



TRYPTIC SOY BROTH (7164)

Intended Use

Tryptic Soy Broth is used for the cultivation of a wide variety of microorganisms. Tryptic Soy Broth conforms to Harmonized USP/EP/JP Requirements.^{1,2,3}

Product Summary and Explanation

Tryptic Soy Broth, a general purpose medium, is commonly referred to as Soybean-Casein Digest Medium, and abbreviated as TSB. This medium was originally developed for use without blood in determining the effectiveness of sulfonamides against pneumococci and other organisms.⁴ Clostridia and non-sporulating anaerobes grow luxuriantly in this broth when incubated under anaerobic conditions. TSB is recommended for testing bacterial contaminants in cosmetics⁵ and complies with established standards^{6,7} in the food industry. TSB was chosen by the USDA Animal and Plant Health Inspection Service for detecting viable bacteria in live vaccines.⁸

Tryptic Soy Broth is recommended by the National Committee for Clinical Laboratory Standards (NCCLS)⁹ for inoculum preparation in disk diffusion sensitivity tests. TSB conforms to Harmonized United States Pharmacopoeia (USP), European Pharmacopoeia (EU), and Japanese Pharmacopoeia (JP).^{1,2,3} The rich nutritional base of TSB, supplemented with SPS and CO₂, is an excellent broth for blood cultures in clinical applications.¹⁰ With the addition of 6.5% NaCl, TSB can be used for the selective growth of group D streptococci.

Principles of the Procedure

Enzymatic Digest of Casein and Enzymatic Digest of Soybean Meal are nitrogen sources in TSB. Dextrose is the carbon energy source that facilitates organism growth. Sodium Chloride maintains osmotic balance; Dipotassium Phosphate is a buffering agent.

Formula / Liter

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

Final pH: 7.3 ± 0.2 at 25°C

Formula may be adjusted and/or supplemented as required to meet performance specifications.

Precautions

1. For Laboratory Use.
2. IRRITANT. Irritating to eyes, respiratory system, and skin.

Directions

1. Dissolve 30 g of the medium in one liter of purified water.
2. Mix thoroughly.
3. Autoclave at 121°C for 15 minutes.

Quality Control Specifications

Dehydrated Appearance: Powder is homogeneous, free flowing, and light beige.

Prepared Appearance: Prepared medium is brilliant to clear, yellow to amber, with none to light precipitate.

Expected Cultural Response and USP/EP/JP Growth Promotion Testing: Cultural response in Tryptic Soy Broth tested at Harmonized USP/EP/JP specified temperatures and incubation times.^{1,2,3}

Microorganism	Approx. Inoculum (CFU)	Incubation Period	Expected Growth
<i>Aspergillus niger</i> ATCC® 16404	10 - 100	Within 5 days	Growth
<i>Bacillus subtilis</i> ATCC® 6633	10 - 100	18 – 72 hours	Growth
<i>Bacteroides vulgatus</i> ATCC® 8482	10 - 100	18 – 72 hours	Fair to excellent growth
<i>Candida albicans</i> ATCC® 10231	10 - 100	18 – 72 hours	Growth
<i>Clostridium sporogenes</i> ATCC® 11437	10 - 100	18 – 72 hours	Fair to excellent growth
<i>Escherichia coli</i> ATCC® 25922	10 - 100	18 – 72 hours	Good to excellent growth
<i>Micrococcus luteus</i> ATCC® 9341	10 - 100	18 – 72 hours	Growth
<i>Neisseria meningitidis</i> ATCC® 13090	10 - 100	18 – 72 hours	Poor to good growth
<i>Pseudomonas aeruginosa</i> ATCC® 9027	10 - 100	18 – 72 hours	Growth
<i>Staphylococcus aureus</i> ATCC® 25923	10 - 100	18 – 72 hours	Good to excellent growth
<i>Staphylococcus aureus</i> ATCC® 6538	10 - 100	18 – 72 hours	Growth
<i>Staphylococcus epidermidis</i> ATCC® 12228	10 - 100	18 – 72 hours	Fair to excellent growth
<i>Streptococcus pneumoniae</i> ATCC® 6305	10 - 100	18 – 72 hours	Fair to excellent growth
<i>Streptococcus pyogenes</i> ATCC® 19615	10 - 100	18 – 72 hours	Good to excellent growth

The organisms listed are the minimum that should be used for Growth Promotion testing.

Test Procedure

Refer to appropriate references for specific procedures using Tryptic Soy Broth.^{1,2,3,4-9}

Results

Refer to appropriate references for test results. Growth is indicated by turbidity.

Storage

Store sealed bottle containing the dehydrated medium at 2 - 30°C. Once opened and recapped, place container in a low humidity environment at the same storage temperature. Protect from moisture and light by keeping container tightly closed..

Expiration

Refer to expiration date stamped on the container. The dehydrated medium should be discarded if not free flowing, or if the appearance has changed from the original pale to light beige. Expiry applies to medium in its intact container when stored as directed.

Limitation of the Procedure

Due to nutritional variation, some strains may grow poorly or fail to grow on this medium.

Packaging

Tryptic Soy Broth	Code No.	7164A	500 g
		7164B	2 kg
		7164C	10 kg

References

1. **United States Pharmacopeial Convention.** 2007. The United States pharmacopeia, 31st ed., Amended Chapters 61, 62, 111. The United States Pharmacopeial Convention, Rockville, MD.
2. **Directorate for the Quality of Medicines of the Council of Europe (EDQM).** 2007. The European Pharmacopoeia, Amended Chapters 2.6.12, 2.6.13, 5.1.4, Council of Europe, 67075 Strasbourg Cedex, France.
3. **Japanese Pharmacopoeia.** 2007. Society of Japanese Pharmacopoeia. Amended Chapters 35.1, 35.2, 7. The Minister of Health, Labor, and Welfare.
4. **McCullough, N. B.** 1949. Laboratory tests in the diagnosis of brucellosis. Amer. J. of Public Health. **39**:866-869.

5. **Curry, A. S., G. G. Joyce, and G. N. McEwen, Jr.** 1993. CTFA Microbiology guidelines. The Cosmetic, Toiletry, and Fragrance Association, Inc. Washington, D.C.
6. **U.S. Food and Drug Administration.** 1995. Bacteriological analytical manual, 8thed. AOAC International, Gaithersburg, MD.
7. **Cunnif, P.** 1995. Official methods of analysis AOAC International, 16th ed. AOAC International, Arlington, VA.
8. **Federal Register.** 1992. Detection of viable bacteria and fungi except in live vaccine. Fed. Regist. **21**:113.26.
9. **National Committee for Clinical Laboratory Standards.** 1994. Performance standards for antimicrobial disk susceptibility tests, M2-A5, vol.13, No.24. National Committee for Clinical Laboratory Standards, Villanova, PA.
10. **Murray, P. R., E. J. Baron, M. A. Pfaller, F. C. Tenover, and R. H. Tenover (eds).** 1995. Manual of clinical microbiology, 6th ed. American Society for Microbiology, Washington, D.C.

Technical Information

Contact Acumedia Manufacturers, Inc. for Technical Service or questions involving dehydrated culture media preparation or performance at (517)372-9200 or fax us at (517)372-2006.