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Buffered Peptone Water

Buffered Peptone Water is a pre-enrichment medium used for increasing the recovery of injured *Salmonella* species from foods prior to selective enrichment and isolation.

REF: BS.1/BPW01.100.0100	100 Gram	REF: BS.1/BPW01.250.0250	250 Gram
REF: BS.1/BPW01.500.0500	500 Grams		

CLINICAL SIGNIFICANCE

Buffered Peptone Water is a pre-enrichment medium designed to help recovery of sub-lethally damaged *Salmonellae* before transfer to a selective medium. This pre-enrichment medium is free from inhibitors and is well buffered and provides conditions for resuscitation of the cells that have been injured by processes of food preservation. It was noted by Edel and Kampelmacher (1) that sub-lethal injury to *Salmonella* may occur due to food preservation techniques involving heat, desiccation, high osmotic pressure, preservatives or pH changes. Buffered Peptone Water during the pre-enrichment period helps in recovery of injured cells that may be sensitive to low pH (2). This is particularly important for vegetable specimens, which have low buffering capacity. This medium can be used for testing dry poultry feed (3). In a survey involving isolation of *Salmonellae* from meat that had been artificially contaminated with sub-lethally injured organisms, pre-enrichment in Buffered Peptone Water at 37°C for 18 hours before selection in Tetrathionate Brilliant Green Bile Broth showed superior results compared with direct selection method. Lactose Broth is frequently used as a pre-enrichment medium but it may be detrimental to recovery of *Salmonellae* (4).

METHOD PRINCIPLE

The media contain proteose peptone as a source of carbon, nitrogen, vitamins and minerals. Sodium chloride maintains the osmotic balance and phosphates buffer the medium. The broth is rich in nutrients and produces high resuscitation rates for sub lethally injured bacteria and supports intense growth. The phosphate buffer system prevents bacterial damage due to changes in the pH of the medium. Inoculate 10 grams specimen in 50 ml of these media and incubate at 35-37°C for 18 hours. Transfer 10 ml from this medium to 100 ml of Tetrathionate Broth (M032) and incubate at 43°C for 24 - 48 hours and then subculture on selective plating media. Examine the plates for characteristic *Salmonella* colonies.

MEDIA COMPOSITION

Item	Formula per liter of medium
Proteose peptone	10.000 gm.
Sodium chloride	5.000 gm.
Disodium phosphate, anhydrous	3.500 gm.
Monopotassium phosphate	1.500 gm.

Final pH 7.2 ± 0.2 at 25°C

PRECAUTIONS AND WARNINGS

Media to be handled by entitled and professionally educated person. Do not ingest or inhale.

Good Laboratories practices using appropriate precautions should be followed in:

- Wearing personnel protective equipment (overall, gloves, glasses,).
- Do not pipette by mouth.
- In case of contact with eyes or skin; rinse immediately with plenty of Soap and water. In case of severe injuries; seek medical advice immediately.
- Respect country requirement for waste disposal.

S56: dispose of this material and its container at hazardous or special waste collection point.
S57: use appropriate container to avoid environmental contamination.
S61: avoid release in environment.

STORAGE AND STABILITY

BioScien Buffered Peptone Water should be stored between 10-30°C in a firmly closed container and the prepared medium at 2-8°C. Use before expiry date on the label. On opening, product should be properly stored dry, after tightly capping the bottle in order to avoid lump development due to the hygroscopic nature of the product. Improper storage of the product may lead to lump formation. Store in a dry ventilated area protected from extremes of temperature and sources of ignition. Seal the container tightly after use. Product performance is best if used within stated expiry period.

PREPARATION

- Suspend 20 grams in 1000 ml distilled water.
- Adjust pH to *7.2 ± 0.2 at 25°C.*
- Heat to boiling to dissolve the medium completely.
- Sterilize by autoclaving at 15 lbs. pressure (121°C) for 15 minutes.
- If desired, aseptically add rehydrated contents of 1 vial of EC O157: H7 Selective Supplement for isolation of Escherichia coli O157 from foods to previously molten and cooled to 45-50°C medium.
- Pour into suitable containers

Deterioration

The color of ***BioScien*** Buffered Peptone Water is Cream to yellow homogeneous free flowing powder. Prepared Media Light yellow coloured, clear solution without any precipitate. If there are any physical changes for powder or signs of deterioration (shrinking, cracking, or discoloration), and contaminations for hydrated media, discard the medium.

SPECIMEN

Food and dairy samples

EQUIPMENT REQUIRED NOT PROVIDED

- Inoculating loops, swabs, collection containers
- Incubators
- Sterile flasks / tubes

PERFORMANCE CHARACTERISTICS

Cultural characteristics observed after an incubation at 25-30°C for 24-48 hours.

Organism	Result
Salmonella Enteritidis ATCC 13076	Luxuriant
Salmonella Typhi ATCC 6539	Luxuriant
Escherichia coli 0157:H7 NCTC 12900	Luxuriant
Salmonella Typhimurium ATCC 14028	Luxuriant

QUALITY CONTROL

To ensure adequate quality control, it is recommended that positive and negative control included in each run. If control still out of range please contact ***BioScien*** technical support.

REFERENCES

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4. Angelotti, 1963, Academic Press, New York, N.Y.
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7. Wehr H. M. and Frank J. H., 2004, Standard Methods for the Microbiological Examination of Dairy Products, 17th Ed., APHA Inc., Washington, D.C.
8. Isenberg, H.D. Clinical Microbiology Procedures Handb0ook. 2nd Edition.
9. Jorgensen,J.H., Pfaller , M.A., Carroll, K.C., Funke, G., Landry, M.L., Richter, S.S and Warnock., D.W. (2015) Manual of Clinical Microbiology, 11th Edition. Vol. 1.

SYMBOLS IN PRODUCT LABELLING	
LOT Batch Code/Lot number	Caution
REF Catalogue Number	Do not use if package is damaged
Temperature Limitation	Consult Instruction for use
Expiration Date	
Manufactured by	