

Instructions for Use

CRITERION™ SELENITE CYSTINE BROTH

Cat. no. C6920	CRITERION™ Selenite Cystine Broth	46gm
Cat. no. C6921	CRITERION™ Selenite Cystine Broth	500gm
Cat. no. C6922	CRITERION™ Selenite Cystine Broth	2kg
Cat. no. C6923	CRITERION™ Selenite Cystine Broth	10kg
Cat. no. C6924	CRITERION™ Selenite Cystine Broth	50kg

INTENDED USE

Hardy Diagnostics CRITERION™ Selenite Cystine Broth is a selective enrichment for isolation of *Salmonella* spp. from food, feces, dairy products and other sanitary materials.

This dehydrated culture medium is a raw material intended to be used in the making of prepared media products, which will require further processing, additional ingredients, or supplements.

SUMMARY

Selenite Cystine Broth is to be employed as an enrichment medium for detecting *Salmonella* in food materials, in particular egg products. The formulation corresponds to that recommended by the AOAC as a standard enrichment medium for *Salmonella*.⁽⁷⁾ It is included among the standard methods media of the American Public Health Association and complies with the requirements of the United States Pharmacopoeia.

The original formula of Leifson has been modified with added cystine.⁽⁸⁾ Leifson determined that Selenite Broth favored the growth of *Salmonella* while reducing the growth of fecal coliforms and enterococci. The growth and recovery of *Salmonella* in food samples can be hindered by non-*Salmonella* bacteria, substances indigenous to the food sample and in dried, processed food, the *Salmonella* may be present in low numbers and in an injured condition. Using protocols that involve preenrichment, selective enrichment and selective plating increase the likelihood of recovering *Salmonella*. In most standard method procedures Selenite Cystine Broth is recommended in the selective enrichment step. As a selective enrichment medium, Selenite Cystine Broth is formulated to allow the proliferation of *Salmonella* and while inhibiting the growth of competing non-*Salmonella* bacteria. The addition of cystine assists in lowering the toxicity of selenite to microorganisms. In addition, the extra organic sulphur provided may have a sparing effect in the critical sulphur components of the bacteria. Thus, reducing the effects of the selenite.

Selenite Cystine Broth contains tryptone as a source of carbon, nitrogen, vitamins and minerals. Lactose is the carbohydrate. Sodium acid selenite inhibits gram-positive bacteria and most enteric gram-negative bacteria except *Salmonella*. L-Cystine is a reducing agent.

FORMULA

Gram weight per liter:	23.0gm/L
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Disodium Phosphate	10.0gm
L-Cystine	10.0gm
Pancreatic Digest of Casein	5.0gm
Lactose	4.0gm
Sodium Selenite	4.0gm

Final pH 7.0 +/- 0.2 at 25°C.

* Adjusted and/or supplemented to meet performance criteria.

STORAGE AND SHELF LIFE

Store the sealed bottle(s) containing 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 off-white. Notably, prolonged storage of this product may lead to changes in medium and possible deterioration in its selectivity.

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 23.0gm of the dehydrated culture media in 1 liter of distilled or deionized water.
2. Heat to boiling and mix to dissolve completely.
3. Dispense into tubes.

4. **Do not autoclave.** Use immediately.

Alternatively, the broth may be filter sterilized and aseptically dispensed into sterile tubes.

PROCEDURE AND INTERPRETATION OF RESULTS

For information on procedures and interpretation of results, consult listed references or refer to the prepared media Instructions for Use (IFU) for Cat. No. K69.

LIMITATIONS

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

Some formulations may require a settling period before pH testing of the prepared medium. If the pH is tested immediately after preparation and is out of specification, retest the medium after 24 hours to obtain final pH results. Always take pH reading at room temperature.

Selenite Cystine Broth is a selective enrichment for *Salmonella*. Other biochemical and/or serological tests must be performed for complete identification. See listed references.^(1,3-5)

Do not incubate over 24 hours; the inhibitory effect diminishes after the first 6-12 hours of incubation. Incubation over 24 hours is not favorable to most *Salmonella* spp.

Refer to the keyword "Limitations", in the Hardy Diagnostics software program HUGO™, for more information regarding general limitations on culture media.

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>Salmonella enterica</i> ATCC® 14028	I	18-24hr	35°C	Aerobic	Good growth
<i>Shigella flexneri</i> ATCC® 12022	I	18-24hr	35°C	Aerobic	Partial to complete inhibition
<i>Escherichia coli</i> ATCC® 25922	I	18-24hr	35°C	Aerobic	Partial to complete inhibition

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

USER QUALITY CONTROL

Users of dehydrated 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. In addition, refer to the following document "[Finished Product Quality Control Procedures](#)," for more information on QC or see the reference(s) for more specific information.

PHYSICAL APPEARANCE

CRITERION™ Selenite Cystine Broth powder should appear homogeneous, free-flowing, and off-white in color. The prepared media should appear clear to slightly opalescent, and very light amber in color. The prepared media may have a slight precipitate.

REFERENCES

1. FDA. 1995. *Bacteriological Analytical Manual*, 8th ed. FDA.
2. Marshall, R.T., ed. 1992. *Standard Methods for the Examination of Dairy Products*, 16th ed. APHA, Washington, D.C.
3. Vanderzant, C. and D.F. Splittstoesser, (ed.). 1992. *Compendium of Methods for the Microbiological Examination of Foods*, 3rd ed. APHA, Washington, D.C.
4. Greenberg, A.E., et al., (ed.). 1992. *Standard Methods for the Examination of Water and Wastewater*, 18th ed. APHA, Washington, D.C.
5. *U.S. Pharmacopeia*, 22nd rev. 1990. U.S. Pharmacopeial Convention, Rockville, MD.
6. *Quality Assurance for Commercially Prepared Microbiological Culture Media*, M22. Clinical and Laboratory Standards Institute (CLSI - formerly NCCLS), Wayne, PA.
7. Association of Official Analytical Chemists. 1978. *Bacteriological Analytic Manual*, 5th ed. AOAC, Washington, D.C.
8. Leifson, E. 1936. New Selenite Selective Enrichment Medium for the Isolation of Typhoid and Paratyphoid (*Salmonella*) Bacilli. *Am. J. Hyg.*

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

IFU-10256[A]



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[Ordering Information](#)

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