



#### Also known as

Selenite F Broth

#### Specification

Liquid medium used for the enrichment of *Salmonella* and *Shigella* from clinical specimens and other products according to ISO standards.

#### Formula \* in g/L

Peptone..... 5,00  
Lactose..... 4,00  
Potassium phosphate..... 10,00

Final pH 7,0 ±0,2 at 25 °C

\* Adjusted and /or supplemented as required to meet performance criteria

#### Directions

Dissolve 19 g of powder in 1 L of distilled water and add 4 g of sodium biselenite (Art. No. SO0160). Homogenize and dissolve completely. Distribute in suitable containers. This a thermolabile medium therefore do not overheat. Use immediately. Do not autoclave.

#### Description

Selenite Broth is formulated according to an original formulation by Leifson for the selective enrichment of salmonellae from very contaminated samples.

Enrichment is especially effective during the first 12 hours of cultivation, since in this period only salmonellae, some *Proteus* and some strains of *Pseudomonas* tend to grow. For this reason, it is advisable not to extend the enrichment phase and to proceed quickly to selective medium, either liquid or solid. According to Bänffer, the efficacy of the medium is improved notably if enrichment is performed at 43°C. Presence of a red precipitate in the medium before inoculation indicates that there was overheating in which case the selective properties of the medium are reduced.

#### Technique

For normal assays or experiments, an incubation at 37 ±1 °C for a period not exceeding 18 hours is recommended, since within this period growth enhancement of pathogens is achieved, but after 24 hours this effect seems to diminish and the growth of accompanying organisms may mask the growth of *Salmonella*.

Presence of abundant sample residues may also inactivate the selective property of the medium, e.g. faeces and or egg powder. In these cases, it is better to make a 1:10 dilution and let the bigger particles separate by settling to the bottom of the dilution tube, and then inoculate the Selenite Broth with an aliquot of the sample supernatant. Maintaining a proportion of 1:10 between the sample and the medium.

It has been demonstrated that for *Salmonella* isolation from faeces, that results are improved if the enrichment medium is incubated at 41,5°C±1. However this procedure does not work for the isolation of *Salmonella typhi*. For this microorganism it is recommended to enrich using Selenite Mannitol Broth at 37 ±1 °C.

When the starting material is urine, the best procedure is to use Selenite Cystine Broth in double concentration, and to inoculate it with an equal volume of urine.

Sub-culturing must always be carried out after 6 hours of incubation but before 24 hours. Most authors recommend the simultaneous use of another enrichment broth, such as Muller-Kauffmann Tetrathionate Broth Base.



### Quality control

**Incubation temperature:** 37 °C ±1

**Incubation time:** 18 - 24 h

**Inoculum:** Inoculation with mixed cultures

### Microorganism

*Enterococcus faecalis* ATCC® 29212  
*Escherichia coli* ATCC® 8739  
*S. typhimurium* ATCC® 14028 + (1) + (2)  
*Salmonella enteritidis* ATCC® 13076 + (1) + (2)  
*Escherichia coli* ATCC® 25922 (1)  
*Pseudomonas aeruginosa* ATCC® 27853 (2)

### Growth

Total inhibition  
Total inhibition  
Good  
Good  
Inhibited  
Inhibited to poor

### Remarks

Recovery in TSA  
Recovery in TSA  
Recovery in XLD (Mixed cultures)  
Recovery in XLD (Mixed cultures)  
Recovery in XLD (Mixed cultures)  
Recovery in XLD (Mixed cultures)



*Salmonella typhimurium* ATCC 14028  
*Pseudomonas aeruginosa* ATCC



*Salmonella typhimurium* ATCC 14028  
*Pseudomonas aeruginosa* ATCC 27853  
*Escherichia coli* ATCC 25922



Total inhibition  
*Escherichia coli* ATCC 25922

### References

- ANDERSON, K. & H. KENNEDY (1965) Comparison of selective media for the isolation of salmonellae. J. Clin. Path. 18:747-749.
- ATLAS, R.M., L.C. PARKS (1993) Handbook of Microbiological Media. CRC Press, Inc. London.
- BÄNFFER, J.R. (1971) Comparison of the isolation of salmonellae from human faeces by enrichment at 37°C and 43°C. Zbl. Bakt. I Orig. 217:(35-40).
- DIN - Standard 10160: Untersuchung von Fleisch u. Fleischerzeugnissen. Nachweis von Salmonella (Referenzverfahren).
- ISO 6785 Standard (2002) Milk and Milk products - Detection of Salmonella spp.
- ISO 6340 Standard (1995) Water Quality Detection of Salmonella spp.
- ISO 11133:2014/ Adm 1:2018. Microbiology of food, animal feed and water. Preparation, production, storage and performance testing of culture media.
- LEIFSON, E. (1936) A new Selenite Selective Enrichment media for the Isolation of Typhoid and Paratyphoid (Salmonella) Bacilli. Am.J.Hyg. 24:423-432.

### Storage

For laboratory use only. Keep tightly closed, away from bright light, in a cool dry place (+4 °C to 30 °C).