

TECHNICAL PRODUCT INFORMATION

Tryptic Soy Broth (USP Formulation)

INTENDED USE:

Tryptic Soy Broth is recommended for the general cultivation of a wide variety of microorganisms. Tryptic soy broth conforms to the formula specified in the US Pharmacopoeia, USP¹. Northeast Laboratory Services offers a wide range of Tryptic Soy Broth available in both tubes and bottles. Consult the NEL Catalog of Products or call for more information.

HISTORY/SUMMARY:

Tryptic Soy Broth is a general purpose medium, commonly referred to as Soybean Casein Digest Broth and abbreviated as TSB. The TSB medium was originally developed for use without blood in determining the effectiveness of sulfonamides against pneumococci and other organisms².

TSB medium will support the growth of numerous organisms, which include aerobic, facultative and anaerobic bacteria, and fungi. This medium formulation is included in the USP as a sterility test medium and for use in microbial limit testing due to the organism growth capability of TSB. The TSB medium is also used for detecting bacteria in live vaccines by the USDA Animal and Plant Health Inspection Service. It is recommended for bacterial contaminant testing in cosmetics and complies with established standards in the food industry. NCCLS recommends TSB for inoculum preparation in disc diffusion testing broth. The rich nutritional base of TSB when supplemented with SPS and CO₂ is an excellent broth for blood cultures in clinical procedures.^{2, 4}

TSB w/6.5% Sodium Chloride is used for selective growth of Group D streptococci.⁴

TSB w/o Dextrose, a modification of TSB, it is a basal medium used by adding different carbohydrates for fermentation studies, indicators such as Phenol Red may be added.⁴

PRINCIPLES:

Enzymatic Digest of Casein and Enzymatic Digest of Soybean Meal provide amino acids and nitrogen sources. Dextrose is the Carbon energy source that facilitates organism growth. Sodium Chloride maintains the osmotic balance. Dipotassium Phosphate is a buffering agent.^{2, 4}

FORMULA:

INGREDIENTS PER LITER OF PURIFIED WATER	AMOUNT
Enzymatic Digest of Casein	17.0 g
Enzymatic Digest of Soybean Meal	3.0 g
Sodium Chloride	5.0 g
Dextrose	2.5 g
Dipotassium Phosphate	2.5 g

QUALITY CONTROL BOTTLES (per USP¹)

ATCC#	ORGANISM	INCUBATION TEMPERATURE	ATMOSPHERE	INCUBATION TIME
6538	<i>Staphylococcus aureus</i>	30-35°C	aerobic	2 Days
9027	<i>Pseudomonas aeruginosa</i>	30-35°C	aerobic	2 days
11437	<i>Clostridium sporogenes</i>	30-35°C	anaerobic	Up to 5 days
6633	<i>Bacillus subtilis</i>	20-25°C	aerobic	Up to 5 days
10231	<i>Candida albicans</i>	20-25°C	aerobic	Up to 5 days
16404	<i>Aspergillus brasiliensis</i>	20-25°C	aerobic	Up to 5 days

QUALITY CONTROL TUBES (per NCCLS³)

ATCC#	ORGANISM	INCUBATION TEMPERATURE	ATMOSPHERE	INCUBATION TIME
25923	<i>Staphylococcus aureus</i>	30-35°C	aerobic	18-24 hours
25922	<i>Escherichia coli</i>	30-35°C	aerobic	18-24 hours

PRECAUTIONS:

Since living organisms used with this material can be infectious to the user, proper handling and disposal methods should be established by the laboratory director.

These products are for In Vitro Diagnostic Use or Laboratory Use Only as indicated by product label.

STORAGE:

This media may be stored at 2-30°C. Protect from freezing and/or overheating.

PROCEDURE:

Refer to specific procedures and standard methods as required for specimen processing using Tryptic Soy Broth.

1. Swab specimens may be inserted into the medium after inoculation of appropriate plated media.
2. For liquid specimens, use a sterile inoculating loop to transfer specimen to the broth medium. Specimens with suspected anaerobes should be inoculated near the bottom of the tube.
3. Incubate the tubes and bottles with loosened caps at 35 ± 2°C aerobically with or without supplementation with carbon dioxide.
4. Tubed and bottled media intended for anaerobic use should be incubated in an anaerobic atmosphere.
5. Examine for growth after 18-24 hours and 42-48 hours incubation.

For sterility testing:

Consult the USP for procedural details and specifications for volume of medium relative to container size.

For preparation of standardized inocula for antimicrobial susceptibility testing:

Refer to the CLSI standards

REFERENCES:

- 1) Current Edition of U.S. Pharmacopeia.
- 2) Acumedia #7164 Product Information Sheet, Tryptic Soy Broth, Rev 6, 06/2010
- 3) Quality assurance for Commercially Prepared Microbiological Culture Media, NCCLS Document M22-P2, Volume 23 Number 22
- 4) Difco & BBL Manual, Manual of Microbiological Culture Media, 2003, pages 588-591