Technical Data Sheet

NutriSelect® prime
Buffered Peptone Water halal
acc. ISO 6579, ISO 6887, ISO 21528, ISO 22964, FDA-BAM and EP

Ordering number: 1.04316.0500 / 1.04316.5000

For the preliminary non-selective enrichment of bacteria, particularly pathogenic *Enterobacteriaceae* such as *Salmonella and Cronobacter* spp., and for the initial suspension and dilution of samples from food and animal feed, water and other materials.

Buffered Peptone Water is also known as BPW, Buffered Peptone Medium and Peptone Water, phosphate-buffered.

This culture medium complies with the specifications given by EN ISO 6579-1/-2, EN ISO 6887 (all parts), EN ISO 19250, EN ISO 21528-1, EN ISO 22964, FDA-BAM Medium M192, GB 4789.4, GB 4789.30, GB 4789.40, GB 4789.41, APHA and EP 2.6.31.

The Halal Certificate is issued by Halal Quality Control (HQC) according to Reference Halal Standards: JAKIM MS 1500:2019, MUI HAS 23000, OIC/SMIIC1:2019, GSO 2055-1.

This culture medium is released by the quality control laboratory of Merck KGaA, Darmstadt, Germany. The laboratory is accredited by the German accreditation authority DAkkS as registered test laboratory D-PL-15185-01-00 according to DIN EN ISO/IEC 17025 for the performance testing of media for microbiology according to DIN EN ISO 11133.

Mode of Action

The broth is rich in nutrients and produces high resuscitation rates for sublethal injured bacteria and intense growth. The phosphate buffer system maintains the pH during the pre-enrichment period and prevents bacterial damage caused by changes in the pH of the medium. Peptone acts as a source of carbon, nitrogen, vitamins and minerals whilst sodium chloride maintains the osmotic balance.

Version 2022-06-22

Typical Composition

APHA specifies no composition for Buffered Peptone Water.

Specified by ISO 6579-1/-2, ISO 6887-1, ISO 19250, ISO 21528-1, ISO 22964, GB 4789.4/30/40/41, EP 2.6.31		**Specified by FDA-BAM Medium M192**		**NutriSelect® prime Buffered Peptone Water halal acc. ISO 6579, ISO 6887, ISO 21528, ISO 22964, FDA-BAM and EP**	
Peptone	10 g/l	Peptone	10 g/l	Peptone	10 g/l
NaCl	5 g/l	NaCl	5 g/l	NaCl	5 g/l
Na_2HPO_4 x 12 H_2O or Na_2HPO_4 anhydrous*	9 g/l or 3.57 g/l	Na_2HPO_4 *	3.5 g/l	Na_2HPO_4 anhydrous*	3.57 g/l
KH_2PO_4	1.5 g/l	KH_2PO_4	1.5 g/l	KH_2PO_4	1.5 g/l
Water	1000 ml/l	Water	1000 ml/l	Water	n/a
pH at 25 °C**	7.0 ± 0.2	pH at 25 °C	7.0 ± 0.2	pH at 25 °C	7.0 ± 0.2

* 3.57 g Na_2HPO_4 anhydrous is equivalent to 9.0 g of Na_2HPO_4 x 12 H_2O.
** GB 4789.4, GB 4789.30, GB 4789.40, GB 4789.41 specify pH 7.2 ± 0.2 before autoclaving.

Preparation

Dissolve 20.0 g in 1 l of purified water.
If desired dispense into smaller vessels and autoclave (15 min at 121 °C).

The dehydrated medium is a powder with brown colour.

The prepared medium is clear and yellowish. The pH value at 25 °C is in the range of 7.0 ± 0.2.

Experimental Procedure and Evaluation

Depend on the purpose for which the medium is used.

For use as diluent, prepare the initial suspension and further dilutions according to ISO 6887-1 or other appropriate part of EN ISO 6887. To avoid damage to microorganisms by sudden changes in temperature, the temperature of the BPW shall be approximately the same as the laboratory ambient temperature, except where otherwise specified in the appropriate standard.

Version 2022-06-22

For use as pre-enrichment medium, incubate the inoculated broth under aerobic conditions, e.g.
- acc. to ISO 6579-1 and ISO 22964 between 34 °C and 38 °C for (18 ± 2 h);
- acc. ISO 21528-1 at (37 ± 1 °C) or at (30 ± 1 °C) for (18 ± 2 h);
- acc. to FDA-BAM Chapter No. 5 at (35 ± 2 °C) for (24 ± 2 h);
- acc. to FDA-BAM Chapter No. 29 at (36 ± 1 °C) for (24 ± 2 h);
- acc. to ISO 19250 at (36 ± 2 °C) for (18 ± 2 h);
- acc. to EP 2.6.31 at (30 - 35 °C) for (18 - 24 h).

For pre-enrichment of large quantities (e.g. 1 l or more), it is recommended to pre-warm the BPW before mixing it with the test portion, e.g. to 34 °C to 38 °C depending on the pre-enrichment temperature given by the specific standard.

Transfer material from the resulting culture to a selective enrichment medium or a solid selective medium following the method given by the appropriate standard.

According to EN ISO 6579-1, it is permissible to store the pre-enriched sample after incubation at (5 ± 3 °C) for a maximum of 72 h before transferring to the selective enrichments.

Storage

Store at +15 °C to +25 °C, dry and tightly closed. Do not use clumped or discolored medium. Protect from UV light (including sun light). For *in vitro* use only.

According to ISO 6579-1/-2, ISO 21528-1 and ISO 22964, self-prepared BPW can be stored in closed containers at (5 ± 3 °C) in the dark and protected against evaporation for up to six months.

Quality Control

Function	Control strains	Incubation	Method of control	Expected results
Productivity	*Salmonella* Typhimurium ATCC® 14028 [WDCM 00031]	(18 ± 2 h) at (37 ± 1 °C) aerobic	Qualitative as pre-enrichment medium	Growth (good to very good turbidity)
	Salmonella Enteritidis ATCC® 13076 [WDCM 00030]			
	Escherichia coli ATCC® 8739 [WDCM 00012]			
	Escherichia coli ATCC® 25922 [WDCM 00013]			
	Cronobacter sakazakii ATCC® 29544 [WDCM 00214]	(18 ± 2 h) at (34 - 38 °C) aerobic		
	Cronobacter muytjensii ATCC® 51329 [WDCM 00213]			
	Salmonella Abony NCTC 6017 [WDCM 00029]	≤18 h at (30 - 35 °C) aerobic		

Function	Control strains	Incubation	Method of control	Expected results
Dilution	*Escherichia coli* ATCC® 8739 (WDCM 00012)	(45 min up to 1 h) at (18 - 27 °C) (laboratory ambient temperature)	Quantitative as dilution medium	± 30 % of original count (70 - 130 %)
	Escherichia coli ATCC® 25922 (WDCM 00013)			
	Staphylococcus aureus ATCC® 25923 (WDCM 00034)			

Reference medium: Tryptic Soy Agar (TSA).

Please refer to the actual batch related Certificate of Analysis.

The performance test is in accordance with the current version of EN ISO 11133, EN ISO 6887-1, EN ISO 21528-1, EN ISO 22964, GB 4789.28 and EP 2.6.31.

Literature

APHA (2015) Compendium of Methods for the Microbiological Examination of Foods. 5th ed. American Public Health Association, Washington, D.C.

European Directorate for the Quality of Medicines and Healthcare (2022): The European Pharmacopoeia. 11th Ed. Chapter 2.6.31 Microbiological examination of herbal medicinal products for oral use and extracts used in their preparation. Strasbourg, France.

FDA-BAM (2020): Chapter No. 5: *Salmonella*. U.S. Food and Drug Administration - Bacteriological Analytical Manual.

FDA-BAM (2018): Chapter No. 29: *Cronobacter*. U.S. Food and Drug Administration - Bacteriological Analytical Manual.

FDA-BAM (2018): Media Index for BAM - BAM Media M192: Buffered Peptone Water (BPW). Food and Drug Administration - Bacteriological Analytical Manual.

National Health and Family Planning Commission of the People's Republic of China. China Food and Drug Administration. National Standard of the People's Republic of China. National food safety standard — Food microbiological examination: Food microbiological examination: Examination of *Salmonella*. GB 4789.4-2016.

National Health and Family Planning Commission of the People's Republic of China. China Food and Drug Administration. National Standard of the People's Republic of China. National food safety standard — Food microbiological examination: Food microbiological examination: Quality requirements of culture media and reagents. GB 4789.28-2013.

National Health and Family Planning Commission of the People's Republic of China. China Food and Drug Administration. National Standard of the People's Republic of China. National food safety standard — Food microbiological examination: Food microbiological examination: Listeria monocytogenes. GB 4789.30-2016.

National Health and Family Planning Commission of the People's Republic of China. China Food and Drug Administration. National Standard of the People's Republic of China. National food safety standard — Food microbiological examination: Food microbiological examination: Examination of *Cronobacter* (*Enterobacter sakazakii*). GB 4789.40-2016.

National Health and Family Planning Commission of the People's Republic of China. China Food and Drug Administration. National Standard of the People's Republic of China. National food safety standard — Food microbiological examination: Food microbiological examination: Enumeration of *Enterobacteriaceae*. GB 4789.41-2016.

ISO International Standardisation Organisation. Microbiology of the food chain - Horizontal method for the detection, enumeration and serotyping of *Salmonella* - Part 1: Horizontal method for the detection of *Salmonella spp.* + Amendment 1. EN ISO 6579-1:2017/Amd1:2020.

ISO International Standardisation Organisation. Microbiology of the food chain - Horizontal method for the detection, enumeration and serotyping of *Salmonella* – Part 2: Enumeration by a miniaturized most probable number technique. EN ISO/TS 6579-2:2012.

ISO International Standardisation Organisation. Microbiology of the food chain - Preparation of test samples, initial suspension and decimal dilutions for microbiological examination. EN ISO 6887 (all parts).

ISO International Standardisation Organisation. Microbiology of the food chain - Preparation of test samples, initial suspension and decimal dilutions for microbiological examination - Part 1: General rules for the preparation of the initial suspension and decimal dilutions. EN ISO 6887-1:2017.

ISO International Standardisation Organisation. Microbiology of food, animal feed and water - Preparation, production, storage and performance testing of culture media + Amendment 1 + Amendment 2. EN ISO 11133:2014/Amd1:2018/Amd2:2020.

ISO International Standardisation Organisation. Water quality - Detection of *Salmonella* spp. EN ISO 19250:2010.

ISO International Standardisation Organisation. Microbiology of food chain - Horizontal methods for the detection and enumeration of *Enterobacteriaceae* - Part 1: Detection of *Enterobacteriaceae*. EN ISO 21528-1:2017.

ISO International Standardisation Organisation. Microbiology of the food chain - Horizontal method for the detection of *Cronobacter* spp. EN ISO 22964:2017.

Edel, W. and Kampelmacher, E. H. (1973): Comparative studies on the isolation of „sublethally injured" *Salmonellae* in nine European laboratories. Bull. WHO **48**: 167-174.

Mooijman, K.A. (2012): Culture media for the isolation of *Salmonella*. In: Handbook of Culture Media for Food and Water Microbiology. (Corry, J.E.L., Curtis, G.D.W. and Baird, R.M. eds). pp. 261-286. Royal Society of Chemistry, Cambridge, UK.

Tomás Fornés, D., McMahon, W., Moulin, J. and Klijn, A. (2017): Validation of test portion pooling for *Salmonella* spp. detection in foods. Int J. Food Microbiol. **245**: 13-21.

Ordering Information

Product	Cat. No.	Pack size
NutriSelect® prime Buffered Peptone Water halal acc. ISO 6579, ISO 19250, ISO 21528, ISO 22964, ISO 6887, FDA-BAM and EP	1.04316.0500	500 g
NutriSelect® prime Buffered Peptone Water halal acc. ISO 6579, ISO 19250, ISO 21528, ISO 22964, ISO 6887, FDA-BAM and EP	1.04316.5000	5 kg

Version 2022-06-22