

CM 20729 – FRASER BROTH BASE

INTENDED USE

Recommended as primary as well as secondary enrichment medium, for the isolation and enumeration of *Listeria monocytogenes* from food and animal feeds.

PRODUCT SUMMARY AND EXPLANATION

L. monocytogenes primarily causes meningitis, encephalitis or septicemia in humans. In pregnant women, *L. monocytogenes* often causes 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. Fraser Broth Base is based on the formulation of Fraser and Sperber and is used for the detection of *Listeria* species in food products. Fraser Broth Base is formulated so as to provide optimum conditions for the growth of *Listeria*.

COMPOSITION

Ingredients	Gms / Ltr
Peptone	5.000
Tryptone	5.000
Yeast extract	5.000
Meat extract	5.000
Sodium chloride	20.000
Disodium hydrogen phosphate dihydrate	12.000
Potassium dihydrogen phosphate	1.350
Esculin	1.000
Lithium chloride	3.000

PRINCIPLE

The medium consists of Peptone, Tryptone, yeast extract, and beef extract which make the media highly nutritive by providing essential nutrients including carbonaceous and nitrogenous substances. Phosphates maintain the buffering capacity of the medium. All *Listeria* species exhibit beta-glucosidase activity which is evident by the blackening of the media.

Listeria species hydrolyze esculin (substituted glucoside) 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 a means to inhibit the growth of Enterococci. Lithium chloride is also used to inhibit Enterococci, which also possess the ability to hydrolyze esculin. Growth of accompanying bacteria is largely inhibited by the addition of Nalidixic acid and Acriflavin hydrochloride.

INSTRUCTION FOR USE

- Dissolve 54.92 grams in 1000 ml purified/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 1 vial of Fraser Selective Supplement and 2 vials of Fraser Supplement to 1000 ml medium for primary enrichment or 1 vial of each to 500 ml medium for secondary enrichment. Mix well and dispense in tubes or flasks as desired.
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QUALITY CONTROL SPECIFICATIONS

Appearance of Powder	: Cream to yellow homogeneous free flowing powder.
Appearance of prepared medium	: Basal medium: Yellow coloured clear solution with slight precipitate. After addition : Fluorescent yellow coloured clear solution with slight precipitate forms in tubes.
pH (at 25°C)	: 7.2 ± 0.2

INTERPRETATION

Cultural characteristics observed on addition of Fraser Supplement and Fraser selective supplement after incubation.

Microorganism	ATCC	Inoculum (CFU/ml)	Growth	Esculin Hydrolysis	Incubation Temperature	Incubation Period
Escherichia coli	25922	$\geq 10^4$	Inhibited	-	35-37°C	24-48 Hours
Enterococcus faecalis	29212	$\geq 10^4$	Inhibited	-	35-37°C	24-48 Hours
Listeria monocytogenes subsp. serovar 1	19111	50-100	Good-luxuriant	Positive reaction, blackening of medium	35-37°C	24-48 Hours
Listeria monocytogenes	19112	50-100	Good-luxuriant	Positive reaction, blackening of medium	35-37°C	24-48 Hours
Listeria monocytogenes	19117	50-100	Good-luxuriant	Positive reaction, blackening of medium	35-37°C	24-48 Hours
Listeria monocytogenes	19118	50-100	Good-luxuriant	Positive reaction, blackening of medium	35-37°C	24-48 Hours
Staphylococcus aureus	25923	$\geq 10^3$	Inhibited	-	35-37°C	24-48 Hours

PACKAGING:

In pack size of 100 gm and 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.

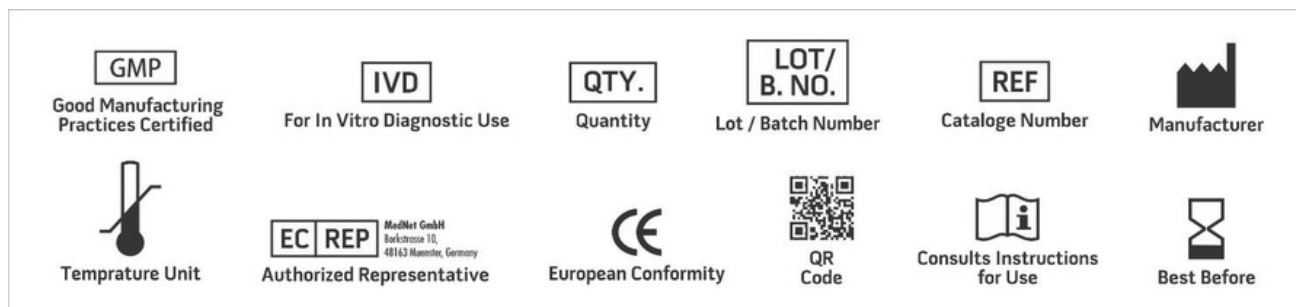
Product Deterioration: Do not use if they show evidence of microbial contamination, discoloration, drying or any other signs of deterioration.

DISPOSAL

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

REFERENCES

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5. Jorgensen, J.H., Pfaller, M.A., Carroll, K.C., Funke, G., Landry, M.L., Richter, S.S and Warnock., D.W. (2015) Manual of Clinical Microbiology, 11th Edition. Vol. 1.
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9. Schuchat A. B., Swaminathan and C. V. Broome, Clin. Microbiol., Rev. 4 : 169-1
10. Wehr H. M. and Frank J. H., 2004, Standard Methods for the Microbiological Examination of Dairy Products, 17th Ed., APHA Inc., Washington, D.C.



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

*For LabUse Only

