

LACTOSE BROTH (7141)

Intended Use

Lactose Broth is used for the cultivation of *Salmonella* and coliform bacteria from food, dairy, and water products in a laboratory setting. **Lactose Broth** is not intended for use in the diagnosis of disease or other conditions in humans.

Product Summary and Explanation

Lactose Broth is frequently used as a pre-enrichment medium when testing foods and dairy products for *Salmonella* spp. In dried or processed foods, *Salmonella* species may be sublethally injured and in low numbers. The presence of other bacteria as well as components of the food sample may hinder growth and recovery of *Salmonella*. Pre-enrichment in a nonselective medium such as Lactose Broth allows for repair of cell damage, dilutes toxic or inhibitory substances, and provides a nutritional advantage to *Salmonella* over other bacteria.¹ Lactose Broth is widely used and is included in many procedures for testing foods, dairy products and other materials.

Lactose Broth is also used for the detection of coliform organisms in water, dairy products, and other materials.¹⁻⁵

Principles of the Procedure

Enzymatic Digest of Gelatin and Beef Extract provide the carbon and nitrogen sources for general growth requirements in Lactose Broth. Lactose is a carbohydrate source. Fermentation of lactose is demonstrated by the production of gas.

Formula / Liter

Enzymatic Digest of Gelatin	5 g
Beef Extract.....	3 g
Lactose.....	5 g

Final pH: 6.9 ± 0.2 at 25°C

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

Precaution

1. For Laboratory Use Only.

Directions

1. Dissolve 13 g of the medium in one liter of purified water.
2. Mix thoroughly.
3. Distribute into test tubes containing Durham tubes.
4. Autoclave at 121°C for 15 minutes.

Quality Control Specifications

Dehydrated Appearance: Powder is homogeneous, free flowing, and light-beige.

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

Expected Cultural Response: Cultural response in Lactose Broth at 35 ± 2°C and examined for growth after 1 – 2 days incubation.

Microorganism	Approx. Inoculum (CFU)	Expected Results	
		Growth	Gas
<i>Enterococcus faecalis</i> ATCC® 19433	10 - 300	Good	Negative
<i>Escherichia coli</i> ATCC® 25922	10 - 300	Good	Positive
<i>Klebsiella pneumoniae</i> ATCC® 13883	10 - 300	Good	Positive
<i>Pseudomonas aeruginosa</i> ATCC® 27853	10 - 300	Poor to Fair	Negative
<i>Salmonella typhimurium</i> ATCC® 14028	10 - 300	Good	Negative

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

Test Procedure

Lactose Broth is used in the pre-enrichment phase of the preparation of food samples for isolation of *Salmonella* spp. Consult appropriate references for specific procedures for each type of material being tested.¹⁻⁴

1. Transfer a 25 g or 25 mL sample of test material into a container. Add 225 mL of sterile Lactose Broth. Mix as necessary to make a homogeneous suspension. Incubate at 35°C for 24 hours.
2. Transfer 1 mL of suspension to appropriate enrichment broths, such as Tetrathionate Broth and Selenite Cystine Broth. Incubate at 35°C for 24 hours.
3. Transfer a loopful of suspension to appropriate selective agar media, such as Hektoen Enteric Agar, XLD Agar and Bismuth Sulfite Agar. Incubate at 35°C for 24 hours.

Results

Pre-enrichment, selective enrichment and selective plating increase the likelihood of isolating *Salmonella* from foods and other materials.

Storage

Store sealed bottle containing the dehydrated medium at 2 - 30°C. Once opened and recapped, place 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 the 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.

Limitations of the Procedures

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

Packaging

Lactose Broth	Code No.	7141A	500 g
		7141B	2 kg
		7141C	10 kg

References

1. **Vanderzant, C., and D. F. Splittstoesser (eds.)**. 1992. Compendium of methods for the microbiological examination of foods, 3rd ed. American Public Health Association, Washington, D.C.
2. **Marshall, R. T. (ed.)**. 1992. Standard methods for the examination of dairy products, 16th ed. American Public Health Association, Washington, D.C.
3. **U.S. Food and Drug Administration**. 1995. Bacteriological analytical manual, 8th ed., AOAC International, Gaithersburg, MD.
4. **Cunniff, P. (ed.)**. 1995. Official Methods of Analysis AOAC International, 16th ed. AOAC International, Gaithersburg, MD.
5. **Eaton, A.D., L.S. Clesceri, and A.E. Greenberg (eds.)**. 1995. Standard methods for the examination of water and wastewater, 19th 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.