

17192 Peptone Sorbitol Bile Broth

For identification of *Yersinia enterocolitica* from dairy products.

Composition:

Ingredients	Grams/Litre
Peptic digest of animal tissue	5.0
Sorbitol	10.0
Disodium phosphate	8.23
Monosodium phosphate	1.2
Bile salts mixture	1.5
Sodium chloride	5.0
Final pH 7.6 +/- 0.2 at 25°C	

Store prepared media below 8°C, protected from direct light. Store dehydrated powder, in a dry place, in tightly-sealed containers at room temperature.

Appearance: Faint yellow, faint beige to faint brown coloured, homogeneous, free flowing powder.

Color and Clarity: Faint green-yellow to green yellow coloured clear solution.

Directions:

Suspend 30.93 g in 1 litre distilled water. Heat to boiling to dissolve the medium completely. Dispense 100 ml into Wheaton bottles. Sterilize by autoclaving at 121°C for 15 minutes.

Principle and Interpretation:

Peptone Sorbitol Bile Broth is a liquid culture medium that complies with APHA formulation (6) for the detection and identification of *Yersinia enterocolitica*. *Y. enterocolitica* are usually present in finished dairy products as a result of post pasteurization contamination. Swine are recognized as major reservoirs of *Y. enterocolitica* in nature (2). *Yersinia enterocolitica* is capable of growth at refrigeration temperatures (3), therefore measures to prevent post pasteurization contamination must be taken to prevent the proliferation of *Y. enterocolitica* in pasteurized milk.

Peptic digest provide the essential growth nutrients along with nitrogenous and carbonaceous compounds, long chain amino acids and growth factors and trace ingredients for the growth of *Y. enterocolitica*. Sorbitol is a polyhydric alcohol (reduced product of glucose) and is the fermentable carbohydrate source. It is an important substrate in biochemical differentiation of *Yersinia*. *Y. enterocolitica* can degrade sorbitol while *Yersinia pestis* and *Yersinia pseudotuberculosis* cannot (6). The medium contains a phosphate buffer to maintain the slightly alkaline pH. *Yersinia* species are tolerant slightly alkaline conditions (1). Sodium chloride maintains the osmotic balance while bile salts inhibit majority of the gram-positive organisms.

Inoculate 25 grams of samples into 225 ml of Peptone Sorbitol Bile Broth. Incubate at 10°C for 10 days. Then spread 0.1 ml onto *Yersinia* Selective Agar. Presumptive *Yersinia* colonies are confirmed by biochemical tests.

Limitations:

1. Due to variable nutrient requirements some strains may show poor growth.
2. Further biochemical and serological tests must be carried out for further identification



Cultural characteristics after 10days at 10±1°C.

Organisms (ATCC)	Inoculum [cfu]	Growth	Sorbitol utilization
<i>Yersinia enterocolitica</i> (27729)	50-100	+++	+
<i>Yersinia pseudotuberculosis</i> (29833)	50-100	++/+++	-

References:

1. Aulizio C. C. G., Mehlman I.J. and Sanders A. C., 1980, Appl. Environ. Microbiol., 39:135.
2. Doyle M.P., Hugdahl M.B., Taylor S. L., 1981, Appl. Environ. Microbiol. 42:661-666
3. Francis D. W., Spaulding P.L., Lovett J., 1980, Appl. Environ. Microbiol. 40:174-176
4. Isenberg, H.D. Clinical Microbiology Procedures Handbook 2nd Edition.
5. Jorgensen, J.H., Pfaller, M.A., Carroll, K.C., Funke, G., Landry, M.L., Richter, S.S and Warnock., D.W. (2015) Manual
6. Wehr H.M. and Frank J. H., 2004, Standard Methods for the Microbiological Examination of Dairy Products, 17th Ed., APHA Inc., Washington, D.C.

Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.

