Also known as
FTM; F Thio M

Specification
Fluid medium used for sterility testing according to the Eur. Pharm., USP, FDA, and for the cultivation of microaerophilic and anaerobic organisms in ISO standars

Formula * in g/L
Peptone from casein..... 15,000
Yeast extract..... 5,000
Dextrose..... 5,500
Sodium chloride..... 2,500
Sodium thioglycolate..... 0,500
L-Cystine..... 0,500
Resazurin..... 0,001
Agar 0,750

Final pH 7,1 ±0,2 at 25 ºC
* Adjusted and /or supplemented as required to meet performance criteria

Directions
Dissolve 30 g of powder in 1 L of distilled water; slowly bring to the boil, stirring until completely dissolved. Distribute into final containers and sterilize in the autoclave at 121ºC for 15 minutes. Mix well and cool to room temperature.

Description
Thioglycolate Fluid Medium is a standard medium formulated and recommended by the European Pharmacopoeia, USP, APHA and FDA. The reducing agents thioglycolate and L-Cystine ensure anaerobiosis which is adequate even for fastidious anaerobes. The -SH groups of these substances also inactivate arsenic, mercury and other heavy metal compounds. Thioglycolate media are thus suitable for the examination of materials which contain heavy metals or heavy metal preservatives.
In the present formulation a special agar with a high viscosity but a very low turbidity is used. A very slow cooling is recommended to prevent stratification. The higher viscosity of the fluid thioglycolate medium prevents rapid uptake of oxygen. Any increase in the oxygen content is indicated by the redox indicator sodium resazurin which changes colour to pink.

Technique
Inoculate the culture medium with the sample material taking care that the sample reaches the bottom of the tube.
Incubate for à least 14 days à the optimal temperature. Anaerobes grow in the lower part of the culture medium container.
Proceed according to standards or standardized methods.

Precautions and Limitations of the Procedure

- Store the prepared medium away from light à room temperature.
- If more than 30% of the medium is pink prior to use reheat once à 100ºC to drive off absorbed oxygen.
- Do not reheat the medium more than once; continued reheating gives rise to toxicity.
- Due to nutritional variation, some strains may grow poorly or fail to grow on this medium.
- Some glucose-fermenting organisms which are able to reduce the pH of the medium to a critical level may not survive in this medium. Early sub-culture is necessary to isolate these organisms.

Quality control
Incubation temperature: 30-35ºC / 20-25ºC **Incubation time:** ≥72h /≥5 d (fungi)
Inoculum: Practical range 10-100 CFU. (Productivity) according to Eur. Pharm. harm.

Microorganism	Growth	Remarks
Staphylococcus aureus ATCC® 6538	Good	Aerobic and anaerobic zone
Bacillus subtilis ATCC® 6633	Good	Only in aerobic zone
Clostridium sporogenes ATCC® 19404	Good	Only in anaerobic zone
Pseudomonas aeruginosa ATCC® 9027	Good	Only in aerobic zone
Candida albicans ATCC® 10231	Good	Only in aerobic zone
Aspergillus brasiliensis ATCC® 16404	Good	Only in aerobic zone
Clostridium perfringens ATCC® 13124	Good	37±1ºC / 21±3 h (anaerobic)

References

· ATLAS, R.M. & L.C. PARKS (1993) Handbook of Microbiological Media. CRC Press Inc. London.
· DOWNES, F.P. & K. ITO (2001) Compendium of Methods for the Microbiological Examination of Food. 3th ed. A.P.H.A. Washington. DC.
· EUROPEAN PHARMACOPOEIA 11.0 (2023) 11th ed. § 2.6.1. Sterility. Harmonised Method. EDQM. Council of Europe. Strasbourg.
· FDA (Food and Drug Adminstrations) (1998) Bacteriological Analytical Manual, 8th ed. Revision A., AOAC International. Gaithersburg. MD.
· HORWITZ, W. (2000) Official Methods of Analysis. 17th ed. AOAC. International. Gaithersburg. MD.
· ISENBERG, H.D. (Ed.) (1998) Essential Procedures for Clinical Microbiology. ASM. Washington. USA.
· ISO Norma 7937 (2004) Microbiology of Food and Animal Feeding Stuffs. Horizontal Method for Enumeration of C. perfringens. Colony-count technique.
· MacFADDIN, J.F. (1985) Media for Isolation-cultivation-identification-maintenance of medical bacteria. Vol. I. Williams & Wilkins. Baltimore. MD. USA.
· USP 33 - NF 28 (2011) <71> Sterility Tests. Harmonised Method. USP Corp. Inc. Rockville. MD. USA.

Storage

For laboratory use only. Keep tightly closed, away from bright light, in a cool dry place (+4 ºC to 30 ºC).