BD™ Buffered Peptone Water

INTENDED USE

BD Buffered Peptone Water is used for preenriching damaged *Salmonella* species from food specimens to increase recovery. Since it is non-selective, it may also be used as a suspension fluid or enrichment medium for other bacteria.

This product may be available in different containers, volumes, and packaging units. This document applies to all of them.

PRINCIPLES AND EXPLANATION OF THE PROCEDURE

Edel and Kampelmacher [1] noted that food preservation techniques involving heat, desiccation, preservatives, high osmotic pressure or pH changes cause sublethal injury to salmonellae. Preenrichment in a nonselective medium allows for repair of cell damage and facilitates the recovery of salmonellae. Lactose Broth is frequently used for this purpose but it may be detrimental to recovering salmonellae.[2] Buffered Peptone Water maintains a high pH over the preenrichment period and results in repair of injured cells that may be sensitive to low pH.[3] This is particularly important for vegetable specimens which have a low buffering capacity. These media can be used for testing dry poultry feed.[4] Buffered Peptone Water is a standard methods medium.[5]

The principle of the pre-enrichment method with Buffered Peptone Water includes transfer of the material (meat or other foods) into the medium after homogenization, followed by incubation; afterwards an aliquot is transferred into Tetrathionate Broth and other appropriate selective enrichment media. After their incubation, an aliquot is subcultured to Brilliant Green Agar, Modified; the medium is incubated and inspected for the presence of *Salmonella*. In addition, it may be used as a washing and rinsing fluid for materials suspected to contain *Salmonella* and other bacteria.

BD Buffered Peptone Water contains peptone as a source of carbon, nitrogen, vitamins and minerals. Sodium chloride maintains the osmotic balance. Phosphates buffer the medium.

REAGENTS

BD Buffered Peptone Water

Approximate Formula* Per Liter Purified Water

Peptone	10.0 g
Sodium Chloride	5.0
Disodium Hydrogen Phosphate	3.5
Potassium Dihydrogen Phosphate	1.5

pH 7.2 ± 0.2

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

Sterility Information

The products mentioned in this document are sterilized by autoclaving in their final containers. For many of these products, a sterility claim is available on the Certificate of Analysis (http://regdocs.bd.com or http://www.bd.com/europe/regulatory/).

PRECAUTIONS

For laboratory use only.

Do not use containers if they show evidence of microbial contamination, discoloration, cracking or other signs of deterioration.
Consult **GENERAL INSTRUCTIONS FOR USE** document for aseptic handling procedures, biohazards, and disposal of used product.
Follow proper established laboratory procedures in handling and disposing of infectious materials or cultures.

STORAGE AND SHELF LIFE

On receipt, store containers in the dark at 5 to 25° C, until just prior to use. Avoid freezing and overheating. The containers may be inoculated up to the expiration date and incubated for the recommended incubation times.

USER QUALITY CONTROL

Inoculate samples of the medium with 10 to 100 cfu of the test strains per container. Incubate for 18 to 24 h at 35 +/+ 2° C. Growth is indicated by turbidity. After the incubation, the test strains mentioned below will produce a strong to heavy turbidity. If necessary, subculture on appropriate solid selective or non-selective media.

Organism	**Growth Results**
Salmonella Typhimurium ATCC 14028	good - excellent
Salmonella Abony DSM 4224	good - excellent
Salmonella Enteritidis ATCC 13076	good - excellent
Uninoculated appearance	Amber, clear, no precipitates

Depending on the application, other tests such as survival tests may be appropriate.

PROCEDURE

Materials Provided
BD Buffered Peptone Water
(prepared bottled media).

Materials Not Provided
Ancillary culture media, reagents and laboratory equipment as required.

Test Procedure
Meat and Meat Products:
1. Weigh 25 g of the sample into a sterile blender jar and add 225 ml of Buffered Peptone Water. Macerate for a sufficient time to give 15,000-20,000 revolutions.
2. Aseptically transfer the contents of the blender jar to a 500 ml flask. Incubate at 37+/- 1° C for 16-20 hours.
3. Transfer 10 ml samples to 100 ml Tetrathionate Broth and to 100 ml of Selenite Brilliant Green Medium.
4. Incubate the Tetrathionate Broth at 42-43° C and the Selenite Brilliant Green Enrichment at 37° C.

For other applications, follow the respective procedures. Consult the references for the detailed methods.[5]

Results
Growth of micro-organisms is detected by determination of the turbidity of the medium. Note that the material under examination may also increase the turbidity of the medium although bacterial growth is not present. Subculture to appropriate media is necessary to verify growth of organisms.

LIMITATIONS OF THE PROCEDURE

Buffered Peptone Water is not selective for *Salmonella* or other organisms. Appropriate selective liquid enrichment and solid media must be inoculated with aliquots from the inoculated and incubated Buffered Peptone Water containers.

The types and numbers of competing flora in the test sample can affect recovery and may overgrow salmonellae. Do not incubate longer than indicated above.
Use of this medium with clinical specimens has not been validated.

REFERENCES

1. Edel, W., and E. H. Kampelmacher. 1973. Bull. World Hlth. Org. 48:167-174.
2. Angelotti, R. 1963. Microbiological quality of foods. Academic Press, New York.
3. Sadovski, A. Y. 1977. J. Food Technol. 12:85-91.
4. Juven, B. J., N. A. Cox, J. S. Bailey, J. E. Thomson, O. W. Charles, and J. V. Schutze. 1984. Recovery of *Salmonella* from artificially contaminated poultry feeds in non-selective and selective broth media. Jour. of Food Prot. 47:299-302.
5. Flowers, R. S., J-Y. D'Aoust, W. H. Andrews, and J. S. Bailey. 1992. *Salmonella*, p. 371-422. *In* C. Vanderzant, and D. F. Splittstoesser (ed.). Compendium of methods for the microbiological examination of foods, 3rd ed. American Public Health Association, Washington, D.C.

PACKAGING/AVAILABILITY

For container types, fill volumes, package sizes, and for availability of these products, please contact your local BD representative.

FURTHER INFORMATION

For details on the available products and for further information please contact your local BD representative.

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