

# Instructions for Use

## MACCONKEY AGAR WITH SORBITOL, CEFIXIME, AND TELLURITE (CT-SMAC)

<a href="#">Cat. no. G129</a>	MacConkey Agar with Sorbitol, Cefixime, and Tellurite, 15x100mm Plate, 18ml	10 plates/bag
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### INTENDED USE

Hardy Diagnostics MacConkey Agar with Sorbitol, Cefixime, and Tellurite (CT-SMAC) is used for the selective and differential isolation of enterohemorrhagic *Escherichia coli* O157.

### SUMMARY

*E. coli* serogroup O157 is a group of enteric pathogens that cause hemorrhagic colitis and hemolytic uremic syndrome. MacConkey Agar with Sorbitol was developed as a medium capable of differentiating *E. coli* O157 from non-O157 *E. coli* on the basis of sorbitol fermentation.<sup>(1)</sup>

MacConkey Agar with Sorbitol, Cefixime, and Tellurite inhibits the growth of most non-verocytotoxigenic *E. coli* strains and most other non-sorbitol fermenting species. A number of organisms which may be mistaken for *E. coli* O157 on traditional MacConkey Agar with Sorbitol are inhibited on MacConkey Agar with Sorbitol, Cefixime, and Tellurite.<sup>(1)</sup>

### FORMULA

Ingredients per liter of deionized water:\*

Pancreatic Digest of Gelatin	17.0gm
Sorbitol	10.0gm
Sodium Chloride	5.0gm
Proteose Peptone	3.0gm
Bile Salts Mixture	1.5gm
Neutral Red	30.0mg
Potassium Tellurite	2.5mg
Crystal Violet	1.0mg
Cefixime	0.05mg
Agar	13.5gm

Final pH 7.1 +/- 0.3 at 25°C.

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

## STORAGE AND SHELF LIFE

Storage: Upon receipt store at 2-8°C. away from direct light. Media should not be used if there are any signs of deterioration (shrinking, cracking, or discoloration), contamination, or if the expiration date has passed.

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 Precautions for blood. Do not ingest, inhale, or allow to come into contact with skin.

This product is for *in vitro* diagnostic 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.

## PROCEDURE

Specimen Collection: Consult appropriate references to determine how to correctly collect the specimen to be tested (stool, food, etc.).<sup>(2-4)</sup>

Method of Use: Allow plates to warm to room temperature. The agar surface should be dry before inoculating. Inoculate plates with a loopful of sample and streak using the four quadrant method to obtain isolated colonies. Incubate plates aerobically at 37°C. for 24 hours. Examine media macroscopically for typical colonies.

## INTERPRETATION OF RESULTS

*E. coli* O157, which does not ferment Sorbitol, will grow as colorless colonies on CT-SMAC. Any colony capable of fermenting sorbitol will appear as pink colonies on CT-SMAC.

## 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.

Reading CT-SMAC beyond 24 hours should be avoided. The pink color produced by sorbitol fermenting colonies will fade after time. In addition, colonies inhibited by the tellurite and cefixime in the media may begin to overwhelm the

medium after 24 hours.

A heavy inoculum should be avoided, as it can exhaust the sorbitol, giving a false-negative sorbitol fermentation reaction.

Streaking for isolation is critical as sorbitol negative colonies present in low numbers may be buried beneath sorbitol positive colonies and difficult to distinguish.

The CT-SMAC Agar can be used to aid in the identification of bacteria. Additional biochemical and serological testing is recommended for complete identification.

Sorbitol-negative colonies may be presumptively identified as *E. coli* O157 using our *E. coli*PRO™ O157 Kit (Cat. no. PL070HD). Further serotyping with H7 antiserum is necessary for definitive identification (Cat. no. 221591).

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

## MATERIALS REQUIRED BUT NOT PROVIDED

Standard microbiological supplies and equipment such as loops, other culture media, swabs, applicator sticks, incinerators, and incubators, etc., as well as serological and biochemical reagents, 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>Escherichia coli</i> O157:H7 ATCC® 43888**	A	24hr	35°C	Aerobic	Clear colonies seen; no fermentation of sorbitol
<i>Escherichia coli</i> ATCC® 25922**	B	24hr	35°C	Aerobic	Partial to complete inhibition; pink colonies seen; fermentation of sorbitol
<i>Proteus mirabilis</i> ATCC® 12453	B	24hr	35°C	Aerobic	Partial to complete inhibition
<i>Enterococcus faecalis</i> ATCC® 29212	B	24hr	35°C	Aerobic	Partial to complete inhibition

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

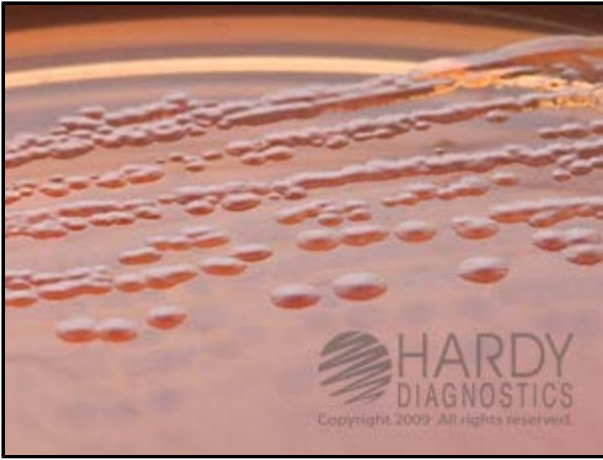
\*\* Recommended QC strains for User Quality Control according to the CLSI document M22 when applicable.

## 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

CT-SMAC Agar should appear slightly opalescent, and reddish-purple in color.



*Escherichia coli* O157:H7 (ATCC® 43888) colonies growing on CT-SMAC Agar (Cat. no. G129). Incubated aerobically for 24 hours at 35°C.



Uninoculated plate of CT-SMAC Agar (Cat. no. G129).

## REFERENCES

1. Zadik, P.M., P.A. Chapman and C.A. Siddons. 1993. *J. Med. Microbiol.*; 39:155-158.
2. Jorgensen., et al. *Manual of Clinical Microbiology*, American Society for Microbiology, Washington, D.C.
3. Tille, P., et al. *Bailey and Scott's Diagnostic Microbiology*, C.V. Mosby Company, St. Louis, MO.
4. U.S. Food and Drug Administration. *Bacteriological Analytical Manual*. AOAC, Arlington, VA. [www.fda.gov/Food/FoodScienceResearch/LaboratoryMethods/ucm2006949.htm](http://www.fda.gov/Food/FoodScienceResearch/LaboratoryMethods/ucm2006949.htm).
5. Chapman, P.A., et al. 1991. *J. Med. Microbiol.*; 35:107-110.
6. *Quality Assurance for Commercially Prepared Microbiological Culture Media*, M22. Clinical and Laboratory Standards Institute (CLSI - formerly NCCLS), Wayne, PA.

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

IFU-10307[A]



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