THIOGLYCOLLATE MEDIUM w/ INDICATOR and DEXTROSE

INTENDED USE
Remel Thioglycollate Medium w/ Indicator and Dextrose (Fluid Thioglycollate Medium) is a liquid medium recommended for use in qualitative procedures as a general purpose medium for the cultivation of aerobes and anaerobes.

SUMMARY AND EXPLANATION
Thioglycollate Medium was first described by Brewer in 1940.[1] The medium contains a small amount of agar and a reducing substance to initiate the growth of anaerobes. Marshall et al. reported satisfactory cultivation of anaerobes in this medium in the presence of mercurial preservatives.[2] This observation was confirmed by Nungester et al., who demonstrated the neutralization of the bacteriostatic effect of mercurial compounds by sodium thioglycollate.[3]

PRINCIPLE
Sodium thioglycollate is a reducing agent which removes molecular oxygen from the medium and prevents the accumulation of peroxides which may be lethal to some microorganisms. Sulfhydryl groups inactivate mercury and other heavy metals neutralizing the antibacterial effect of mercurial preservatives. A small amount of agar is added to impede diffusion of oxygen. Casein peptone and cystine supply nitrogen and carbon compounds necessary for the growth of aerobes and anaerobes. Sodium chloride is a source of essential electrolytes and maintains osmotic equilibrium. Resazurin is an oxidation-reduction indicator which turns pink when increased oxidation occurs.

REAGENTS (CLASSICAL FORMULA)*

Casein Peptone	15.0	g	L-Cystine	0.5	g
Dextrose	5.0	g	Sodium Thioglycollate	0.5	g
Yeast Extract	5.0	g	Resazurin	1.0	mg
Sodium Chloride	2.5	g	Agar	0.75	g
			Demineralized Water	1000.0	ml

pH 7.1 ± 0.2 @ 25°C

*Adjusted as required to meet performance standards.

PROCEDURE
1. Liquid media for anaerobic incubation should be reduced prior to inoculation by one of the following methods:
   a. Place tubes with caps loosened in an anaerobic environment for 18-24 hours prior to use.
   b. Boil tubes with caps loosened and cool to room temperature before inoculation.
2. Consult appropriate references for the recommended procedure for sample inoculation and cultivation.
3. Incubate inoculated medium in ambient air at 33-37°C for 24 hours to 7 days or following established laboratory procedures.
4. Turbidity or growth in Thioglycollate Medium must be confirmed by Gram stain and growth following subculture to appropriate medium.

QUALITY CONTROL
All lot numbers of Thioglycollate Medium w/ Indicator and Dextrose have been tested using the following quality control organisms and have been found to be acceptable. This quality control testing meets or exceeds CLSI standards.[4] Testing of control organisms should be performed in accordance with established laboratory quality control procedures. If aberrant quality control results are noted, patient results should not be reported.

CONTROL	INCUBATION	RESULTS
**Bacteroides fragilis* ATCC® 25285	Ambient, up to 48 h @ 33-37°C	Growth
Clostridium sporogenes ATCC® 11437	Ambient, 3 days @ 30-35°C	Growth
Pseudomonas aeruginosa ATCC® 9027	Ambient, 3 days @ 30-35°C	Growth
Staphylococcus aureus ATCC® 6538	Ambient, 3 days @ 30-35°C	Growth
**Staphylococcus aureus* ATCC® 25923	Ambient, 18-24 h @ 33-37°C	Growth

*CLSI recommended organism

LIMITATIONS
1. A slight turbidity (haziness) may be present due to the small amount of agar in the medium.
2. When the medium has been boiled, it is clear. Do not boil more than once; frequent boiling results in a development of toxic products.[5]

BIBLIOGRAPHY

1. Brewer, J.H. 1940. JAMA. 115:598.
2. Marshall, M.S., J.B. Gunnison, and M.P. Luxen. 1940. Proc. Soc. Exp. Biol. Med. 43:672-673.
3. Nungester, W.J., M.N. Hood, and M.K. Warren. 1943. Proc. Soc. Exp. Biol. Med. 52:287-289.
4. Clinical and Laboratory Standards Institute (CLSI). 2004. Quality Control for Commercially Prepared Microbiological Culture Media; Approved Standard, 3rd ed. M22-A3. CLSI, Wayne, PA.
5. MacFaddin, J.F. 1985. Media for Isolation-Cultivation-Identification-Maintenance of Medical Bacteria. Vol. 1. Williams & Wilkins, Baltimore, MD.

Refer to the front of Remel *Technical Manual of Microbiological Media* for **General Information** regarding precautions, product storage and deterioration, specimen collection, storage and transportation, materials required, quality control, and limitations.

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