



TRYPTIC SOY BROTH

- For in vitro use only -

TT85 – Tryptic Soy Broth (TSB)

TT86 – TSB with Yeast Extract (TSBYE)

TT87 – TSB with Phenol Red

Tryptic Soy Broth is a general purpose medium used for the cultivation of a variety of fastidious and non-fastidious microorganisms.

Tryptic Soy Broth was initially developed for sensitivity testing of pneumococci to sulfonamides.

Our standard formulation is prepared according to the United States Pharmacopeia (USP) and is recommended for numerous applications by several regulatory bodies including the Association of Official Analytical Chemists (AOAC), the United States Department of Agriculture (USDA), the American Public Health Association (APHA), and the Canadian Food Inspection Agency (CFIA).

Tryptic Soy Broth is a highly nutritious medium used for the cultivation of aerobes and facultative anaerobes, and some fungi. The nutritive components include pancreatic digest of casein and papaic digest of soybean meal. Dextrose is a carbohydrate that acts as a carbon, energy source. Sodium chloride provides an isotonic environment for bacteria while dipotassium phosphate helps to maintain a stable pH.

TSB supplemented with yeast extract is described in the FDA Bacteriological Analytical Manual for the enrichment and cultivation of *Shigella* and *Listeria* species for specific testing protocols.

TSB with phenol red allows for easier detection of bacterial growth. Organisms capable of utilizing dextrose will produce acid as a by-product of their metabolism. This pH shift is detected by the indicator, phenol red, which changes the color of the broth from red to yellow when sufficient acid is produced. This medium is suitable for the resuscitation of heated bacterial spores in the verification of steam sterilization processes.

Formulation per Litre of Medium

TT85 Tryptic Soy Broth (TSB)

Pancreatic Digest of Casein	17.0 g
Papaic Digest of Soybean Meal	3.0 g
Sodium Chloride	5.0 g
Dextrose.....	2.5 g
Dipotassium Phosphate	2.5 g

pH 7.3 ± 0.2

Additional Ingredients per Liter:

TT86 TSB with Yeast Extract

Yeast Extract	6.0 g
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TT87 TSB with Phenol Red

Phenol Red	18.0 mg
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Recommended Procedure

(Please refer to appropriate literature for a more detailed procedure)

1. Allow medium to adjust to room temperature prior to inoculation.
2. Inoculate the broth with the test sample or colony of interest.
3. Incubate tubes aerobically with caps loosened at 35°C.
4. Examine tubes after 24 hours. Re-incubate tubes an additional 24 hours if required. An extended incubation period of 5 to 7 days may be required if TSB is being used for culturing fungi.

Interpretation of Results

After the incubation period, the broth should appear turbid, an indication of organism growth. In the case of TSB with phenol red, a red to yellow color change also accompanies turbidity, an indication of acid production from dextrose utilization. If desired, the broth can be sub-cultured onto a solid medium to better characterize isolates and to observe colonial morphology.

Additional tests should be performed on isolated colonies from pure culture in order to complete identification.

Quality Control

After checking for correct pH, colour, depth, and sterility, the following organisms are used to determine the growth performance of the completed medium.

<u>Organism</u>	<u>Expected Result</u>
TSB	
<i>Escherichia coli</i> ATCC 25922	Growth (Turbid)
<i>Streptococcus aureus</i> ATCC 25923	Growth (Turbid)
TSB w/ Yeast Extract	
<i>Shigella flexneri</i> ATCC 12022	Growth (Turbid)
<i>Listeria monocytogenes</i> ATCC 19114	Growth (Turbid)
TSB w/ Phenol Red	
<i>Escherichia coli</i> ATCC 25922	Growth (Turbid)
<i>Streptococcus aureus</i> ATCC 25923	Growth (Turbid)

Storage and Shelf Life

Our various TSB formulations should be stored away from direct light at 4°C to 8°C in an upright position. Under these conditions the mediums have a 26-week shelf life from the date of manufacture.

References

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