

IVD in vitro diagnosticum - For professional use only



Sorbitol-MacConkey Agar (SMAC Agar)

Sorbitol-MacConkey Agar

Art. Nr. 1.09207.0500 (500 g)

The culture medium complies with the requirements of the DIN Norm 10167 for the detection of *Escherichia coli* (E. coli) serotype 0157:H7 in foods as well as with the methods of FDA-BAM for the isolation of enterohemorrhagic *E. coli* (EHEC).

See also General Instruction of Use

Warnings and precautions see www.merck-chemicals.com

Principle

Microbiological method.

Mode of Action

Bile salts mixture and crystal violet largely inhibit the growth of the Gram-positive microbial flora. The addition of Cefixime Potassium tellurite (CT) Supplement increases the selectivity for *E. coli* 0157:H7 and suppresses the remaining accompanying flora.

For the detection of *E. coli* 0157:H7 the CT-SMAC Agar method is superior to the HC Agar (SZABO) method according to the study of WEAGANT (1995).

Sorbitol, together with the pH indicator neutral red, is used to detect sorbitol-positive colonies and turning them red in colour.

Sorbitol-negative strains, on the other hand, form colourless colonies.

Typical Composition (g/litre)

Peptone 20.0; sodium chloride 5.0; bile salts No. 3 1.5; sorbitol 10.0; crystal violet 0.001; neutral red 0.03; agar-agar 15.0.

Preparation and Storage

Usable up to the expiry date when stored dry and tightly closed at +15 to +25 °C. Protect from light. After first opening of the bottle the content can be used up to the expiry date when stored dry and tightly closed at +15 to +25 °C.

Suspend 51.5 g in 1 litre of demin. water, autoclave (15 min at 121 °C), pour plates.

pH: 7.1 ± 0.2 at 25 °C.

The plates are clear and red and are stable for up to 6 months when stored at +2-8 °C.

CT-SMAC Agar

Suspend 25.8 g in 500 ml of demin. water, autoclave (15 min at 121 °C).

Dissolve the lyophilisate of one CT Supplement (Cat. No. 1.09202.) in the original vial by adding about 1 ml of sterile distilled water.

Mix gently and add the contents to the sterile, still liquid SMAC Agar cooled below 50 °C. Pour plates.

pH: 7.1 ± 0.2 at 25 °C.

The plates are clear and red and are stable for up to 6 months when stored at +2-8 °C.

Specimen

e.g. Stool, urine.

Clinical specimen collection, handling and processing, see General instructions of use.

Experimental Procedure and Evaluation

Inoculate 25 g of the food sample in 225 ml mEC broth or mTSB broth and incubate for 18-24 h at 35-37 °C aerobically.

Approximately 0.1 ml of the broth is then streaked on the surface of SMAC Agar or CT-SMAC Agar in such a way to obtain well isolated single colonies.

Incubation: 18 to 24 h at 35 °C aerobically.

Stool specimens are inoculated directly onto the plates as loop smears and incubated at 37 °C for 18-24 h. Colourless, sorbitol-negative colonies must be subsequently isolated and tested with special antisera.

Ordering Information

Product Merck	Cat. No.	Pack size
Sorbitol-MacConkey Agar (SMAC Agar)	1.09207.0500	500 g
CT-Supplement	1.09202.0010	1 x 10 vials
mEC Broth with Novobiocin	1.14582.0500	500 g
mTSB Broth with Novobiocin	1.09205.0500	500 g

Quality control SMAC Agar

Test strains	Inoculum (cfu/ml)	Recovery rate %	Colony colour	Sorbitol
E. coli O157:H7 ATCC 35150	10 ³ - 10 ⁵	≥70	colourless	-
E. coli ATCC 11775	10 ³ - 10 ⁵	≥70	red	+
Serratia marcescens ATCC 14756	10 ³ - 10 ⁵	≥70	red	+
Bacillus cereus ATCC 11778	> 10 ⁵	≥0.01		

Quality control CT-SMAC Agar

Test strains	Inoculum (cfu/ml)	Recovery rate %	Colony colour	Sorbitol
E. coli O157:H7 ATCC 35150	10 ³ - 10 ⁵	≥30	colourless	-
E. coli ATCC 11775	10 ³ - 10 ⁵	≤0.01		
E. coli ATCC 87639	> 10 ⁵	≤0.01		
Serratia marcescens ATCC 14756	> 10 ⁵	≤0.01		
Bacillus cereus ATCC 11778	> 10 ⁵	≤0.01		

Literatur

DIN Deutsches Institut für Normung e.V.: Nachweis von Escherichia coli O157 in Lebensmitteln.- DIN 10167

FDA Bacteriological Analytical Manual, 8th Edition/1995, Chapter 4. Escherichia coli and the Coliform Bacteria, page 4.20: Isolation Methods for Enterohemorrhagic E. coli (EHEC).

WEAGANT, S.D., J.L. BRYANT, and K.G. JINNEMAN, An improved rapid technique for isolation of Escherichia coli O157:H7 from foods. - J. Food Prot., 58;7-12 (1995).

ZADIK, P. M., P. A. CHAPMAN, and C. A. SIDDONS, Use of tellurit for the selection of verocytotoxigenic Escherichia coli O157. - J. Med. Microbiol., 39; 155-158 (1993)

