

43052 Muller-Kauffmann Tetrathionate Broth, Base (ISO)

Recommended for the selective enrichment of *Salmonellae* from various sources like milk and other foodstuffs, acc. ISO 6579-2002 standard.

Composition

Ingredients	Grams/Litre
Bile salts	4.78
Meat extract	4.3
Caseine peptone	8.6
Sodium Chloride	2.6
Calcium carbonate	38.7
Sodium thiosulfate	47.8

Store prepared media below 8°C, protected from direct light. Store dehydrated powder, in a dry place, in tightly-sealed containers at 2-25°C.

Directions:

Suspend 107 g of powder in 1 litre of distilled water, mix well and bring to the boil and let it cool to 40-45°C. Immediately before use add 20 ml of iodine-iodide solution (prepared by dissolving 4 g of potassium iodide in 10 ml of water, adding 5 g of iodine and then diluting to 20 ml with sterile water). Also add the contents of two vials of Brilliant Green Novobiocin Selective Supplement (55181) reconstituted as directed. Mix well and aseptically dispense into sterile tubes. Do not heat after adding the iodine solution. Complete medium must be used immediately; the base, without iodine, may be stored in the refrigerator for some days.

White precipitate is due to calcium carbonate and is must be considered as normal.

Principle and Interpretation:

Meat extract and casein peptone provide the nitrogen and amino acids and are the carbon sources. Tetrathionate is produced from thiosulfate by adding iodine to the culture medium. Organisms, which reduce tetrathionate, such as *Salmonella*, growth luxuriant in the medium while most faecal organisms are inhibited due to the tetrathionate³. 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, present in the supplement, suppress primarily Gram-positive bacteria (like *Proteus* species)^{4,5}.

Cultural characteristics after 24 hours at 35±2°C.

Organisms (ATCC)	Recovery
<i>Salmonella typhimurium</i> (14028)	+++
<i>Salmonella abony</i> (6017)	+++
<i>Enterococcus faecalis</i> (29212)	-
<i>Proteus mirabilis</i> (43071)	-
<i>Escherichia coli</i> (25922)	-/+

References:

1. International Organization for Standardization (ISO 6579-1:2017), Microbiology of the food chain -- Horizontal method for the detection, enumeration and serotyping of *Salmonella* -- Part 1: Detection of *Salmonella* spp.
2. R. Knox, F.G.H. Gell and M.R. Pollock, Selective media for organisms of the *Salmonella* group, J. Pathol. Bacteriol., 54, 469 (1942)
3. L. Jeffries, J. Clin. Path., 12, 568 (1959)
4. R. Buttiaux, M. Catsaras and M. Verdant, Ann. Inst. Pasteur de Lille, 12., 13 (1961)

