# CM 22059 - FRASER BROTH BASE
# (ISO 11290-1:2017)

## INTENDED USE

Forisolationandenumeration of Listeria monocytogenes from food and animal feeds.

## PRODUCT SUMMARY AND EXPLANATION

Fraser Broth is recommended forthe 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

Thismedium 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 and 1 vial of Fraser selective supplement
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 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 |
|---|---|---|---|---|---|---|
| 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 (TS 035). 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 | - | 0 |
| Escherichia coli | 25922 | $>=10^4$ | Inhibited | - | 0 |
| Escherichia coli | 8739 | $>=10^4$ | Inhibited | - | |

## PACKAGING

In100&500gm 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.

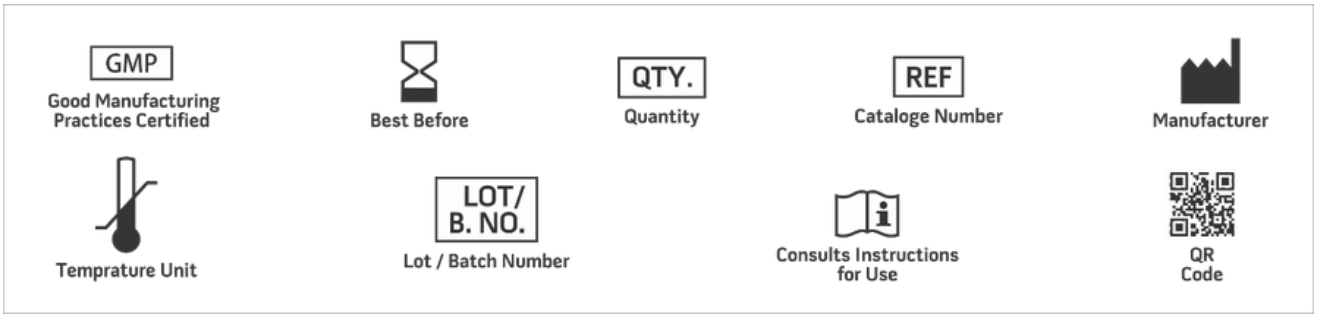
Product Deterioration: Do not use powder if they show evidence of microbial contamination, discoloration, drying, or other signs of deterioration.

## 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