



### Sodium Biselenite

#### Intended use

Recommended for selective enrichment of *Salmonella* species from clinical and non-clinical samples.

#### Composition\*\*

Ingredients	g/L
Sodium Biselenite(Sodium hydrogen selenite)	4.000

\*\*Formula adjusted, standardized to suit performance parameters

#### Directions

0.4% w/v solution is desirable to be added to Selenite Cystine Broth Base w/o Biselenite (M1079) and Selenite Broth Base w/o Biselenite (M970) when used as a base. For preparing 0.4% w/v sodium selenite solution, suspend 4 grams in 1000 ml distilled water Ensure for complete dissolution. Suspend 19 grams of M970 or 19.01 grams of M1079 respectively to prepared 0.4% M1079B solution. Mix well. Warm to dissolve the medium completely. Distribute in sterile test tubes. Sterilize in a boiling water bath or free flowing steam for 10 minutes. **DO NOT AUTOCLAVE**. Excessive heating is detrimental. Discard the prepared medium if large amount of selenite is reduced (indicated by red precipitate at the bottom of tube/bottle).

#### Principle And Interpretation

Selenite Cystine Broths are selective enrichment media useful for detecting *Salmonella* in various samples from food, dairy products and pathological materials. Addition of Sodium biselenite (Sodium hydrogen selenite) to the Selenite Cystine Broth Base w/o selenite (M1079 / M790) favors selective enrichment of the *Salmonella* species. Klett (1) first demonstrated the selective inhibitory effects of selenite and Guth (2) used it to isolate *Salmonella* Typhi. Leifson (3) fully investigated selenite and formulated the media.Selenite Cystine Medium is a modification of Leifsons formula with added cystine(8). Modification of original composition of Selenite broths and similar medias are recommended by AOAC, APHA, USP etc. (3,4,5).The Selenite Broth Base (M1079 / M970) contains nitrogenous substances as casein enzyme hydrolysate supporting growth of organisms and lactose as fermentable carbohydrate. In complete medium with selenite, selenite is reduced by bacterial growth and alkali is produced. An increase in pH lessens the toxicity of the selenite and results in overgrowth of other bacteria. The acid produced by bacteria due to lactose fermentation serves to maintain a neutral pH. Sodium phosphate maintains a stable pH and also lessens the toxicity of selenite. L-Cystine improves recovery of *Salmonella*. Enriched broth can be subcultured on differential plating media such as Bismuth Sulphite Agar (M027), Brilliant Green Agar (M016), XLD Agar (M031), MacConkey Agar (M081) etc. Do not incubate the broth longer than 24 hours as inhibitory effect of selenite decreases after 6 - 12 hours of incubation (6).

#### Type of specimen

Refer M1079 and M970 .

#### Specimen Collection and Handling

Refer M1079 and M970. To be added to Selenite Cystine Broth Base w/o Biselenite (M1079) and Selenite Broth Base w/o Biselenite (M970) when used as a base.

#### Warning and Precautions

In Vitro diagnostic Use. For professional use only. 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 clinical specimens. Safety guidelines may be referred in individual safety data sheets.

#### Limitations

1. Due to nutritional variation certain strains may show poor growth.

## 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

White to cream homogeneous free flowing powder

### Colour and Clarity of prepared medium

0.4% w/v solution of M1079B is colourless clear solution without any precipitate.

### Cultural Response

Cultural characteristics observed after an incubation at 35-37°C for 18-24 hours when added in M1079 Selenite Cystine Broth Base w/ o biselenite and sub cultured on MacConkey Agar (M081).

Organism	Inoculum (CFU)	Recovery	Colour of Colony
<i>Escherichia coli</i> ATCC 25922 (00013*)	50-100	little-none(no increase in numbers)	pink with bile precipitate
<i>Salmonella</i> Choleraesuis ATCC 12011	50-100	luxuriant	colourless
<i>Salmonella</i> Typhimurium ATCC 14028 (00031*)	50-100	luxuriant	colourless
<i>Salmonella</i> Typhi ATCC 6539	50-100	luxuriant	colourless
<i>Escherichia coli</i> ATCC 8739 (00012*)	50-100	little-none (no increase in numbers)	pink with bile precipitate

\* Corresponding WDCM numbers

## Storage and Shelf Life

Store between 10-30°C in a tightly closed container and the prepared medium at 2-8°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 (7,8).

## Reference

- 1.Kelly, Brenner and Farmer, 1985, Manual of Clinical Microbiology, 4th ed., Lennett and others (Eds.), ASM, Washington,D.C.
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- 3.Leifson E., 1936, Am. J. Hyg., 24(2) : 423.
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- 6.Klett A., 1900, Zeitsch Für Hyg. Und. Infekt., 33: 137.
- 7.Isenberg, H.D. Clinical Microbiology Procedures Handbook. 2nd Edition.
- 8.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.

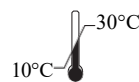
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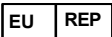
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