

CM 20730 - FRASER BROTH BASE (ISO 11290-1:2017)

INTENDED USE

For isolation and enumeration of *Listeria monocytogenes* from food and animal feeds.

PRODUCT SUMMARY AND EXPLANATION

Fraser Broth is recommended for the enrichment of *Listeria monocytogenes* from food and environmental samples. The culture medium is formulated according to specification laid down in ISO 11290. This medium is made selective for *Listeria* spp. by adding antimicrobial agents like acriflavine and nalidixic acid with the basal medium.

COMPOSITION

Ingredients	Gms / Ltr
Sodium Chloride	20.000
Disodium hydrogen phosphate dihydrate	12.000
Enzymatic digest of animal tissues	5.000
Enzymatic digest of casein	5.000
Yeast extract	5.000
Meat Extract	5.000
Lithium Chloride	3.000
Potassium dihydrogen phosphate	1.350
Esculin	1.000

PRINCIPLE

This medium contains Enzymatic digest of animal tissue, Enzymatic digest of casein, yeast extract and Meat extract which are used as a source of nitrogen, carbon, vitamins, minerals and amino acids for microbial growth. Disodium hydrogen phosphate and Potassium dihydrogen phosphate are added as buffering agents. All *Listeria* species exhibit beta-glucosidase activity which is evident by the blackening of the medium. *Listeria* species hydrolyze the esculin to form esculetin, which further reacts with the ferric ions of ferric ammonium citrate to result in a visible, black brown precipitate. Ferric ammonium citrate also enhances the growth of *L. monocytogenes*. The high concentration of sodium chloride acts as an inhibitory agent for *Enterococci* spp., simultaneously allowing the selective growth of *Listeria* Spp. Lithium chloride is also incorporated to inhibit the growth of *Enterococci*, which also have the ability to hydrolyse the esculin. Addition of Nalidixic acid and Acriflavin hydrochloride largely helps in inhibiting the growth of accompanying bacteria. The tubes showing blackening after incubation should be sub cultured on *L. mono* Differential Agar base or Chromogenic *Listeria* Agar Base (Modified) for complete identification.

INSTRUCTION FOR USE

Dissolve 57.35 grams in 990ml distilled water.

Gently heat to boiling with swirling to dissolve the medium completely.

Sterilize by autoclaving at 15 psi pressure (121°C) for 15 minutes.

Cool to 45-50°C.

Aseptically add rehydrated content of 2 vials of Fraser supplement (TS 034) and 1 vial of Fraser selective supplement (TS 035).

Mix well and dispense into sterile tubes or flasks as desired.



QUALITY CONTROL SPECIFICATIONS

Appearance of Dehydrated powder	:	
Appearance of Prepared medium	:	Cream to yellow colour, homogeneous free flowing powder
Basal medium	:	Yellow coloured, clear solution with slight precipitate
After addition of supplements	:	Fluorescent yellow coloured clear solution with slight precipitate
pH (at 25°C)	:	7.2± 0.2

INTERPRETATION

Productivity

Culture Characteristics observed after incubation at 30±1°C for 24±2 hours with addition of Fraser supplement (TS 034) and Fraser selective supplement (TS 035). Further subculture is carried out on L.mono Differential Agar base at 37±1°C for 48±4 hours.

Microorganism	ATCC	Inoculum (CFU/ml)	Growth	Esculin hydrolysis	Recovery on	Colour of colony on
Listeria innocua	33090	50-100	Luxuriant	Positive reaction, Blackening	>10 cfu	Blue green colonies w/opaque halo
Enterococcus faecalis	29212	≥1000	Partial to Complete Inhibition	-	-	-
Listeria monocytogenes	35152	50-100	Luxuriant	Positive reaction, Blackening	>10 cfu	Blue green colonies w/opaque halo
Enterococcus faecalis	19433	≥1000	Partial to Complete Inhibition	-	-	-
Listeria monocytogenes	13932	50-100	Luxuriant	Positive reaction, Blackening	>10 cfu	Blue green colonies w/opaque halo
Escherichia coli	25922	≥1000	Inhibition	-	-	-
Escherichia coli	8739	≥1000	Inhibition	-	-	-

Selectivity

Culture Characteristics observed after incubation at 30±1°C for 25±1 hours with addition of Fraser supplement and Fraser selective supplement. Further subculture is carried out on Tryptone Soya agar at 37±1°C for 48±4°C hours.

Microorganism	ATCC	Inoculum (CFU/ml)	Growth	Esculin Hydrolysis	Recovery on
Enterococcus faecalis	19433	≥10 ⁴	None to poor	-	< 100 colonies
Enterococcus faecalis	29212	≥10 ⁴	None to poor	-	< 100 colonies
Escherichia coli	25922	≥10 ⁴	Inhibited	-	0
Escherichia coli	8739	≥10 ⁴	Inhibited	-	0

PACKAGING

In 100 & 500 gm packaging size.



STORAGE

Dehydrated powder, hygroscopic in nature, store in a dry place, in tightly-sealed containers below 10-25°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.

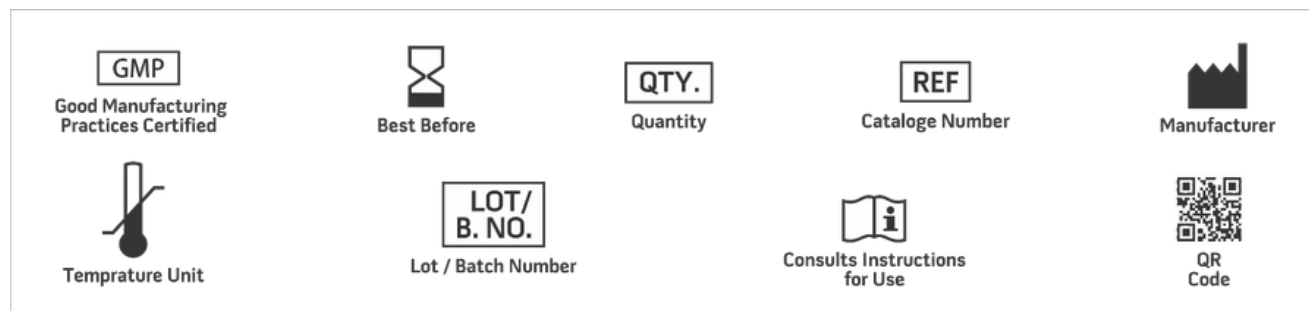
Product Deterioration: Do not use powder if they show evidence of microbial contamination, discoloration, drying, or other signs of deterioration.

DISPOSAL

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

REFERENCES

1. Fraser, J.A. and Sperber, W.H. 1988. J. Food Protect. 51: 762-765.
2. McClain, D. and Lee, W.H. 1988. J. Assoc. Off. Anal. Chem. 71: 660-664.
3. ISO NORMATIVE 11290-1. 1997. Horizontal method for the detection and enumeration of *Listeria monocytogenes* Part 1: Detection Method.
4. Downes, F.P. and Ito, K., (Ed.). 2001. Compendium of methods for the microbiological examination of foods, 4th ed. American Public Health Association, Washington, D.C.



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

*For Lab Use Only