Buffered Peptone Water
Buffered Peptone Casein Water

Intended Use

Buffered Peptone Water and Buffered Peptone Casein Water are used for preenriching injured *Salmonella* species from food specimens to increase recovery.

Summary and Explanation

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. Buffered Peptone Water can be used for testing dry poultry feed.[4] Test methods have been published for a variety of food samples.[5,6] Casein peptone in Buffered Peptone Casein Water conforms with ISO 6579:2002.[7]

User Quality Control

NOTE: Differences in the Identity Specifications and Cultural Response testing for media offered as both **Difco**™ and **BBL**™ brands may reflect differences in the development and testing of media for industrial and clinical applications, per the referenced publications.

Identity Specifications

Difco™ Buffered Peptone Water or Difco™ Buffered Peptone Casein Water

Dehydrated Appearance:	Cream-white to light biege, free flowing, homogeneous, free of extraneous material.
Solution:	2.0% solution, soluble in purified water. Solution is light amber, clear to slightly hazy.
Prepared Appearance:	Light amber, clear.
Reaction of 2.0% Solution at 25°C:	pH 7.2 ± 0.2 (Peptone Water) pH 7.0 ± 0.2 (Casein Water)

Cultural Response

Difco™ Buffered Peptone Water or Difco™ Buffered Peptone Casein Water

Prepare the medium per label directions. Inoculate and incubate at 35 ± 2°C for 18-24 hours.

ORGANISM	ATCC™	INOCULUM CFU	RECOVERY PEPTONE WATER	RECOVERY CASEIN WATER
Salmonella enterica subsp. *enterica* serotype Enteritidis	13076	10-100	Good	Good
Salmonella enterica subsp. *enterica* serotype Typhimurium	14028	10-100	Good	Good
Salmonella enterica subsp. *enterica* serotype Typhi	19430	10-100	Good	Good
Salmonella panama ALM 41		10-100	N/A	Good

Identity Specifications

BBL™ Buffered Peptone Water

Dehydrated Appearance:	Cream-white to light tan, free flowing, homogeneous, free of extraneous material.
Solution:	2.0% solution, soluble in purified water. Solution is light yellow to tan or amber, clear to slightly hazy.
Prepared Appearance:	Light yellow to tan or amber, clear to slightly hazy.
Reaction of 2.0% Solution at 25°C:	pH 7.2 ± 0.2

Cultural Response

BBL™ Buffered Peptone Water

Prepare the medium per label directions. Inoculate and incubate at 35 ± 2°C for 18-24 hours.

ORGANISM	ATCC™	INOCULUM CFU	RECOVERY
Escherichia coli	25922	10-10^3	Good
Salmonella enterica subsp. *enterica* serotype Enteritidis	13076	10-10^3	Good
Salmonella enterica subsp. *enterica* serotype Typhimurium	14028	10-10^3	Good
Salmonella enterica subsp. *enterica* serotype Typhi	19430	10-10^3	Good

Principles of the Procedure

These preenrichment media contain peptone as a source of carbon, nitrogen, vitamins and minerals. Sodium chloride maintains the osmotic balance. Phosphates buffer the media.

Formulae

Difco™ or BBL™ Buffered Peptone Water

Approximate Formula* Per Liter		
Peptone	10.0	g
Sodium Chloride	5.0	g
Disodium Phosphate	3.5	g
Monopotassium Phosphate	1.5	g

Difco™ Buffered Peptone Casein Water

Approximate Formula* Per Liter		
Enzymatic Digest of Casein	10.0	g
Sodium Chloride	5.0	g
Disodium Hydrogen Phosphate (anhydrous)†	3.5	g
Potassium Dihydrogen Phosphate	1.5	g

† Anhydrous Disodium Hydrogen Phosphate (3.5 g) is equivalent to 9.0 g of Disodium Phosphate Dodecahydrate.

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

Directions for Preparation from Dehydrated Product

1. Dissolve the powder in 1 L of purified water:
   Difco™ or BBL™ Buffered Peptone Water – 20 g;
   Difco™ Buffered Peptone Casein Water – 20 g.
   Mix thoroughly.
2. Autoclave at 121°C for 15 minutes.
3. Test samples of the finished product for performance using stable, typical control cultures.

Procedure

Refer to appropriate references for details on test methods using these media.[5-7] Inoculate tubes with the test sample. Incubate tubes at 35 ± 2°C for 18-24 hours in an aerobic atmosphere, or as instructed in the appropriate reference.[5-7]

Expected Results

Growth is indicated by turbidity.

Limitation of the Procedure

The types and numbers of competing flora in the test sample can affect recovery and may overgrow salmonellae.

References

1. Edel and Kampelmacher. 1973. Bull. W.H.O. *48*:167.
2. Angelotti. 1963. Microbiological quality of foods. Academic Press, New York, N.Y.
3. Sadovski. 1977. J. Food Technol. *12*:85.
4. Juven, Cox, Bailey, Thomson, Charles and Schutze. 1984. J. Food Prot. *47*:299.
5. Andrews, Flowers, Silliker and Bailey. 2001. *In* Downes and Ito (ed.), Compendium of methods for the microbiological examination of foods, 4th ed. American Public Health Association, Washington, D.C.
6. Rose. 2001. Isolation and identification of *Salmonella* from meat, poultry and egg products. *In* Microbiology laboratory guidebook, 3rd ed., Food Safety and Inspection Service, U.S. Department of Agriculture, Washington, D.C.
7. International Organization for Standards (ISO). Microbiology of food and animal feeding stuffs – horizontal method for the detection of *Salmonella* spp., 4th ed., ISO 6579:2002.

Availability

Difco™ Buffered Peptone Water

BAM CCAM ISO USDA

Cat. No.	218105	Dehydrated – 500 g
	218103	Dehydrated – 2 kg
	218104	Dehydrated – 10 kg

BBL™ Buffered Peptone Water

BAM CCAM ISO USDA

Cat. No.	212367	Dehydrated – 500 g
	212345	Dehydrated – 5 lb (2.3 kg)

Difco™ Buffered Peptone Casein Water

ISO

Cat. No.	214939	Dehydrated – 500 g
	214938	Dehydrated – 10 kg