Thioglycollate Broth (TGB)

Catalog No: AS-1363 | Dehydrated Culture Medium | Research / Diagnostic Grade

General-purpose enriched medium for aerobic, microaerophilic, and anaerobic microorganisms

1. Product Overview

Thioglycollate Broth (TGB) is a general-purpose, highly enriched culture medium designed for the simultaneous cultivation of aerobic, microaerophilic, and anaerobic microorganisms. The medium contains sodium thioglycollate and L-cystine as reducing agents to create a low-oxygen environment in the lower portion of the tube, while resazurin serves as a visual redox indicator — turning pink when oxygen penetrates the medium. The rich nutrient base of pancreatic digest of casein and yeast extract supports a wide range of fastidious and non-fastidious organisms. TGB is the standard medium for sterility testing in pharmaceuticals, cosmetics, and medical devices, and is widely employed in clinical microbiology and environmental testing.

2. Product Specifications

Parameter	Details
Catalog Number	AS-1363
Format	Dehydrated powder
Final pH (25°C)	7.1 ± 0.2
Sterilization	Autoclave at 121°C for 15 minutes
Grade	Research / Diagnostic Grade
HS Code	3821.00.00 (AHECC)
Preparation	Dissolve in purified water and autoclave

3. Composition (per litre)

Ingredient	g / L	Function
Pancreatic digest of casein	**15.000**	Nitrogen, carbon, and amino acid source
Yeast extract	**5.000**	Vitamins and growth factors
Sodium chloride	**5.000**	Osmotic balance
Dextrose	**2.500**	Fermentable carbon source
Sodium thioglycollate	**0.500**	Reducing agent — creates anaerobic zone
L-Cystine	**0.500**	Reduces oxidation-reduction potential
Resazurin	**0.001**	Redox indicator — turns pink with oxygen
Agar (semi-solid, optional)	**0.500**	Retards diffusion of oxygen

Purified water	**q.s. to 1 L**	Solvent

4. Key Features

- Supports diverse oxygen requirements — simultaneous growth from obligate anaerobes to aerobes in a single tube
- Resazurin redox indicator — visually indicates oxygen penetration (colourless/pink at surface when oxygenated)
- Highly nutritious — pancreatic digest of casein and yeast extract support fastidious and non-fastidious organisms
- Sodium thioglycollate and L-cystine provide a stable reducing environment for anaerobic growth
- Versatile — suitable for enrichment, sterility testing, and microbial growth studies
- Semi-solid option — 0.5 g/L agar retards oxygen diffusion for enhanced anaerobic performance

5. Applications

Application	Details
Sterility Testing	USP, EP, and BP sterility testing for pharmaceuticals, cosmetics, and medical devices
Anaerobe Cultivation	Cultivation and enrichment of obligate and facultative anaerobes
Clinical Microbiology	Enrichment of anaerobic pathogens from clinical and environmental specimens
Food & Water Testing	Microbial quality control in food and water analysis
Research	Studies on oxygen tolerance, redox requirements, and microbial physiology

6. Preparation Protocol

1	Dissolve the medium in purified water and heat with agitation until completely dissolved.
2	Dispense into tubes, flasks, or bottles as required.
3	Sterilize by autoclaving at 121°C for 15 minutes.
4	Cool to room temperature and minimize oxygen exposure for anaerobic work.
5	Do not heat prepared medium more than once. Use freshly prepared medium for best anaerobic performance.

7. Incubation & Result Interpretation

Parameter / Observation	Interpretation
Temperature	30–37°C (organism dependent)
Duration	24–72 hours (growth rate dependent)

Growth at bottom of tube	Obligate anaerobes
Growth throughout tube	Facultative anaerobes
Growth near surface	Aerobes or microaerophiles
Pink colour in medium	Oxygen penetration — resazurin oxidation
No growth (sterility test)	Sterile — product passes sterility requirement

8. Storage & Stability

Condition	Recommendation
Powdered medium	15–30°C, dry and tightly sealed
Prepared medium	2–8°C, protected from light
Shelf life	Use within recommended period — refer to product label

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