

# Muller-Kauffmann Tetrathionate-Novobiocin Broth (MKTTn)

For the selective enrichment of salmonellae from food and animal feed stuffs acc. to ISO 6579

## 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 liberated when tetrathionate is reduced. Bile promotes the growth of Salmonella, but largely inhibits the accompanying bacteria. Brilliant green and novobiocin suppresses primarily Gram-positive bacteria.

## Typical Composition (g/litre)

Meat extract 4.3; peptone from casein 8.6; sodium chloride 2.6; calcium carbonate 38.7; sodium thiosulfate water free 30.5 (equivalent to 47,8 g sodium thiosulphate pentahydrate); ox bile 4.78, brilliant green 0.0096; novobiocin 0.040.

### Also to be added:

Potassium iodide 5.0; iodine 4.0; dissolved in 20 ml water.

## Preparation

Suspend 89.5 g in 1000 ml demin. water, heat briefly (5 min.) by boiling and cool rapidly. A sediment of calcium carbonate appears in the turbid broth at the bottom of the tubes. Adjust the pH, if necessary, so that it is  $8.0 \pm 0.2$  at 25 °C.

### ■ Do not autoclave.

Prior to use add 20 ml iodine/potassium iodide solution to 1000ml of basal medium. Dispense the medium aseptically into sterile flasks of suitable capacity to obtain the portions necessary for the test. Avoid further heating.

### ■ The basal medium without iodine/potassium iodide solution has at refrigeration a shelf life of up to 4 weeks at 2-8°C

*Preparation of the iodine/potassium iodide solution:*

Completely dissolve 5 g potassium iodide in 2 ml of water, then add 4 g iodine and dilute to 20 ml distilled water.

### ■ The ready-to-use broth prepared and used the same day.

The medium is turbid and green with a white sediment (calcium carbonate).

## Experimental Procedure and Evaluation

Directly suspend approximately 1 ml of culture in 10 ml Muller-Kauffmann Tetrathionate-Novobiocin broth acc. to ISO 6579

Incubation: 21-27 hours at 36-38 °C.

Streak material from the resulting cultures onto selective media acc. to ISO 6579.

## Literature

BÄNFFER, J.R.: Comparison of the isolation of Salmonellae from human faeces by enrichment at 37 °C and at 43 °C. - **Zbl. Bakt. I. Orig.**, **217**; 35-40 (1971).

ISO 6579 2002 International Standardisation Organisation. Microbiology of Food and animal feeding stuffs – Horizontal method for the detection of Salmonella spp.

EDEL, W., a. KAMPELMACHER, E.H.: Salmonella isolation in nine European laboratories using a standardized technique. - **Bull. Wild. Hlth. Org.**, **41**; 297-306 (1969).

KAUFFMANN, F.: Ein kombiniertes Anreicherungsverfahren für Typhus- und Paratyphusbazillen. - **Zbl. Bakt. I. Orig.**, **119**; 148-152 (1930).

KAUFFMANN, F.: Weitere Erfahrungen mit dem kombinierten Anreicherungsverfahren für Salmonellenbacillen. - **Z. Hyg. Infekt.-Krkh.**, **117**; 26-32 (1935).

MULLER, L.: Un nouveau milieu d'enrichissement pour la recherche du bacille typhique et des paratyphiques. - **Comp. rend. Soc. biol.**, **89**; 434-437 (1923).

## Ordering Information

Product	Merck Cat. No.	Pack size
Muller-Kauffmann Tetrathionate-Novobiocin Broth (MKTTn)	1.05878.0500	500 g
Iodine resublimed	1.04761.0100	100 g
Potassium iodide	1.05043.0250	250 g

## Quality control

Test strains	Inoculum	Growth after 24 hours
Salmonella typhimurium ATCC 14028	approx. 1 %	≥ 95 %
Escherichia coli ATCC 25922	approx. 99 %	≤ 5 %
Proteus mirabilis ATCC 29906	approx. 99 %	≤ 5 %