

Buffered Listeria Enrichment Broth Base (i23028)

Used as an enrichment broth for the cultivation of *Listeria* spp. from food according to FDA.

Industry: Food

Principles & Uses

Listeria monocytogenes, the primary cause of Listeriosis in humans, poses a significant threat due to its high morbidity in both animals and humans. This pathogen, known for its psychrotrophic nature and resistance to various environmental conditions, is frequently found in unprocessed foods, soil, sewage, and water. To combat contamination in food samples, Listeria Enrichment Broth is recommended, enhanced by the addition of buffering strength for improved sensitivity in DNA probe and other detection methods. The enrichment procedure involves inoculating the sample in the broth, incubating, and adding a selective supplement for further incubation. The medium's selectivity is achieved through the inclusion of antimicrobial agents like cycloheximide, nalidixic acid, and acriflavine, inhibiting the growth of unwanted organisms. FDA's enrichment protocol for dairy products employs this method, followed by streaking on specific agar media.

Amino acids and complex nitrogenous substances are derived from the peptones. Energy is supplied by dextrose, while sodium pyruvate aids in the revival of organisms. Phosphates contribute to buffering capacity, and sodium chloride maintains osmotic equilibrium. Yeast extract enriches the medium with vitamin B complex. Antimicrobial agents are incorporated for selectivity, with cycloheximide inhibiting saprophytic fungi, nalidixic acid suppressing gram-negative organisms, and acriflavine impeding the growth of gram-positive microorganisms.

Composition (gr/L)

Peptone from Casein 17 g, Peptone from Soymeal 3 g, D (+) glucose 2.5 g, Sodium Chloride 5 g, di-Potassium Hydrogen Phosphate 2.5 g, Potassium di-Hydrogen Phosphate 1.35 g, di-Sodium Hydrogen Phosphate 9.6 g, Yeast Extract 6 g, Sodium Pyruvate 1.1 g.

Final pH at 25°C 7.3 ± 0.2

Preparation from dehydrated Powder

Dissolve 48 g in 500 ml of distilled water. Autoclave at 121°C for 15 minutes.

Quality Control

Dehydrated Appearance: Cream to yellow, free-flowing, homogeneous.

Prepared Appearance: Yellow colored, clear to slightly opalescent, with slight precipitate.

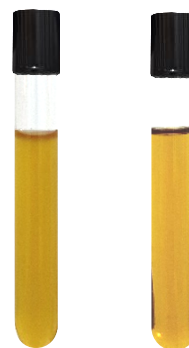
Reaction of 4.8% Solution at 25°C: pH 7.3 ± 0.2

Cultural Response

Cultural characteristics observed with added Listeria Selective Supplement after an incubation at 30°C for 24 - 48 hours.

Organism (ATCC*)	Recovery
<i>Escherichia coli</i> (25922)	Inhibited
<i>Listeria innocua</i> (33090)	Good to luxuriant
<i>Listeria monocytogenes</i> (19111)	Good to luxuriant
<i>Listeria monocytogenes</i> (19112)	Good to luxuriant
<i>Staphylococcus aureus</i> (25923)	None to poor

*ATCC is a registered trade mark of the American Type Culture Collection.



Listeria monocytogenes (left). Prepared Culture Media (right).

Storage

Keep the container at 15-30 °C. Store prepared medium at 2-8 °C.