

**Product :  
Listeria ENRICHMENT BROTH BASE  
(FRASER)**
**Specification**

Liquid culture medium used for the enrichment and detection of *Listeria spp.*, from food samples according to ISO standards

**Formula \* in g/L**

Meat peptone.....	5.00	
Casein peptone.....	5.00	Monopotassium phosphate..... 1.35
Meat extract.....	5.00	Lithium chloride..... 3.00
Yeast extract.....	5.00	
Sodium chloride.....	20.00	Final pH 7,2 ±0,2 at 25 °C
Esculin.....	1.00	
di-Sodium phosphate (Anhy.) .....	9.6 <sup>(*)</sup>	(*1) Equivalent to 12.0 g of disodium hydrogen phosphate dihydrate.

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

**Directions**

Dissolve 54.95 g of powder in 1 L of distilled water. Distribute 500 mL per flask and sterilize in the autoclave at 121°C for 15 minutes. Cool to 50°C. Aseptically add 1 vial of Listeria Fraser Selective Supplement for Secondary Enrichment (Ref. DSHB3049) to each flask. To obtain the Half Fraser Broth, add one vial of Ref. DSHB3050 Listeria Half Fraser Selective Supplement to 225 mL of Broth Base. Only acriflavine and nalidixic acid are reduced to half concentration.

Note: Prepared medium (broth + supplement) must be kept away from light, since it promotes the production of acriflavine oxidised photocomplexes that repress *Listeria* growth.

**Description**

This broth base for *Listeria* enrichment is according to the modifications made to the University of Vermont Medium (UVM) by Fraser and Sparber. This formulation has been adopted by the USDA-FSIS. The inclusion of lithium chloride inhibits the development of enterococci which can also hydrolyze esculin in the same way as *Listeria*. Any blackening of the medium produced by the reaction of esculin due to esculin hydrolysis, with iron present in the medium, can be taken as presumptive *Listeria*. The ferric citrate also helps with the development of *L. monocytogenes*.

Supplements available:

Listeria Fraser Selective Supplement (Ref. DSHB3049)

Vial contents:

Necessary amount for 500 mL of complete medium.

Nalidixic acid, sodium salt.....	10,00 mg
Acriflavine.....	12,50 mg
Ferric ammonium citrate.....	250,00 mg
Distilled water (Solvent)	

Listeria Half Fraser Selective Supplement (Ref. DSHB3050)

Vial contents:

Necessary amount for 500 mL of complete medium.

Nalidixic acid, sodium salt.....	5,00 mg
Acriflavine.....	6,25 mg
Ferric ammonium citrate.....	250,00 mg
Distilled water (Solvent)	

**Technique**

Proceed according to ISO 11290 standards applicable to control food samples.

**Quality control**

**Incubation temperature:** 37°C ±1,0

**Incubation time:** 24 ± 2 h

**Inoculum:** Practical range 100 ± 20 CFU. Min. 50 CFU (Productivity) / 10<sup>4</sup>-10<sup>6</sup> CFU (Selectivity) according to ISO 11133:2014/Amd 1:2018

**Microorganism**
**Growth**
**Remarks**

<i>Escherichia coli</i> ATCC® 8739 (1)	Inhibition	w. antibiotic / recovery in TSA
<i>Enterococcus faecalis</i> ATCC® 19433 (2)	Partial inhibition	w. antibiotic / <100 CFU in TSA
<i>Listeria monocytogenes</i> ATCC® 13932	Good	> 10 UFC <i>Listeria</i> in A. Listeria Ottaviani Agostini
<i>Listeria monocytogenes</i> ATCC® 35152	Good	> 10 UFC <i>Listeria</i> in A. Listeria Ottaviani Agostini
<i>Listeria monocytogenes</i> ATCC® 13932	Good	>10 Exp.7 ufc/ml (100 ufc/ml)

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**References**

- ATLAS, R.M. (1993) Handbook of Microbiological Media. CRC Press. Boca Raton. Florida.
- FRASER, J.A. & W.H. SPERBER (1988) Rapid detection of *Listeria* spp. In food and environmental samples by esculin hydrolysis. J. Food Prot. 51:762-765.
- ISO 11133:2014/ Adm 1:2018. Microbiology of food, animal feed and water. Preparation, production, storage and performance testing of culture media.
- ISO 11290-1:2017 Standard. Microbiology of the food chain. Horizontal method for the detection and enumeration of *Listeria monocytogenes* and for *Listeria* spp.- Part 1: Detection Method
- ISO 11290-2:2017 Standard. Microbiology of the food chain. Horizontal method for the detection and enumeration of *Listeria monocytogenes* and for *Listeria* spp.- Part 2: Enumeration Method
- McCLAIN, D. & W.H. LEE (1988) Development of a USDA-FSIS method for isolation of *Listeria monocytogenes* from raw meat and poultry. J.AOAC 71:660-664.
- VANDERZANT, C & D.F. SPLITTSTOESSER (1992) Compendium of methods for the microbiological examination of foods. APHA. Washington. DC.

**Storage**

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