# SBG Enrichment Broth, Modified (Twin Pack)

**M1906**

## Intended Use:

Recommended for the selective enrichment of *Salmonella* species. The composition and performance criteria of this medium are as per the specifications laid down in ISO 3565:1975

## Composition**

| Ingredients | Gms / Litre |
|---|---|
| Part A | - |
| Peptone | 5.000 |
| D-Mannitol | 5.000 |
| Yeast extract | 5.000 |
| Dipotassium hydrogen phosphate | 2.650 |
| Potassium dihydrogen phosphate | 1.020 |
| Brilliant green | 0.005 |
| Part B | - |
| Sodium selenite | 4.000 |
| Final pH ( at 25°C) | 7.4±0.2 |

**Formula adjusted, standardized to suit performance parameters

## Directions

Suspend 18.67 grams of Part A in 1000 ml purified / distilled water. Add 4 grams of Part B. Mix well. Heat to boiling for 5 to 10 minutes. DO NOT AUTOCLAVE OR OVERHEAT. Dispense in sterile tubes. Caution: Sodium hydrogen selenite (Sodium biselenite) is very toxic, corrosive agent and causes teratogenicity. So it should be handled with great care. If there is contact with skin wash immediately with lot of water.

## Principle And Interpretation

SBG (Selenite Brilliant Green) Enrichment Broth, Modified is a selective enrichment for *Salmonella species*. They are gram-negative, facultatively anaerobic, non-sporulating, motile rods in the family *Enterobacteriaceae*. These organisms are difficult to differentiate biochemically from *Escherichia coli*. Leifsons Selenite Medium (4) and Kauffmanns Modified Tetrathionate Medium have been widely used as enrichment medium for the isolation of *Salmonella*. The medium is not as inhibitory since it has neither Sodium taurocholate nor Sodium sulfapyridine.(5)

Peptone and yeast extract provide nitrogenous compounds, carbon, sulphur, vitamin B complex and trace elements necessary for the growth of organisms. Mannitol is the fermentable carbohydrate. Mannitol is utilized by *Salmonella* as an energy source, but it cannot be utilized by *Proteus*. Phosphates buffer the medium well. Brilliant green and sodium hydrogen selenite, inhibit the growth of gram-positive organisms and enteric organisms except *Salmonella* species.

1 gram or 1 ml of test material is inoculated in 10 ml of the medium and incubated at 35-37°C for 18-24 hours. Following incubation, a loopful of the enriched culture is streaked on SS Agar (M108), MacConkey Agar (M081) or other plates for the isolation of *Salmonella*.

## Type of specimen

Food and dairy samples

## Specimen Collection and Handling:

For food and dairy samples, follow appropriate techniques for sample collection and processing as per guidelines (1,6,7). After use, contaminated materials must be sterilized by autoclaving before discarding.

## Warning and Precautions :

Read the label before opening the container. Wear protective gloves/protective clothing/eye protection/ face protection. Follow good microbiological lab practices while handling specimens and culture. Standard precautions as per established guidelines should be followed while handling specimens. Safety guidelines may be referred in individual safety data sheets.

## Limitations :

1. The medium is selective for *Salmonella* and may not support the growth of other microorganisms.
2. Most of the *Salmonella* strains shows pink-colorless colonies except few which may show colourless colonies.
3. Due to nutritional variations, some strains may show poor growth.
4. Final confirmation of suspected colonies must be carried out by serological and biochemical tests.

## Performance and Evaluation

Performance of the medium is expected when used as per the direction on the label within the expiry period when stored at recommended temperature.

## Quality Control

**Appearance**

Part A : Cream to greenish yellow homogeneous free flowing powder Part B : White to cream homogeneous free flowing powder

**Colour and Clarity of prepared medium**

Light green coloured clear to slightly opalescent solution

**Reaction**

Reaction of 1.87% w/v of Part A + 0.4% w/v of Part B at 25°C. pH : 7.4±0.2

**pH**

7.20-7.60

**Cultural Response**

Cultural characteristics observed after an incubation at 35-37°C for 18-24 hours when subcultured on MacConkey Agar (M081).

| Organism | Inoculum (CFU) | Growth (on M081) | Recovery (on M081) | Colour of colony (on M081) |
|---|---|---|---|---|
| *Salmonella* Choleraesuis *ATCC 12011* | 50-100 | luxuriant | >=50% | colourless |
| *Salmonella* Typhi *ATCC 6539* | 50-100 | luxuriant | >=50% | colourless |
| *Salmonella* Typhimurium *ATCC 14028* (00031*) | 50-100 | luxuriant | >=50% | colourless |
| *# Klebsiella aerogenes ATCC 13048* (00175*) | 50-100 | none-poor | <=10% | pink to colourless |
| *Escherichia coli ATCC 25922* (00013*) | 50-100 | none-poor | <=10% | pink to colourless with bile precipitation |

Key : (*) Corresponding WDCM numbers.
(#) Formerly known as *Enterobacter aerogenes*

## Storage and Shelf Life

Store between 10-30°C in a tightly closed container and the prepared medium at 15-25°C. Use before expiry date on the label. On opening, product should be properly stored dry, after tightly capping the bottle in order to prevent lump formation due to the hygroscopic nature of the product. Improper storage of the product may lead to lump formation. Store in dry ventilated area protected from extremes of temperature and sources of ignition Seal the container tightly after use.
Product performance is best if used within stated expiry period.

## Disposal

User must ensure safe disposal by autoclaving and/or incineration of used or unusable preparations of this product. Follow established laboratory procedures in disposing of infectious materials and material that comes into contact with clinical sample must be decontaminated and disposed of in accordance with current laboratory techniques (2,3).

## Reference

1. American Public Health Association, Standard Methods for the Examination of Dairy Products, 1978, 14th Ed., Washington D.C.
2. Isenberg, H.D. Clinical Microbiology Procedures Handbook 2nd Edition.
3. Jorgensen, J.H., Pfaller, M.A., Carroll, K.C., Funke, G., Landry, M.L., Richter, S.S and Warnock., D.W. (2015) Manual of Clinical Microbiology, 11th Edition. Vol. 1.
4. Leifson, 1955, Appl. Microbiol. 3:295
5. Meal and meat products-detection of *Salmonella*(reference method). ISO 3565(1975).
6. Salfinger Y., and Tortorello M.L. Fifth (Ed.), 2015, Compendium of Methods for the Microbiological Examination of Foods, 5th Ed., American Public Health Association, Washington, D.C.
7. Wehr H. M. and Frank J. H., 2004, Standard Methods for the Microbiological Examination of Dairy Products, 17th Ed., APHA Inc., Washington, D.C.

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