

T9032 Thioglycollate medium NutriSelect® Plus

Powdered broth medium for the cultivation of aerobic and anaerobic microorganisms.

Composition:

Ingredients	Grams/Litre
Pancreatic Digest of casein	15.0
Yeast extract	5.0
Dextrose	5.5
L-cystine	0.5
Sodium chloride	2.5
Sodium thioglycollate	0.5
Resazurin	0.001
Agar	0.75

Final pH 7.1 +/- 0.2 at 25°C

Store granulated media between 10-30°C in tightly closed container and the prepared medium at 15-25°C. Avoid freezing and overheating. Once opened keep powdered medium closed to avoid hydration. Use before expiry date on the label.

Appearance(color): Cream to yellow, free flowing powder

Color and Clarity: Light straw coloured, clear to slightly opalescent solution with upper 10% or less medium pink-purple on standing

Directions:

Solve 29.8 g in 1 litre distilled water. Autoclave 15 minutes at 121°C.

Principle and Interpretation:

Brewer (1) formulated Fluid Thioglycollate Medium for rapid cultivation of aerobes as well as anaerobes including microaerophiles by adding a reducing agent and small amount of agar. The BP (2), EP (3), USP (4), and AOAC (5) have recommended the media for sterility testing of antibiotics, biologicals and foods and for determining the phenol coefficient and sporicidal effect of disinfectants. However, it is intended for the examination of clear liquid or water-soluble materials. Fluid Thioglycollate Medium is also routinely used to check the sterility of stored blood in blood banks (6).

Dextrose, tryptone, yeast extract, L-cystine provide the growth factors necessary for bacterial growth. Sodium thioglycollate and L-cystine are reducing agent that prevent the accumulation of peroxides which are lethal to some microorganisms. They allows *Clostridium* to grow in this medium even under aerobic conditions (7). Resazurin is an oxidation-reduction indicator, being pink when oxidized and colorless when reduced. Also the small amount of agar used in the medium favors the growth of aerobes as well as anaerobes in the medium, independent of absence or presence of sodium thioglycollate (1). Sodium thioglycollate act as a reducing agent and neutralizes the toxic effects of mercurial preservatives and peroxides formed in the medium, thereby promoting anaerobiosis, and making the medium suitable to test materials containing heavy metals. (8,9). Any increase in the oxygen content is indicated by a color change of redox indicator, resazurin to red (6,10,11). The small amount of agar helps in maintaining low redox potential for stabilizing the medium (9)



Cultural characteristics observed after an incubation at 30-35°C for not more than 3 days.

Organisms (ATCC/WDCM)	Inoculum	Growth
<i>Clostridium sporogenes</i> (19404/00008)	50-100	+++
<i>Clostridium sporogenes</i> (11437)	50-100	+++
<i>Clostridium perfringens</i> (13124/00007)	50-100	+++
<i>Bacteroides fragilis</i> (23745/-)	50-100	+++
<i>Bacteroides vulgatus</i> (8482/-)	50-100	+++
<i>Staphylococcus aureus</i> subsp. <i>aureus</i> (25923/00034)	50-100	+++
<i>Staphylococcus aureus</i> subsp. <i>aureus</i> (6538/00032)	50-100	+++
<i>Pseudomonas aeruginosa</i> (27853/00025)	50-100	+++
<i>Pseudomonas aeruginosa</i> (9027/00026)	50-100	+++
<i>Micrococcus luteus</i> (9341/-)	50-100	+++
<i>Streptococcus pneumoniae</i> (6305/-)	50-100	+++
<i>Escherichia coli</i> (25922/00013)	50-100	+++
<i>Escherichia coli</i> (8739/00012)	50-100	+++
<i>Escherichia coli</i> (NCTC 9002)	50-100	+++
<i>Salmonella enterica</i> serovar Typhimurium (14028/00031)	50-100	+++
<i>Salmonella enterica</i> serovar Abony (NCTC 6017/00029)	50-100	+++
<i>Bacillus spizizenii</i> (6633/0003)	50-100	+++

References:

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7. Portwood, 1944, J. Bact., 48:255.
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Precautions and Disclaimer

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