FLUID THIOGLYCOLATE BROTH

FTME-0HI-500

- **Principle**

Fluid Thioglycolate Broth is a general-purpose enrichment medium used for the detection of microorganisms in normally sterile materials and for sterility testing. It supports the growth of a wide variety of fastidious organisms with different nutritional and atmospheric requirements. The formulation is designed to establish an oxygen gradient within the tube, allowing the simultaneous growth of aerobes, microaerophiles and obligate anaerobes.

The medium contains tryptone and yeast extract as sources of nitrogen, carbon, amino acids, vitamins and essential growth factors. Dextrose serves as an energy and carbon source, promoting early and vigorous microbial growth. Sodium chloride maintains osmotic balance. L-cystine and sodium thioglycolate contribute to the reducing capacity of the medium, lowering the oxidation-reduction potential and enabling the growth of anaerobic organisms. Sodium thioglycolate also neutralises the toxic effects of mercurial compounds and peroxides, making the medium suitable for testing materials that may contain inhibitory substances.

Resazurin is included as a redox indicator, remaining colourless under reduced conditions and turning pink in the presence of oxygen. A small amount of agar helps to stabilise the oxygen gradient by limiting diffusion, ensuring favourable conditions for the recovery of both aerobic and anaerobic microorganisms.

- **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**
Pancreatic digest of casein	15.00
Yeast Extract	5.00
Dextrose	5.50
Sodium Chloride	2.50
L-Cystine	0.50
Sodium Thioglycolate	0.50
Resazurin Sodium	0.001
Agar	0.750

- **Preparation**

Dissolve 29.75 grams in 1,000 ml distilled water check. Boil to dissolve the medium completely and distribute aseptically in test tubes. Sterilize by autoclaving at 15 lbs pressure (121 °C) for 15

min, cool it to 42-45 °C. If the colour of medium is uneven or pink, then heat the medium till pink colour disappears completely. Cool it to 42-45 °C and inoculate test sample aseptically.

- **Applications and use**

Recommended for sterility testing of biological and for cultivation of anaerobes, aerobes and microaerophiles from pharmaceutical and clinical samples. Aerobic and anaerobic bacteria can be identified by growing them in test tubes of thioglycolate broth:

- Obligate aerobes need oxygen because they cannot ferment or respire anaerobically. They gather at the top of the tube where the oxygen concentration is highest.
- Obligate anaerobes are inhibited by oxygen, so they gather at the bottom of the tube where the oxygen concentration is lowest.
- Facultative anaerobes can grow with or without oxygen because they can metabolize energy aerobically or anaerobically. They gather mostly at the top because aerobic respiration generates more ATP than either fermentation or anaerobic respiration.
- Microaerophilic need oxygen because they cannot ferment or respire anaerobically. However, they are partially inhibited by high concentrations of oxygen. They gather in the upper part of the test tube, but not the very top.
- Aerotolerant organisms do not require oxygen as they metabolize energy anaerobically. Unlike obligate anaerobes, though, they are not inhibited by oxygen. They can be found evenly spread throughout the test tube.

- **Quality control**

Solubility	w/o rests
Appearance	Fine powder
Colour of the dehydrated medium	Light beige
Colour of the prepared medium	Amber
Final pH (25 °C)	7.1 ± 0.2

- **Microbiological test**

Cultural characteristics observed after incubation at 30-35 °C for 24-72 hours.

Microorganism	ATCC	Inoculum (CFU)	Growth
Clostridium sporogenes	11437	50-100	Luxuriant
Clostridium perfringens	3624	50-100	Luxuriant
Staphylococcus aureus	25923	50-100	Luxuriant
Bacillus spizizenii	6633	50-100	Luxuriant
Streptococcus pneumoniae	6303	50-100	Luxuriant
Bacteroides vulgatus	8482	50-100	Luxuriant
Escherichia coli	8739	50-100	Luxuriant
Escherichia coli	25922	50-100	Luxuriant
Pseudomonas aeruginosa	27853	50-100	Luxuriant

Salmonella typhimurium	14025	50-100	Luxuriant

- **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.

British Pharmacopoeia, 2020, The Stationery office British Pharmacopoeia.

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

European Pharmacopoeia, 2020, European Dept. for the quality of Medicines.

Isenberg, H.D. Clinical Microbiology Procedures Handbook 2nd Edition.

Jorgensen, J.H., Pfaller, M.A., Carroll, K.C., Funke, G., Landry, M.L., Richter, S.S and Warnock., D.W. (2015) Manual of Clinical Microbiology, 11th Edition. Vol. 1.

The United States Pharmacopoeia, 2019, The United States Pharmacopoeia Convention, Rockville, MD.

- **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.