Dehydrated Culture Media

BUFFERED PEPTONE WATER

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Code: CM0509

a pre-enrichment medium to be used prior to selective enrichment for the isolation of Salmonella species from foods

Typical Formula*

	gm/litre
Peptone	10.0
Sodium chloride	5.0
Disodium phosphate	3.5
Potassium dihydrogen phosphate	1.5

pH 7.2 ± 0.2 @ 25°C

*** Adjusted as required to meet performance standards**

Directions
Add 20g to 1 litre of distilled water. Mix well and distribute into final containers. Sterilise by autoclaving at 121°C for 15 minutes. It is extremely important that the distilled water used is of a high quality with a low mineral content/conductivity.

Description
Oxoid Buffered Peptone Water may be used as a pre-enrichment medium, prior to selective enrichment in the isolation of salmonellae from foods. It also provides conditions for resuscitation of cells that have been injured by processes of food preservation.

It was noted by Edel and Kampelmacher[1] that sublethal injury to salmonellae may occur in many food processes. In a survey involving isolation of salmonellae from meat that had been artificially contaminated with sublethally injured organisms, pre-enrichment in buffered peptone water at 37°C for 18 hours before selection in Brilliant Green Tetrathionate Bile Broth showed superior results compared with a direct selection method. Pietzsch[2] found that isolation of salmonellae was much improved by pre-enrichment of egg samples in Buffered Peptone Water at 37°C for 18 hours followed by incubation of 10ml of this sample in 100ml Selenite Cystine Broth (CM0699) or Muller-Kauffmann Tetrathionate Broth (CM0343) at 43°C for 48 hours.

Sadovski[3] reported that, in experiments involving isolation of salmonellae from frozen vegetables, the rapid drop in pH when using lactose broth[4] as a pre-enrichment medium was detrimental to the recovery of salmonellae. This was due to the enhanced sensitivity to low pH of freeze-injured salmonellae which may contaminate frozen vegetables. Pre-enrichment with Buffered Peptone Water maintained a high pH over a period of 24 hours incubation. Vegetable tissue has a low buffering capacity and the medium overcame this problem.

A shortened enrichment time of 6 hours was investigated[5], but, in circumstances where heavily contaminated materials were examined, the addition of 0.1g of malachite green per litre of Buffered Peptone Water was advised. Malachite green should not be used if *Salmonella* Typhi may be present in the test material. The addition is important where small numbers of salmonellae may have their generation time increased because of competitive growth and may not reach the minimum number for successful isolation.

For cocoa products, the inclusion of casein in the pre-enrichment medium is necessary to inhibit bactericidal substances present in cocoa[6]. A comparative collaborative study confirmed the value of adding casein and malachite green to Buffered Peptone Water when examining cocoa bean dust and chocolate for *Salmonella*[7].

Technique for the isolation of Salmonella
Buffered Peptone Water may be used according to published standard methodologies. To comply with ISO methodology, please use Buffered Peptone Water (ISO) (CM1049) and see relevant ISO standard[8].

Storage conditions and Shelf life
Store dehydrated medium at 10-30°C and use before the expiry date of the label.
Store the prepared medium at room temperature.

Appearance

Dehydrated medium: Straw coloured, free-flowing powder
Prepared medium: Light straw coloured solution

Quality control

Positive controls:
Expected result

Salmonella Typhimurium ATCC® 14028*
Turbid growth

Salmonella Enteritidis ATCC® 13076*
Turbid growth

Negative control:

Uninoculated medium
No change

*** This organism is available as a Culti-Loop®**

References

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5. van Schothorst M. and Renaud A.M. (1985) *J. Appl. Bact*. 59. 223-230.
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8. ISO 6579:2002

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