

TECHNICAL DATA SHEET

Article No. 9439

Fraser Broth (base)

SYNONYMS

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SPECIFICATION

Liquid culture medium for the enrichment and detection of *Listeria* spp.

FORMULA* IN G/L

Soy peptone	5.000
Tryptone	5.000
Meat extract	5.000
Yeast extract	5.000
Sodium chloride	20.000
Aesculin	1.000
di-Sodium phosphate	9.600
Monopotassium phosphate	1.350
Lithium chloride	3.000

Final pH 7.2 ±0.2 at 25 °C

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

DIRECTIONS

Dissolve 49.25 g of powder in 1 l of distilled water. Distribute 500 ml per flask and sterilize by autoclaving at 121 °C for 15 minutes. Cool to 50 °C. Aseptically add 1 vial Listeria Selective Supplement (Art. no. 9442). Homogenize well and distribute in suitable containers.

To obtain the Half Fraser Broth, add one vial of Half Fraser Listeria Selective Supplement (Art. no. 9250) to 500 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.

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DESCRIPTION

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

Supplements available:

Fraser Listeria Selective Supplement (Art. no. 9442)

Vial contents:

Necessary amount for 500 ml of complete medium.

Nalidixic acid, sodium salt 10.00 mg

Acriflavine 12.50 mg

Ammonium iron(III) citrate 250.00 mg

Distilled water (solvent)

Half Fraser Listeria Selective Supplement (Art. no. 9250)

Vial contents:

Necessary amount for 500 ml of complete medium.

Nalidixic acid, sodium salt 5.00 mg

Acriflavine 6.20 mg

Ferric ammonium citrate 250.00 mg

Distilled water (solvent)

TECHNIQUE

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 esculetin 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*. In 1996 this culture medium, was adopted by the standard ISO 11290, in food control samples.

CAUTIONS AND LIMITATIONS

None

QUALITY CONTROL

- Incubation temperature: 37 °C ±1.0
- Incubation time: 48 ±2 h
- Inoculum: Practical range 100 ±20 CFU. Min. 50 CFU (productivity)/10⁴ -10⁶ CFU (selectivity), according to ISO 11133:2014.

Microorganism	Growth	Remarks
<i>Escherichia coli</i> ATCC® 8739 (1)	Inhibition	With antibiotic/recovery in TSA
<i>Enterococcus faecalis</i> ATCC® 19433 (2)	Partial inhibition	With antibiotic/<100 CFU in TSA
<i>Listeria monocytogenes</i> ATCC® 13932 + (1)+(2)	Good	>10 CFU Listeria in Agar Listeria Ottaviani Agostini
<i>Listeria monocytogenes</i> ATCC® 35152 + (1)+(2)	Good	>10 CFU Listeria in Agar Listeria Ottaviani Agostini

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. Microbiology of food, animal feed and water. Preparation, production, storage and performance testing of culture media.
- ISO 11290 Standard (1996) Microbiology of food ad animal feeding stuffs - Horizontal method for the detection and enumeration of *Listeria monocytogenes* - Part 1: Detection Method.
- ISO 11290 Standard (1996) / Amd 1 (2004) Microbiology of food ad animal feeding stuffs - Horizontal method for the detection and enumeration of *Listeria monocytogenes* - Part 1: Detection Method- Amendment 1: Modification of the isolation media and the haemolysis test and inclusion of precision data.
- ISO 11290 Standard (1998) Microbiology of food ad animal feeding stuffs-Horizontal method for the detection and enumeration of *Listeria monocytogenes* - Part 2: Enumeration method.
- ISO 11290 Standard (1998) / Amd 1 (2004) Microbiology of food ad animal feeding stuffs-Horizontal method for the detection and enumeration of *Listeria monocytogenes* - Part 2: Enumeration method -Amendment 1: Modification of the enumeration media.
- 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

Keep tightly closed, away from light, in a dry place (4-30 °C).

SHELF LIFE

4 years from date of production.

