

Revisions

SO 0046-2

Rev From	Rev To	ECO #	Date	Appr.
1199	1003	2224-03		

Notes:

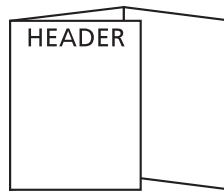
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- Style (see illustrations below): #1



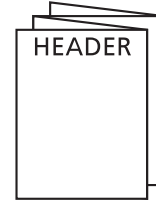
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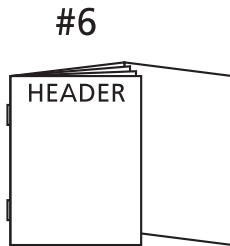
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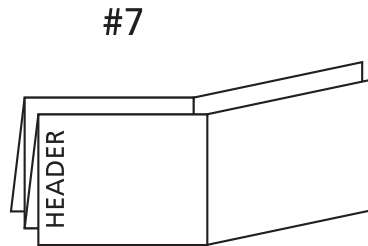
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#7

- See Specification Control No. n/a for Material Information
- Ink Colors: Printed two sides Yes No
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Proofer	Date			
Checked By	Date			
Part Number: S1198JAA		Category and Description Package Insert Fraser Broth Supplement	Sheet: 1 of _____ Scale: 1:1	A

 **BD Difco™ Fraser Broth Supplement**
S1198JAA
2003/08

See symbol glossary at end of insert. / Se symloglossaret i slutningen af indlægssedlen. / Voir le glossaire des symboles à la fin de la notice. / Siehe Symbol-Erklärungen am Ende der Packungsbeilage. / Vedere il glossario dei simboli alla fine del foglio illustrativo. / Consulte o glossário de símbolos no fim do folheto informativo. / Consulte el glosario de símbolos al final del prospecto. / Se symbolförteckningen vid slutet av bipacksedeln.

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INTENDED USE

Fraser Broth Supplement is used with Fraser Broth Base in selectively enriching and detecting *Listeria*.

SUMMARY AND EXPLANATION

First described in 1926 by Murray, Webb and Swann,¹ *Listeria monocytogenes* is a widespread problem in public health and the food industries. This organism has the ability to cause human illness and death, particularly in immunocompromised individuals and pregnant women.² The first reported food-borne outbreak of listeriosis was in 1985,³ and since then, microbiological and epidemiological evidence from both sporadic and epidemic cases of listeriosis has indicated that the principle route of transmission is via the consumption of foods contaminated with *L. monocytogenes*.⁴

Implicated vehicles of transmission include turkey frankfurters,⁵ coleslaw, pasteurized milk, Mexican-style cheese, pâté, and pickled pork tongue. The organism has been isolated from commercial dairy and other food processing plants, and is ubiquitous in nature, being present in a wide range of unprocessed foods as well as in soil, sewage, silage and river water.⁶

Fraser Broth Base and Fraser Broth Supplement are based on the formulation of Fraser and Sperber.⁷ The medium is used in the rapid detection of *Listeria* from food⁸ and environmental samples. Many common food contaminants such as streptococci, enterococci, *Bacillus* spp., *Escherichia coli*, *Pseudomonas aeruginosa* and *Proteus vulgaris* interfere with the isolation of *L. monocytogenes*.⁹

Listeria species grow on laboratory media over a pH range of 4.4–9.6, and can survive in foods of similar acidity for days or weeks.¹⁰ *Listeria* spp. are microaerophilic, gram-positive, asporogenous, non-encapsulated, non-branching, regular, short, motile rods. Motility is most pronounced at 20°C.

Identification of *Listeria* is based on successful isolation of the organism, biochemical characterization and serological confirmation.

PRINCIPLES OF THE PROCEDURE

Differentiation of *Listeria* from other bacteria, is aided by including ferric ammonium citrate (Difco Fraser Broth Supplement) in the final medium. Since all *Listeria* species hydrolyze esculin, the addition of ferric ions to the medium will detect the reaction. A blackening of the medium by cultures containing esculin-hydrolyzing bacteria is the result of the formation of 6,7-dihydroxycoumarin which reacts with the ferric ions.⁷

REAGENTS**Fraser Broth Supplement**

Approximate Formula* Per 10 mL

Ferric Ammonium Citrate 0.5 g

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

Warnings and Precautions:

For Laboratory Use

Consult product labels and material safety data sheets for safety information and first aid.

Follow proper, established laboratory procedures in handling and disposing of infectious materials.

Instructions:

Store Fraser Broth Supplement at 2 – 8°C.

PROCEDURE

Material Provided: Difco Fraser Broth Supplement.

Materials Required But Not Provided: Ancillary culture media, reagents, quality control organisms and laboratory equipment as required for this procedure.

Test Procedure: Observe aseptic techniques.

Aseptically add 10 mL of Difco Fraser Broth Supplement to 1 L Difco Fraser Broth Base prepared according to label directions.

To isolate *L. monocytogenes* from processed meats and poultry, the following procedure is recommended by the U.S. Department of Agriculture.⁸

1. Add 25 g of test material to 225 mL of UVM Modified Listeria Enrichment Broth and mix or blend thoroughly.
2. Incubate for 20 – 24 h at 30°C.
3. Transfer 0.1 mL of the incubated broth to Fraser Broth. Incubate at 35°C for 26 ± 2 h.
4. At 24 and 48 h, streak the Fraser Broth culture to Modified Oxford Agar.
5. Incubate the Modified Oxford plates at 35°C for 24 – 48 h.

USER QUALITY CONTROL**Identity Specifications**

Solution Appearance: Dark brown solution

Cultural Response

Prepare Fraser Broth Base per label directions. Add Fraser Broth Supplement. Inoculate and incubate at $35 \pm 2^\circ\text{C}$ and read for growth and blackening at 18 – 24 and 42 – 48 h.

ORGANISM	ATCC™	INOCULUM CFU	RECOVERY	ESCULIN REACTION
<i>Enterococcus faecalis</i>	29212	$10^3 - 2 \times 10^3$	Marked to complete inhibition	-
<i>Escherichia coli</i>	25922	$10^3 - 2 \times 10^3$	Marked to complete inhibition	-
<i>Listeria monocytogenes</i>	19114	$10^2 - 10^3$	Good	+
<i>Listeria monocytogenes</i>	19115	$10^2 - 10^3$	Good	+
<i>Staphylococcus aureus</i>	25923	$10^3 - 2 \times 10^3$	Marked to complete inhibition	-

RESULTS

- Examine agar plates for suspect colonies. For further identification and confirmation of *Listeria* spp., consult appropriate references.^{8,10-12}
- Rapid slide and macroscopic tube tests can be used for definitive serological identification.

LIMITATIONS OF THE PROCEDURE

- Since *Listeria* species other than *L. monocytogenes* can grow on these media, an identification of *L. monocytogenes* must be confirmed by biochemical and serological testing.^{11,12}
- Poor growth and a weak esculin reaction may be seen after 40 h incubation for some enterococci.

AVAILABILITY**Cat. No. Description**

211742	Difco Fraser Broth Supplement, 6 x 10 mL.
211767	Difco Fraser Broth Base, 500 g.
211766	Difco Fraser Broth Base, 2 kg.
222530	Difco Oxford Medium Base, 500 g.
222510	Difco Oxford Medium Base, 2 kg.
211755	Difco Oxford Antimicrobial Supplement, 6 x 10 mL.
211763	Difco Modified Oxford Antimicrobial Supplement, 6 x 10 mL.
222120	Difco LPM Agar Base, 500 g.
222110	Difco LPM Agar Base, 2 kg
212156	Difco McBride <i>Listeria</i> Agar, 500 g.
222220	Difco <i>Listeria</i> Enrichment Broth, 500 g.
222210	Difco <i>Listeria</i> Enrichment Broth, 10 kg.
222330	Difco UVM Modified <i>Listeria</i> Enrichment Broth, 500 g.
222310	Difco UVM Modified <i>Listeria</i> Enrichment Broth, 2 kg.
222320	Difco UVM Modified <i>Listeria</i> Enrichment Broth, 10 kg.
223001	Difco <i>Listeria</i> O Antiserum, Type 1, 1 mL.
223011	Difco <i>Listeria</i> O Antiserum, Type 4, 1 mL.
223021	Difco <i>Listeria</i> O Poly Types, 1 & 4, 1 mL.

REFERENCES

- Murray, E.G.D., R.A. Webb, and M.B.R. Swann. 1926. A disease of rabbits characterized by large mononuclear leucocytosis caused by a hitherto undescribed bacillus *Bacterium monocytogenes* (n.sp.). *J. Pathol Bacteriol.* 29:407-439.
- Monk, J.D., R.S. Clavero, L.R. Beuchat, M.P. Doyle, and R.E. Brackett. 1994. Irradiation inactivation of *Listeria monocytogenes* and *Staphylococcus aureus* in low- and high-fat, frozen and refrigerated ground beef. *J. Food Prot.* 57:969-974.
- Wehr, H.M. 1987. *Listeria monocytogenes* - a current dilemma special report. *J. Assoc. Off. Anal. Chem.* 70:769-772.
- Bremer, P.J., and C.M. Osborne. 1995. Thermal-death times of *Listeria monocytogenes* in green shell mussels (*Perna canaliculus*) prepared for hot smoking. *J. Food. Prot.* 58:604-608.
- Grau, F.H., and P.B. Vanderlind. 1992. Occurrence, numbers, and growth of *Listeria monocytogenes* on some vacuum-packaged processed meats. *J. Food. Prot.* 55:4-7.
- Patel, J.R., C.A. Hwang, L.R. Beuchat, M.P. Doyle, and R.E. Brackett. 1995. Comparison of oxygen scavengers for their ability to enhance resuscitation of heat-injured *Listeria monocytogenes*. *J. Food Prot.* 58:244-250.
- Fraser, J., and W. Sperber. 1988. Rapid detection of *Listeria* in food and environmental samples by esculin hydrolysis. *J. of Food Prot.* 51:762-765.
- Lee, W.H., and D. McClain. 1994. Laboratory communication No 57 (revised February 8, 1994). Food Safety and Inspection Service, Microbiology Division, U.S.D.A., Bethesda, MD.
- Kramer, P.A., and D. Jones. 1969. Media selective for *Listeria monocytogenes*. *J. Appl. Bacteriol.* 32:381-394.
- Ryser, E.T., and G.W. Donnelly. 2001. *Listeria*, p. 343-356. In F.P. Downes and K. Ito (ed.), Compendium of methods for the microbiological examination of foods, 4th ed. American Public Health Association, Washington, D.C.
- Bille, J., J. Rocourt, and B. Swaminathan. 1999. *Listeria*, *Erysipelothrix*, and *Kurthia*, p. 346-356. In P.R. Murray, E.J. Baron, M.A. Pfaller, F.C. Tenover, and R.H. Tenover (ed.) Manual of clinical microbiology, 7th ed. American Society for Microbiology, Washington, D.C.
- Flowers, R.S., W. Andrews, C.W. Donnelly, and E. Koenig. 1993. Pathogens in milk and milk products. In R.T. Marshall (ed.), Standard methods for the examination of dairy products, 16th ed. American Public Health Association, Washington, D.C.



Use by / Anvendes for / Houdbaar tot /
 Viimeinkäyttöpäivä / A utiliser avant / Verwendbar
 bis / Ημερομηνία λήξης / Usare entro / Brukes for /
 Utilizar em / Usar antes de / Använd före /
 YYYY-MM-DD / YYYY-MM (MM = end of month) /
 AAAA-MM-DD / AAAA-MM
 (MM = slutning af måned) /
 JJJ-MM-DD / JJJ-MM (MM = einde maand)
 VVVV-KK-PP / VVVV-KK
 (kuukauden loppuun mennessä)
 AAAA-MM-JJ / AAAA-MM (MM = fin du mois) /
 JJJ-MM-TT / JJJ-MM (MM = Monatsende) /
 EEEE-MM-HH / EEEE-MM (MM = τέλος του μήνα) /
 AAAA-MM-GG / AAAA-MM (MM = fine mese) /
 AAAA-MM-DD / AAAA-MM
 (MM = slutten av måneden)
 AAAA-MM-DD / AAAA-MM (MM = fim do mês) /
 aaaa-mm-dd / aaaa-mm (mm = fin del mes) /
 AAAA-MM-DD / AAAA-MM
 (MM = slutet på månaden)

REF

Catalog number / Katalognummer /
 Catalogusnummer / Tuotenumero / Numéro
 catalogue / Bestellnummer / Αριθμός καταλόγου /
 Numero di catalogo / Katalognummer / Número do
 catálogo / Número de catálogo / Katalognummer



Temperature limitation / Temperaturbegrænsning /
 Temperatuurilimiet / Lämpötilarajoitus / Température
 limite / Zulässiger Temperaturbereich / Όριο
 θερμοκρασίας / Temperatura limite /
 Temperaturbegrænsning / Limitação da temperatura /
 Limitación de temperatura / Temperaturbegrænsning

LOT

Batch Code (Lot) / Batch kode (Lot) / Chargennummer
 (lot) / Eräkoodi (LOT) / Code de lot (Lot) /
 Chargencode (Chargenbezeichnung) / Κωδικός
 παρτίδας (Παρτίδα) / Codice del lotto (partita) /
 Batch-kode (Serie) / Código do lote (Lote) / Código
 de lote (Lote) / Satskod (part)



Consult Instructions for Use / Læs brugsanvisningen /
 Raadpleeg gebruiksaanwijzing / Tarkista
 käyttöohjeista / Consulter la notice d'emploi /
 Gebrauchsanweisung beachten / Συμβουλευτείτε τις
 οδηγίες χρήσης / Consultare le istruzioni per l'uso / Se
 i brugsanvisningen / Consulte as instruções de
 utilização / Consultar las instrucciones de uso /
 Se brugsanvisningen



Keep away from light / Må ikke udsættes for lys /
 Weghoudvan licht / Suojattava valolta / Conserver à
 l'abri de la lumière / Vor Licht schützen / Φυλάξτε το
 μακριά από το φως / Tenere al riparo dalla luce / Må
 ikke utsettes for lys / Manter ao abrigo da luz /
 Mantener alejado de la luz / Får ej utsättas för ljus

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