



**SELENITE BROTH (DOUBLE PACK) (AS PER BIS)**

**TM 389**

**INTENDED USE**

For isolation and enrichment of *Salmonella* from faeces, urine or other pathological material. It is recommended by BIS committee under specification IS: 5887 (Part III) 1999, reaffirmed 2005.

**COMPOSITION**

| Ingredients                                    | Gms/Ltr |
|------------------------------------------------|---------|
| Part A                                         |         |
| Disodium hydrogen phosphate                    | 9.500   |
| Casein enzymatic hydrolysate                   | 5.000   |
| Lactose                                        | 4.000   |
| Sodium dihydrogen phosphate                    | 0.500   |
| Part B                                         |         |
| Sodium acid selenite(Sodium hydrogen selenite) | 4.000   |

**PRODUCT SUMMARY AND EXPLANATION**

Klett first demonstrated the selective inhibitory effects of selenite and Guth used it to isolate *Salmonella typhi*. Leifson fully investigated selenite and formulated the media. Enrichment media are routinely employed for detection of pathogens in faecal specimens as the pathogens are present in a very small number in the intestinal flora. Selenite Broth is useful for detecting *Salmonella* in the nonacute stages of illness when organisms occur in the faeces in low numbers and for epidemiological studies to enhance the detection of low number of organisms from asymptomatic or convalescent patients.

**PRINCIPLE**

Casein enzymatic hydrolysate provides nitrogenous substances and other essential ingredients. Lactose maintains the pH of medium. Selenite is reduced by bacterial growth and alkali is produced. Selenium toxicity to certain micro-organisms is not fully understood but it is suggested that it reacts with sulphur and sulphydral groups in critical cell components. 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. Do not incubate the broth longer than 24 hours as inhibitory effect of selenite decreases after 6 - 12 hours of incubation.



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## PRODUCT DATA SHEET

### INSTRUCTIONS FOR USE

1. Dissolve 4.0 grams of Part B in 1000 ml distilled water.
2. Add 19.0 grams of Part A.
3. Mix well.
4. Warm to dissolve the medium completely and distribute in sterile test tubes.
5. Sterilize in a boiling water bath or free flowing steam for 30 minutes.

**Note:** 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).

### QUALITY CONTROL SPECIFICATIONS

#### Appearance Dehydrated powder:

Part A: Cream to yellow colour, homogeneous free flowing powder

Part B: White to cream homogeneous free flowing powder

**Appearance of the prepared medium:** Light yellow colour, clear to slightly opalescent solution.

**pH** (at 25°C):  $7.1 \pm 0.2$

### INTERPRETATION

Cultural characteristics observed when subcultured on MacConkey Agar (TM 379) and incubated at 35 - 37°C for 18- 24 hours.

| Organism                       | ATCC  | Inoculum (CFU/ml) | Growth         | Appearance of colony       |
|--------------------------------|-------|-------------------|----------------|----------------------------|
| <i>Salmonella typhi</i>        | 6539  | 50 -100           | Good-Luxuriant | Colourless                 |
| <i>Salmonella typhimurium</i>  | 14028 | 50 -100           | Good-Luxuriant | Colourless                 |
| <i>Salmonella choleraesuis</i> | 12011 | 50 -100           | Good-Luxuriant | Colourless                 |
| <i>Escherichia coli</i>        | 25922 | 50 -100           | None-Poor      | Pink with bile precipitate |
| <i>Escherichia coli</i>        | 8739  | 50 -100           | None-Poor      | Pink with bile precipitate |

### STORAGE & STABILITY

Dehydrated powder, hygroscopic in nature, store in a dry place, in tightly-sealed containers below 25°C and protect from direct Sunlight. Under optimal conditions, the medium has a shelf life of 4 years. When the container is opened for the first time, note the time and date on the label space provided on the container. After the desired amount of medium has been taken out replace the cap tightly to protect from hydration.

**Manufacturer Address:** Titan Biotech Limited, A- 902A, RIICO Industrial Area, Phase III, Bhiwadi-301019.

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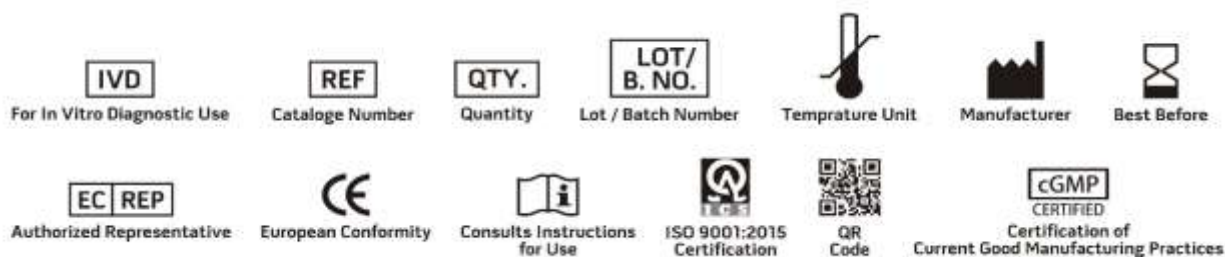


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### REFERENCES

1. A. Klett, Zeitsch. für Hyg. und Infekt. 33, 137 (1900)
2. F. Guth, Zbl. Bakt. I. Orig. 77, 487 (1916)
3. Leifson, E. (1936). "New selenite selective enrichment medium for the isolation of typhoid and paratyphoid bacilli". Am. J. Hyg. **24**: 423-432.
4. Weiss K. F., Ayres J. C. and Kraft A. A. (1965) *J. Bact.* 90. 857-862.
5. Rose M. J., Enriki N. K. and Alford J. A. (1971) *J. Food Sci.* 36. 590-593
6. Bureau of Indian Standards, IS :5887, (Part III) 1999 reaffirmed 2005



**NOTE:** Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.

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