

Instructions for Use

CRITERION™ UNIVERSAL PREENRICHMENT BROTH

Cat. no. C7220	CRITERION™ Universal Preenrichment Broth	76.1gm
Cat. no. C7221	CRITERION™ Universal Preenrichment Broth	500gm
Cat. no. C7222	CRITERION™ Universal Preenrichment Broth	2kg
Cat. no. C7223	CRITERION™ Universal Preenrichment Broth	10kg

INTENDED USE

Hardy Diagnostics CRITERION™ Universal Preenrichment Broth is recommended for recovering sublethally injured *Salmonella* and *Listeria* from food products.

SUMMARY

Traditional methods for recovering *Salmonella* spp. and *Listeria* spp. from food products require separate preenrichment media for each microorganism.^(1,2) Some broth media recommended for preenrichment contain antibiotic inhibitors or have insufficient buffering capacity which hinder recovery of sublethally injured cells.⁽³⁻⁵⁾

Bailey and Cox formulated Universal Preenrichment Broth to permit simultaneous resuscitation of sublethally injured *Salmonella* and *Listeria*. The formulation provides sufficient buffering capacity to prevent rapid decreases in pH, and allows for repair of injured cells that might be sensitive to low pH or inhibitory substances. According to the FDA's Bacteriological Analytical Manual (BAM), Universal Preenrichment Broth is used as preenrichment of *Salmonella* spp. when testing orange and apple juice, cider, cantaloupes, tomatoes, and mamey pulp.⁽²⁾

CRITERION™ Universal Preenrichment Broth follows the BAM formulation and contains peptones as sources of carbon, nitrogen, vitamins and minerals. Sodium and potassium phosphates buffer the medium while sodium chloride maintains osmotic balance. Magnesium sulfate and ferric ammonium citrate provide essential ions. Dextrose is an energy source and sodium pyruvate helps to stimulate the metabolism of stressed organisms.

FORMULA*

Gram weight per liter:	38.05gm/L
Monopotassium Phosphate	15.0gm
Disodium Phosphate	7.0gm
Pancreatic Digest of Casein	5.0gm
Proteose Peptone	5.0gm
Sodium Chloride	5.0gm

Dextrose	0.5gm
Magnesium Sulfate	0.25gm
Sodium Pyruvate	0.2gm
Ferric Ammonium Citrate	0.1gm

Final pH 6.3 +/- 0.2 at 25°C.

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

STORAGE AND SHELF LIFE

Store the sealed bottle(s) containing dehydrated culture medium at 2-30°C. Dehydrated culture medium is very hygroscopic. Keep lid tightly sealed. Protect dehydrated culture media from moisture and light. The dehydrated culture media should be discarded if it is not free-flowing or if the color has changed from its original light beige

Store the prepared culture media at 2-8°C.

The expiration date on the product label applies to the product in its intact packaging when stored as directed. The product may be used and tested up to the expiration date on the product label and incubated for the recommended incubation times as stated below.

Refer to the document "[Storage](#)" for more information.

PRECAUTIONS

This product may contain components of animal origin. Certified knowledge of the origin and/or sanitary state of the animals does not guarantee the absence of transmissible pathogenic agents. Therefore, it is recommended that these products be treated as potentially infectious, and handle observing the usual universal blood precautions. Do not ingest, inhale, or allow to come into contact with skin.

This product is for laboratory use only. It is to be used only by adequately trained and qualified laboratory personnel. Observe approved biohazard precautions and aseptic techniques. All laboratory specimens should be considered infectious and handled according to "standard precautions." Refer to the document "[Guidelines for Isolation Precautions](#)" from the Centers for Disease Control and Prevention.

For additional information regarding specific precautions for the prevention of the transmission of all infectious agents from laboratory instruments and materials, and for recommendations for the management of exposure to infectious disease, refer to CLSI document M29: *Protection of Laboratory Workers from Occupationally Acquired Infections*.

Sterilize all biohazard waste before disposal.

Refer to the document "[Precautions When Using Media](#)" for more information.

METHOD OF PREPARATION FOR DEHYDRATED CULTURE MEDIA

1. Suspend 38.05gm of the dehydrated culture media in one liter of distilled or deionized water. Stir to mix thoroughly.
2. Heat as necessary to dissolve completely and dispense desired volume into clean containers.
3. Sterilize in the autoclave at 121°C. for 15 minutes.
4. Cool containers and cap tightly.

PROCEDURE

Refer to the appropriate references for preenrichment procedures for *Salmonella* and *Listeria*.^(1,2)

INTERPRETATION OF RESULTS

Refer to the appropriate procedure for expected results.^(1,2)

Salmonella and *Listeria* demonstrate good growth and recovery following preenrichment in this broth.

LIMITATIONS

It is recommended that biochemical, immunological, molecular, or mass spectrometry testing be performed on colonies from pure culture for complete identification of bacteria and/or fungi.

Due to nutritional variation, some strains may be encountered that grow poorly or fail to grow.

Refer to the document "[Limitations of Procedures and Warranty](#)" for more information.

MATERIALS REQUIRED BUT NOT PROVIDED

Standard microbiological supplies and equipment such as autoclaves, incinerators, and incubators, etc., are not provided.

QUALITY CONTROL

Hardy Diagnostics tests each lot of commercially manufactured media using appropriate quality control microorganisms and quality specifications as outlined on the Certificate of Analysis (CofA) and the CLSI document M22-A3 *Quality Assurance for Commercially Prepared Microbiological Culture Media*. The following microorganisms are routinely used for testing at Hardy Diagnostics:

Test Organisms	Inoculation Method*	Incubation			Results
		Time	Temperature	Atmosphere	
<i>Listeria monocytogenes</i> ATCC® 7644	J	18-24hr	35°C	Aerobic	Growth and typical colony morphology upon subculture to Blood Agar
<i>Salmonella enterica</i> ATCC® 14028	J	18-24hr	35°C	Aerobic	Growth and typical colony morphology upon subculture to Blood Agar

* Refer to the document "[Inoculation Procedures for Media QC](#)" for more information.

USER QUALITY CONTROL

End users of commercially prepared culture media should perform QC testing in accordance with applicable government regulatory agencies, and in compliance with accreditation requirements. Hardy Diagnostics recommends end users check for signs of contamination and deterioration and, if dictated by laboratory quality control procedures or regulation, perform quality control testing to demonstrate growth or a positive reaction and to demonstrate inhibition or a negative reaction, if applicable. Hardy Diagnostics quality control testing is documented on the certificate of analysis (CofA) available from Hardy Diagnostics [Certificate of Analysis](#) website. Also refer to the document "[Finished Product Quality Control Procedures](#)," and the CLSI document M22-A3 *Quality Assurance for Commercially Prepared Microbiological Culture Media* for more information on the appropriate QC procedures. See the references below.

PHYSICAL APPEARANCE

CRITERION™ Universal Preenrichment Broth powder should appear homogeneous, free-flowing, and light beige in color. The prepared medium should appear slightly opalescent to opalescent, and light to medium amber in

color. The broth may have a precipitate but no debris.

REFERENCES

1. APHA Technical Committee on Microbiological Methods for Foods. *Compendium of Methods for the Microbiological Examination of Foods*, APHA, Washington, D.C.
2. U.S. Food and Drug Administration. *Bacteriological Analytical Manual*. AOAC, Arlington, VA.
www.fda.gov/Food/FoodScienceResearch/LaboratoryMethods/ucm2006949.htm
3. Bailey, J.S., and N.A. Cox. 1992. Universal preenrichment broth for the simultaneous detection of *Salmonella* and *Listeria* in foods. *J. Food Protect.* ; 55:256-259.
4. Bailey, J.S., D.L. Fletcher, and N.A. Cox. 1990. Efficacy of enrichment media for recovery of heat-injured *Listeria monocytogenes* . *J. Food Prot.* ; 47:299-302.
5. Juven, B.J., N.A. Cox, J.S. Bailey, J.E. Thomson, O.W. Charles, and J.V. Shutze. 1984. Recovery of *Salmonella* from artificially contaminated poultry feed in non-selective and selective broth media. *J. Food Prot.* ; 47:299-302.

ATCC is a registered trademark of the American Type Culture Collection.

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[Ordering Information](#)

Distribution Centers:

California · Washington · Utah · Arizona · Texas · Ohio · New York · Florida · North Carolina

The Hardy Diagnostics manufacturing facility and quality management system is certified to ISO 13485.

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