



SELENITE BROTH (7155)

Intended Use

Selenite Broth is used for the selective enrichment of *Salmonella* spp. in a laboratory setting. Selenite Broth is not intended for use in the diagnosis of disease or other conditions in humans.

Product Summary and Explanation

Selenite Broth was originated by Leifson,¹ while observing good recovery of *Salmonella* spp. and reduced growth of fecal coliforms. *Salmonella* organisms are also injured in food-processing procedures, including exposure to low temperatures, sub-marginal heat, drying, radiation, preservatives or sanitizers.²

Selenite Broth conforms with the American Public Health Association (APHA).³ Many modifications of Selenite Broth exist, including Selenite Cystine Broth, from the original formula described as Selenite F Broth by Leifson.¹

Principles of the Procedure

Enzymatic Digest of Casein and Enzymatic Digest of Animal Tissue are the nitrogen and vitamin sources in Selenite Broth. Lactose is the fermentable carbohydrate. Sodium Phosphate is the buffer. A rise in pH decreases selective activity of Selenite. The acid produced by lactose fermentation helps to maintain a neutral pH. Sodium Selenite inhibits the growth of Gram-positive bacteria and many Gram-negative bacteria.

Formula/Liter

| | |
|--|-------|
| Enzymatic Digest of Casein | 2.5 g |
| Enzymatic Digest of Animal Tissue..... | 2.5 g |
| Lactose | 4 g |
| Sodium Phosphate..... | 10 g |
| Sodium Selenite..... | 4 g |

Final pH: 7.0 ± 0.2 at 25°C

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

Precautions

1. For Laboratory Use Only.
2. Harmful. Harmful by inhalation and if swallowed. Irritating to respiratory system.

Directions

1. Dissolve 23 g of the medium in one liter of purified water.
2. Heat to boiling. Avoid overheating.
3. **DO NOT AUTOCLAVE.**

Quality Control Specifications

Dehydrated Appearance: Powder is homogeneous, free flowing, and off-white.

Prepared Appearance: Prepared medium is clear, with no to light precipitate and very pale yellow.

Expected Cultural Response: Cultural response after aerobic incubation for 18 – 24 hours at 35 ± 2°C.

| Microorganism | Approx. Inoculum (CFU) | Expected Results |
|---|------------------------|-------------------------------|
| <i>Escherichia coli</i> ATCC® 11775 | 10 ³ | Marked to complete inhibition |
| <i>Salmonella typhi</i> ATCC® 19430 | 10 - 300 | Growth |
| <i>Salmonella typhimurium</i> ATCC® 14028 | 10 - 300 | Growth |
| <i>Shigella sonnei</i> ATCC® 25931 | 10 - 300 | Growth |

The organisms listed are the minimum that should be performed for quality control testing.

Test Procedure

For a complete discussion on the isolation and identification of *Salmonella* spp., refer to appropriate references.

Results

Refer to references for the characteristic growth of *Salmonella* spp.

Storage

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

Expiration

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

Limitation of the Procedure

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

Packaging

| | | | |
|-----------------------|-----------------|--------------|--------------|
| Selenite Broth | Code No. | 7155A | 500 g |
| | | 7155B | 2 kg |
| | | 7155C | 10 kg |

References

1. **Leifson, E.** 1939. New selenite selective enrichment medium for the isolation of typhoid and paratyphoid bacilli. *Am. J. Hyg.* **24**:423-432.
2. **Hartman, P. A., and S. A. Minnich.** 1981. Automation for rapid identification of salmonellae in foods. *J. Food Prot.* **44**:385-386.
3. **Vanderzant, C., and D.F. Splittstoesser (eds.).** *Compendium of methods for the microbiological examination of foods*, 3rd ed. American Public Health Association, Washington, D.C.

Technical Information

Contact Acumedia Manufacturers, Inc. for Technical Service or questions involving dehydrated culture media preparation or performance at (517)372-9200 or fax us at (517)372-2006.