TETRATHIONATE BROTH

TBME-00I-500

- **Principle**

Tetrathionate Broth is a selective enrichment medium used for the isolation of enteric pathogens, particularly Salmonella species, from clinical, food and environmental samples. The formulation is designed to suppress the growth of competing intestinal flora, especially coliform organisms, while allowing the proliferation of Salmonella during the enrichment phase.

The medium contains meat extract, peptone and yeast extract, which provide essential nutrients including nitrogen, carbon, amino acids, vitamins and growth factors required for bacterial development. Sodium chloride maintains osmotic balance, and calcium carbonate acts as a buffering agent, neutralising acidic by-products formed during tetrathionate decomposition and helping to stabilise the medium.

Selectivity is achieved through the formation of tetrathionate. After sterilisation, iodine solution (potassium iodide and iodine) is added, reacting with sodium thiosulphate to form tetrathionate. Tetrathionate inhibits many coliform bacteria, as these organisms are generally unable to reduce it efficiently, whereas Salmonella species possess tetrathionate reductase and can grow in its presence. Brilliant green further enhances selectivity by inhibiting the growth of many Gram-positive and some Gram-negative bacteria.

- **Regulatory compliance**

This product is manufactured under a quality management system in accordance with ISO 9001 and ISO 13485, and its formulation and quality control comply with applicable international standards, such as ISO 11133, where relevant.

- **Composition**

Ingredients	**g/L**
Meat Extract	0.90
Peptone	4.50
Yeast Extract	1.80
Sodium Chloride	4.50
Calcium Carbonate	25.00
Sodium Thiosulphate	40.70
Brilliant green	0.012

- **Preparation**

Dissolve 77.50 g in 980 ml distilled water. Heat just too boiling. Do Not Autoclave or Overheat. Cool below 45-50 °C, add 20 ml iodine solution, mix well and distribute aseptically in sterile test tubes and inoculate test sample aseptically.

Preparation of Iodine solution: dissolve 5 g of potassium iodide and 6 g of iodine in 20 ml distilled water).

- **Applications and use**

Recommended as a selective enrichment broth for the detection and recovery of Salmonella species from food products, faecal specimens, water and environmental samples. It is typically used following a non-selective pre-enrichment step and prior to subculture onto selective plating media such as XLD (AGXL-), Salmonella-Shigella (SSAG-IEP-500) or Hektoen Enteric Agar (HEAG-00P-500) for isolation and confirmation.

- **Quality control**

Solubility	w/o rests
Appearance	Fine powder
Colour of the dehydrated medium	Beige
Colour of the prepared medium	Light green

- **Microbiological test**

Cultural characteristics are observed with added iodine solutions when subculture on Xylose Lysine Deoxycholate Agar (AGXL-) after enrichment in Tetrathionate medium after an incubation at 35-37 °C for 18-72 hours. Inoculum 50-100 CFU.

Microorganism	ATCC	Growth	Recovery	Colony Colour on XLD
Salmonella typhimurium	14028	Luxuriant	≥ 60%	Red with black centre
Salmonella abony	NCTC 6017	Luxuriant	≥ 60%	Red with black centre
Salmonella enterica	9150	Luxuriant	≥ 60%	Red with black centre

- **Storage**

The product is highly hygroscopic; keep the container always closed and store it properly as per the conditions mentioned on the label. The declared expiry is valid only when stored as per the conditions mentioned on the label. Temp. Min.:2 °C Temp. Max.:25 °C.

Note: Sterilize media immediately after reconstitution.

- **Bibliography**

Atlas, R. M. (2005). Handbook of media for environmental microbiology. CRC press.

Difco Manual (1998). 11th Edition. Difco Laboratories., Division of Becton Dickinson and Company, Sparks, Maryland, USA.

Downes F P and Ito K(Eds.), (2001), Compendium of Methods for The Microbiological Examination of Foods, 4th Ed., APHA, Washington, D.C.

- **Product use limitation**

This product is developed, designed and supplied exclusively for research use only. It is not intended for diagnostic applications or drug development, and it is not suitable for administration to humans or animals.