

## MULLER KAUFFMANN TETRATHIONATE BROTH BASE CAT Nº: 21130

For the selective enrichment of *Salmonella* from meats and other foods

### FORMULA IN g/l

Sodium Thiosulfate	40.70	Meat Peptone	4.50
Calcium Carbonate	25.00	Yeast Extract	1.80
Ox Bile	4.75	Beef Extract	0.90
Sodium Chloride	4.50		

**Final pH 7.6 ± 0.2 at 25°C**

### PREPARATION

Suspend 82 grams of medium in one liter of distilled water. Mix well and dissolve by shortly heating with frequent agitation and cool it quickly. AVOID OVERHEATING. DO NOT AUTOCLAVE. A sediment of Calcium carbonate will remain. Aseptically add 20 ml/l of iodine solution and 10 ml/l of 0.1% Brilliant Green solution. Distribute in tubes or flasks after homogenizing the possible precipitate. Once added, DO NOT REHEAT. Use the medium on the same day it is produced. The prepared medium should be stored at 2-8°C. The color light green with white precipitate.

The dehydrated medium should be homogeneous, free-flowing and beige in color. If there are any physical changes, discard the medium.

#### Iodine Solution

Potassium Iodide .....	25 g
Iodine .....	20 g
Distilled Water .....	100 ml

Dissolve the potassium iodide in 5 ml of distilled water, add the iodine and gently warm the solution to dissolve completely. Make the volume reach 100 ml with distilled water.

#### Brilliant Green Solution

Brilliant Green .....	0.1 g
Distilled Water .....	100 ml

Add the brilliant green to the distilled water, shake and heat at 100°C for 30 minutes to ensure the dye has dissolved. Store in brown bottles.

### USES

MULLER-KAUFFMANN TETRATHIONATE BROTH BASE is a recommended selective broth for isolating *Salmonella* from animal feces, polluted sewage water, food, milk, ice cream and pasteurized egg-base products.

Using more than one selective broth increases the isolation of *Salmonella* from samples with multiple sero types. It is also recommended to use Tetrathionate Broth (Cat. 21114) for the isolation of *Salmonella*.

Kauffmann modified the formula to include Ox bile and Brilliant green as selective agents to inhibit Gram-positive microorganisms. Sodium thiosulfate plus Iodine result in Tetrathionate formation, inhibiting coliforms and intestinal bacteria. Acidic tetrathionate decomposition products such as sulphuric acid are formed, which are neutralized by calcium carbonate, acting as a buffer. *Salmonella* and *Proteus* are not inhibited as they reduce Tetrathionate. Meat peptone, Beef and Yeast extracts provide nitrogen, vitamins, minerals and amino acids essential for growth. Sodium chloride supplies essential electrolytes for transport and osmotic balance.

Add 10 g of the sample to 100 ml of medium. Shake vigorously and place flasks immediately in a 15°C water-bath for 15 minutes, followed by incubation at 42-43°C for 6-24 hours.

Subculture to Brilliant Green Agar (Cat. 21078) after 18 – 24 hours and again after 48 hours. Incubate plates at 35° ± 2°C for 18 – 24 hours.

### MICROBIOLOGICAL TEST

The following results were obtained from type cultures in the performance of the medium, with the respective supplements added, after incubation at a temperature of 42-43°C and observed up to 6-24 hours.

Microorganisms	Inoculum Concentration	Growth 6 hours	Growth 24 hours
<i>Escherichia coli</i> ATCC 25922	≈ 99%	<30%	<5%
<i>Salmonella typhimurium</i> ATCC 14028	≈ 1%	>70%	>95%

### STORAGE

Once opened keep powdered medium closed to avoid hydration.



## BIBLIOGRAPHY



Kauffmann, F. 1935. Weitere erfahrungen mit dem kombinierten anreicherungsverfahren fur Salmonella bazillen. Ztschr. F. Hyg. 117: 26-32.

A manual for recommended methods for the microbiological examination of poultry and poultry products. 1982.