single strength:
1. Dissolve in 11.35 grams of base medium (NCM0186) together with 6.35 grams of sodium

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glutamate (NCM0181) in 1 liter of distilled water containing 2.5 grams ammonium chloride (NCM0178).
2. Heat with frequent agitation to completely dissolve the medium if necessary.
3. Dispense 5ml volumes into tubes with inverted Durham tubes.
4. Sterilize by autoclaving for 10 minutes at 115°C, alternatively heat to 100°C for 30 minutes on three successive days.

Test Procedure –
Refer to the test procedures for Minerals Modified Glutamate Agar (NCM0179) and Minerals Modified Glutamate Broth (NCM0186).

Quality Control Specifications
Dehydrated Appearance: Powder is homogeneous, free flowing and buff

Minimum QC:
See Technical Specification Sheets for Minerals Modified Glutamate Agar (NCM0179) and Minerals Modified Glutamate Broth (NCM0186).

Results
See Technical Specification Sheets for Minerals Modified Glutamate Agar (NCM0179) and Minerals Modified Glutamate Broth (NCM0186).

Expiration
Refer to expiration date stamped on the container. The dehydrated medium should be discarded if not free flowing or appearance has changed from the original color. Expiry applies to medium in its intact container when stored as directed.

Limitations of the Procedures
Due to nutritional variation, some strains may be encountered that grow poorly or fail to grow on this medium.

Storage
Store dehydrated culture media at 2-30°C away from direct sunlight. Once opened and recapped, place container in a low humidity environment at the same storage temperature. Protect from moisture and light by keeping container tightly closed.

References
1. ISO 16649-1:2018 – Microbiology of food and animal feeding stuffs – Horizontal method for the enumeration of β-glucuronidase-positive *Escherichia coli* – Part 1: Colony-count technique at 44°C using membranes and 5-bromo-4-chloro-3indolyl β-D-glucuronide.
2. Gray, R.D. (1964). An improved formate lactose glutamate medium for the detection of *Escherichia coli* and other coliform organisms in water. J. Hyg. Camb. 62: 495-508.
3. PHLS Water Sub-Committee. (1958). A comparison between MacConkey broth and Glutamic acid media for the detection of coliform organisms in water. J. Hyg. Camb. 56: 377-388.
4. PHLS Standing Committee on Bacteriological Examination of Water Supplies. (1968). Comparison of MacConkey Broth, Teepol Broth and Glutamic Acid Media for the enumeration of Coliform organisms in water. J. Hyg. Camb. 66: 67-87.
5. Environment Agency: The Microbiology of Drinking Water (2002). Methods for the Examination of Water and Associated Materials.

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