

## Demi (Half) Fraser Broth Base (i23231)

Used with Demi-Fraser Selective Supplement for the detection and isolation of *Listeria*.

Industry: Food / Clinical

### Principles & Uses

*Listeria* Demi Fraser Broth Base, a modification of *Listeria* Fraser Broth Base, is designed for selective enrichment and enumeration of *Listeria monocytogenes* and other *Listeria* species in various food types and environmental samples. This medium adheres to ISO 11290 standards and contains crucial components to support its function.

The medium is rich in nutrients, providing essential nitrogen sources, vitamins, minerals, and amino acids necessary for growth. Enzymatic digest of casein, enzymatic digest of animal tissues, and meat extract contribute to these nutrients. Yeast extract serves as a source of B-group vitamins. Potassium phosphates act as a buffer system, maintaining the medium's pH. Sodium chloride prevents the growth of unwanted organisms, particularly *Enterococci*. Additionally, the inclusion of Nalidixic acid and Acriflavine inhibits the growth of gram-negative and gram-positive organisms, except for *Listeria* species.

Esculin, hydrolyzed by all *Listeria* species, reacts with ferric ions from ammonium iron (III) citrate, resulting in a blackening of the medium. Lithium chloride further inhibits accompanying flora. This medium's nutrient richness and buffering capacity create optimal growth conditions for *Listeria*. However, to confirm specificity, sub-culturing on selective plating media is recommended.

### Composition (gr/L)

Enzymatic digest of Animal Tissue 5 g, Enzymatic digest of Casein 5 g, Meat Extract 5 g, Yeast Extract 5 g, Sodium Chloride 20 g, Di-sodium Hydrogen Phosphate 12 g, Potassium dihydrogen Phosphate 1.35 g, Esculin 1 g, Lithium Chloride 3 g.

Final pH at 25°C 7.2 ± 0.2

### Preparation from dehydrated Powder

Suspend 57.4 g in 1 L of distilled water. Sterilise by autoclaving at 121°C for 15 minutes. Cool to 50°C and aseptically add the contents of proper amount of Demi Fraser Selective Supplement (10 mg Nalidixic Acid and 12.5 mg Acriflavine Hydrochloride) and Ferric ammonium citrate (0.5 gr).

### Quality Control

Dehydrated Appearance: Free flowing, homogeneous, tan.

Prepared Appearance: Medium amber, clear to slightly opalescent with a fine precipitate.

Reaction of 5.74% Solution at 25°C: pH 7.2 ± 0.2

### Cultural Response

Inoculate and incubate at 35 ± 2°C 24-48 hours.

Organism (ATCC*)	Recovery/ Appearance
<i>Enterococcus faecalis</i> (29212)	Partial to complete inhibition
<i>Listeria monocytogenes</i> (19114)	Good/blackening of the medium
<i>Escherichia coli</i> (25922)	inhibition
<i>Listeria monocytogenes</i> (19115)	Good/blackening of the medium
<i>Staphylococcus aureus</i> (25923)	Inhibition

\*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.