

## Technical Data Sheet

### EcoCult®

### Buffered Peptone Water

acc. ISO 6579, ISO 6887, ISO 21528, ISO 22964, FDA-BAM and EP

Ordering numbers: 1.40141.0500 / 1.40141.5000 / 1.40141.9010

For the preliminary non-selective enrichment of bacteria, particularly pathogenic *Enterobacteriaceae* such as *Salmonella* and *Cronobacter* spp., from food, animal feed, water and other materials and for the dissolving, suspending and diluting of test samples from food, animal feed and other materials. Buffered Peptone Water is also known as BPW and Buffered Peptone Medium.

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, APHA and EP 2.6.31.

### 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 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.

### Typical Composition

Specified by ISO 6579-1/-2, ISO 6887-1, ISO 19250, ISO 21528-1, ISO 22964, EP 2.6.31		Specified by FDA-BAM Medium M192		EcoCult® Buffered Peptone Water 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 <sub>2</sub> HPO <sub>4</sub> x 12 H <sub>2</sub> O or Na <sub>2</sub> HPO <sub>4</sub> anhydrous*	9 g/l or 3.57 g/l	Na <sub>2</sub> HPO <sub>4</sub> *	3.5 g/l	Na <sub>2</sub> HPO <sub>4</sub> anhydrous*	3.57 g/l
KH <sub>2</sub> PO <sub>4</sub>	1.5 g/l	KH <sub>2</sub> PO <sub>4</sub>	1.5 g/l	KH <sub>2</sub> PO <sub>4</sub>	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<sub>2</sub>HPO<sub>4</sub> anhydrous is equivalent to 9.0 g of Na<sub>2</sub>HPO<sub>4</sub> x 12 H<sub>2</sub>O.

## 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 light yellow colour.

The prepared medium is clear and yellowish. The pH value at 25 °C is in the range of 6.8 – 7.2.

## 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.

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 +10 °C to +30 °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	Reference medium	Method of control	Expected results
Productivity	<i>Salmonella</i> Typhimurium ATCC® 14028 [WDCM 00031]	(18 ± 2 h) at (37 ± 1 °C) aerobic	-	Qualitative as pre- enrichment medium	Growth (good to very good turbidity)
	<i>Salmonella</i> Enteritidis ATCC® 13076 [WDCM 00030]				
	<i>Escherichia coli</i> ATCC® 25922 [WDCM 00013]				
	<i>Escherichia coli</i> ATCC® 8739 [WDCM 00012]				
	<i>Cronobacter sakazakii</i> ATCC® 29544 [WDCM 00214]	(18 ± 2 h) at (34 - 38 °C) aerobic			
	<i>Cronobacter muytjensii</i> ATCC® 51329 [WDCM 00213]				
	<i>Salmonella</i> Abony NCTC 6017 [WDCM 00029]	(18 - 24 h) at (30 - 35 °C) aerobic			
Dilution	<i>Escherichia coli</i> ATCC® 25922 (WDCM 00013)	(45 min to 1 h) at laboratory ambient temperature) (18 - 27 °C)	Tryptic Soy Agar (TSA)	Quantitative as dilution medium	± 30 % of original count (70-130 %)
	<i>Escherichia coli</i> ATCC® 8739 (WDCM 00012)				
	<i>Staphylococcus aureus</i> ATCC® 25923 (WDCM 00034)				

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 and EP 2.6.31.

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## Literature

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

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.

European Directorate for the Quality of Medicines and Healthcare (2019): The European Pharmacopoeia. 10<sup>th</sup> 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.

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.

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.

## Ordering Information

Product	Cat. No.	Pack size
EcoCult® Buffered Peptone Water acc. ISO 6579, ISO 6887, ISO 21528, ISO 22964, FDA-BAM and EP	1.40141.0500	500 g
EcoCult® Buffered Peptone Water acc. ISO 6579, ISO 6887, ISO 21528, ISO 22964, FDA-BAM and EP	1.40141.5000	5 kg
EcoCult® Buffered Peptone Water acc. ISO 6579, ISO 6887, ISO 21528, ISO 22964, FDA-BAM and EP	1.40141.9010	10 kg
GranuCult® Buffered Peptone Water acc. ISO 6579, ISO 6887, ISO 21528, ISO 22964, FDA-BAM and EP	1.07228.0500	500 g
GranuCult® Buffered Peptone Water acc. ISO 6579, ISO 6887, ISO 21528, ISO 22964, FDA-BAM and EP	1.07228.5000	5 kg
GranuCult® Buffered Peptone Water acc. ISO 6579, ISO 6887, ISO 21528, ISO 22964, FDA-BAM and EP	1.07228.9010	10 kg
GranuCult® Buffered Peptone Water acc. ISO 6579, ISO 6887, ISO 21528, ISO 22964, FDA-BAM and EP	1.07228.9025	25 kg
Readybag® Buffered Peptone Water acc. ISO 6579, ISO 21528, ISO 22964, FDA-BAM and EP, 29 g, irradiated	1.00901.0001	60 bags
Readybag® Buffered Peptone Water acc. ISO 6579, ISO 21528, ISO 22964, FDA-BAM and EP, 86 g, irradiated	1.00908.0001	35 bags

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