Technical Data Sheet

MKTTn (MULLER-KAUFFMANN Tetrathionate Novobiocin) Broth

Ordering number: 1.46221.0020

For the selective enrichment of *Salmonella* from food and animal feed and other materials.

Mode of Action

Tetrathionate is produced from thiosulfate by adding iodine to the culture medium. Tetrathionate suppresses the growth of coliform and other enteric bacteria. *Salmonella, Proteus* and some other species of bacteria can reduce tetrathionate and are not inhibited. Calcium carbonate buffers the sulphuric acid, which is generated when tetrathionate is reduced. Bile promotes the growth of *Salmonella,* but largely inhibits the accompanying bacteria. Brilliant green and novobiocin suppress the growth primarily of Gram-positive bacteria.

Typical Composition (g/liter):

(MULLER-KAUFFMANN Tetrathionate Novobiocin) broth	
Meat extract	4.2
Casein Peptone	8.39
Ox bile	4.66
Sodium Thiosulfate	46.63
Sodium chloride	2.54
Calcium carbonate	37.76
Brilliant green	0.00937
Novobiocin sodium salt	0.039
Potassium iodide	4.88
Iodine	3.90
Water	n/a
pH at 25°C	7.0 ± 0.2

Application and Interpretation

The food sample, which has to be evaluated for the detection of Salmonella is suspended in buffered Peptone Water and incubated for non-selective pre-enrichment for 16 to 20 hours at 36 to 38 °C.

1 ml of the non-selective pre-enrichment is transferred to 10 ml MKTTn and incubated.

The suitability of this method combined with a selective pre-enrichment in Rappaport Vassiliadis Medium (article number 146181) for the detection of salmonella in food has been confirmed by cooperative tests.

The inoculated broth medium is incubated for 24 ± 3 hours at 37 ± 1 °C.

A sample of the selective pre-enrichment in Muller-Kauffmann Tetrathionate-Novobiocin-Broth is sub-cultured on XLD Agar (article number 146073) as well as on a second selective agar medium free of choice using an inoculation loop. Suspect colonies are characterized further using biochemical, serological or other suitable commercial test kits according to ISO 6579.

Storage and Shelf Life

The product can be used for sampling until the expiry date if stored upright, protected from light and properly sealed at +4 °C to +12 °C.

The testing procedures as described on the CoA can be started up to the expiry date printed on the label.

Disposal

Please mind the respective regulations for the disposal of used culture medium (e.g. autoclave for 20 min at 121 °C, disinfect, incinerate etc.).

Quality Control

Function	Control Strains	Inoculum CFU	Incubation	Expected Results
Productivity	*Salmonella typhimurium* ATCC® 14028 WDCM 00031	~100	20-24 h at 35-37 °C	good growth
Selectivity	*Escherichia coli* ATCC® 8739 WDCM 00012	~1000	20-24 h at 35-37 °C	growth greatly inhibited
	Enterococcus faecalis ATCC® 19433 WDCM 00009	~1000	20-24 h at 35-37 °C	growth greatly inhibited

Literature

ISO 6579:2002+Amd 1:2007: Microbiology of food and animal feeding stuffs - Horizontal method for the detection of Salmonella spp.

Jefffries, L. (1959): Novobiocin-Tetrathionate Broth: A medium of improved selectivity for the isolation of Salmonella from faeces. *J Clin Pathol* 1959*;* **12**: 568-571*.*

Kauffmann, F. (1935): Weitere Erfahrungen mit dem kombinierten Anreicherungsverfahren für Salmonellabacillen. Z. Hyg. Infekt.-Kr.; **117**: 26-29.

Mueller, L. (1923): Un nouveau milieu d'enrichisment pour la recherche du bacille typhique et des paratyphiques. C.R. Soc. Biol. (Paris); **89**: 434.

Ordering Information:

Product	Cat. No.	Pack size	Other packaging sizes
MKTTn Broth	1.46221.0020	20x10ml Tubes	
Granucult™ MKTTn (MULLER-KAUFFMANN Tetrathionate Novobiocin) broth (base) acc. ISO 6579	1.05878.0500	500g	
Potassium iodide	1.05043.0250	250 g	
Iodine resublimed	1.04761.0100	100 g	
GranuCult™ Buffered Peptone Water acc. ISO 6579, ISO 21528, ISO 22964, FDA-BAM and EP	1.07228.0500	500g	5Kg, 25Kg
Readybag® Buffered Peptone Water acc. ISO 6579, ISO 21528, ISO 22964, FDA-BAM and EP, 5,7 g, irradiated	1.02448.0060	60 bags	60 bags x 29g 35 bags x 86g
ReadyTube™ 9 BPW ISO 6579,6887,21528	1.46142.0020	20 x 9ml	6 x 225ml, 6 x 1000ml,
GranuCult™ RVS (RAPPAPORT-VASSILIADIS-Soya) broth (base) acc. ISO 6579	1.07700.0500	500g	
Novobiocin sodium salt	N6160-1-G	1g	5g, 25g
ReadyTube™10 RVS Broth ISO 6579	1.46694.0020	20x10ml	
MSRV (Modified Semi-solid RAPPAPORT-VASSILIADIS) medium (base) acc. ISO 6579	1.09878.0500	500g	
MSRV Selective Supplement	1.09874.0010	10x1 Vial	

ReadyTube™12 MSRV Medium ISO 6579	1.46694.0100	100x12ml	
Granucult™ XLD (Xylose Lysine Deoxycholate) agar acc. ISO 6579	1.05287.0500	500g	
ReadyPlate™ XLD Agar ISO 6579	1.46751.0020	20 x 90mm	
RAMBACH® Agar	1.07500.0001	4x250ml	4 x 1000ml, 4x50L
RAMBACH® Agar ready-to-use	1.46719.0020	20 x 90mm	100 x 90mm
Singlepath® Salmonella	1.04140.0001	25 test	
Bismuth Sulfite Agar acc WILSON-BLAIR	1.05418.0500	500g	
Triple Sugar Iron Agar	1.03915.0500	500g	
Urea Agar (base) acc CHRISTIANSEN	1.08492.0500	500g	
Urea GR for analysis ACS, Reagent Ph Eur	1.08487.0500	500g	
MR-VP (Methyl Red-VOGES-PROSKAUER) Broth	1.05712.0500	500g	
KOVACS' indole reagent	1.09293.0100	100ml	

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