

## TM 2093 - HALF FRASER BROTH (FRASER BROTH BASE, MODIFIED)

### INTENDED USE

For the selective enrichment of *Listeria* species from foods.

### PRODUCT SUMMARY AND EXPLANATION

Fraser Broth Base, modified is based on the formulation by Fraser and Sperber. It is recommended for selective enrichment of *Listeria* species from foods.

*Listeria* species are widely distributed and are isolated from soil, decaying vegetable matter, sewage, water, animal feed, fresh and frozen poultry, meats, raw milk, cheese and asymptomatic human and animal carriers. Only *Listeria monocytogenes* from the genus *Listeria*; causes infections in humans. *L. monocytogenes* primarily causes meningitis, encephalitis or septicemia in humans. In pregnant women, *Listeria monocytogenes* often causes an influenza like bacteremic illness that, if untreated, may lead to amnionitis and infection of the fetus, resulting in abortion, still birth or premature birth. Contaminated foods are the primary vehicles of transmission.

### COMPOSITION

Ingredients	Gms / Ltr
Peptone	5.000
Tryptone	5.000
Yeast extract	5.000
Beef extract	5.000
Sodium chloride	20.000
Lithium chloride	3.000
Disodium phosphate	9.600
Monopotassium phosphate	1.350
Esculin	1.000
Nalidixic acid	0.010
Acriflavin	0.0125

### PRINCIPLE

This medium contains peptone, Tryptone, yeast extract and HM Peptone B which provide essential nutrients like carbon and nitrogenous compounds including vitamins, amino acids and trace ingredients. Phosphate buffer medium while sodium chloride maintains osmotic equilibrium. Nalidixic acid and Acriflavin inhibits the growth of gram-negative and gram-positive organisms respectively except *Listeria* species. *Listeria* species hydrolyze esculin to glucose and esculetin. The latter combines with ferric ions of ferric ammonium citrate, resulting in the formation of 6-7 dihydroxycoumarin, a black brown complex. Ferric ammonium citrate also enhances the growth of *L. monocytogenes*. The high salt tolerance (of sodium chloride) of *Listeria* is used as means to inhibit the growth of Enterococci. Lithium chloride is also used to inhibit Enterococci, which also possess the ability to hydrolyze esculin.

### INSTRUCTION FOR USE

- Dissolve 54.97 grams in 1000 ml distilled water.
- Heat if necessary to dissolve the medium completely.
- Sterilize by autoclaving at 15 psi pressure (121°C) for 15 minutes.
- Cool to 45-50°C and aseptically add rehydrated contents of 2 vials of Fraser Supplement.



- Mix well and dispense as desired.

**QUALITY CONTROL SPECIFICATIONS**

**Appearance of Powder** : Cream to yellow homogeneous free flowing powder.  
**Appearance of prepared medium** : Fluorescent yellow coloured clear solution.  
**pH (at 25°C)** : 7.2±0.2

**INTERPRETATION**

Cultural characteristics observed on addition of Fraser supplement after an incubation.

Microorganism	ATCC	Inoculum (CFU/ml)	Growth	Esculin Hydrolysis	Incubation Temperature	Incubation Period
<i>Escherichia coli</i>	25922	≥10 <sup>3</sup>	Inhibited	-	35 - 37°C	24-48 Hours
<i>Enterococcus faecalis</i>	29212	50-100	None-poor	-	35 - 37°C	24-48 Hours
<i>Listeria monocytogenes</i>	19111	50-100	Good-luxuriant	Positive reaction, blackening of medium	35 - 37°C	24-48 Hours
<i>Listeria monocytogenes</i>	19112	50-100	Good-luxuriant	Positive reaction, blackening of medium	35 - 37°C	24-48 Hours
<i>Listeria monocytogenes</i>	19117	50-100	Good-luxuriant	Positive reaction, blackening of medium	35 - 37°C	24-48 Hours
<i>Listeria monocytogenes</i>	19118	50-100	Good-luxuriant	Positive reaction, blackening of medium	35 - 37°C	24-48 Hours
<i>Staphylococcus aureus</i> subsp. <i>aureus</i>	25923	50-100	None-poor	-	35 - 37°C	24-48 Hours

**PACKAGING:**

In pack size of 500 gm bottles.

**STORAGE**

Dehydrated powder, hygroscopic in nature, store in a dry place, in tightly-sealed containers between 25-30°C and protect from direct sunlight. Under optimal conditions, the medium has a shelf life of 4 years. When the container is opened for



the first time, note the time and date on the label space provided on the container. After the desired amount of medium has been taken out replace the cap tightly to protect from hydration.













**Product Deterioration:** Do not use if they show evidence of microbial contamination, discoloration, drying or any other signs of deterioration.

### DISPOSAL

After use, prepared plates, specimen/sample containers and other contaminated materials must be sterilized before discarding.

### REFERENCES

1. Seeliger H. P. R., and Jones D., 1986, Bergeys Manual of Systematic Bacteriology, Vol. The Williams and Wilkins Co., Baltimore.
2. Nieman R. E., and Lorber B., 1980, Rev. Infect. Dis. 2: 207-227.
3. Schuchat A. B., Swaminathan and C. V. Broome, Clin. Microbiol. Rev. 4: 169-183.
4. Murray P. R., Baron E. J., Jorgensen J. H., Pfaller M. A., Tenover F. C., and Tenover F. C., (Eds.), 8th Ed., 2003, Manual of Clinical Microbiology, ASM, Washington, D.C.
5. Lovette J., Francis D.W. and Hunt J.M., 1987, J. Food Prot., 50:188.
6. Lee W.K. and McClain D., 1986, Appl. Environ. Microbiol., 52:1215.
7. McClain D. and Lee W.H., 1988, J. Assoc. Off. Anal. Chem., 71:660.
8. Cowart R. E. and Foster B. G., 1985, J. Infect. Dis.; 151:172.
9. Fraser, J., and W. Sperber. 1988. Rapid detection of Listeria in food and environmental samples by esculin hydrolysis. Journal of Food Protection 51: 762-765.

 GMP Good Manufacturing Practices Certified	 IVD For In Vitro Diagnostic Use	 QTY. Quantity	 LOT/ B. NO. Lot / Batch Number	 REF Catalogue Number	 Manufacturer
 Temperature Unit	 EC REP Authorized Representative <small>MedNet GmbH Borkstrasse 10, 49163 Maenster, Germany</small>	 European Conformity	 QR Code	 Consults Instructions for Use	 Best Before

**NOTE:** Please consult the Material Safety Data Sheet for information regarding hazards and safe handling Practices.

**\*For Lab Use Only**  
**Revision: 08 Nov., 2019**