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## TECHNICAL PRODUCT INFORMATION

### Tryptic Soy Agar (TSA)

#### INTENDED USE:

Tryptic Soy Agar is recommended for the general cultivation of a wide variety of microorganisms. Tryptic Soy Agar conforms to the formula specified in the US Pharmacopoeia, USP<sup>1</sup>. AnalytiChem USA, Inc. offers a wide range of Tryptic Soy Agar available in petri dish, tube and bottle. Consult the AnalytiChem USA, Inc. Catalog of Products or call for more information.

#### HISTORY/SUMMARY:

Tryptic Soy Agar is a general purpose medium, commonly referred to as Soybean-Casein Digest Agar and abbreviated as TSA. This agar is a nutritious base, which facilitates vigorous growth of aerobic and anaerobic organisms. A variety of supplements may be added to enhance the medium. The addition of 5% sterile sheep, horse or rabbit blood provides an excellent non-selective medium for the determination of hemolytic reactions of bacteria. TSA supplemented with lecithin and polysorbate 80 (Tween 80®) is commonly used in environmental monitoring.<sup>2</sup>

TSA is recommended in multiple water and wastewater applications,<sup>3</sup> and numerous standard methods for food testing.<sup>4</sup> Clinically, TSA is used in the differentiation of Haemophilus species (the X and V factors are omitted from this medium), and widely used for blood cultures. TSA is commonly used as a maintenance medium for culture collections, and testing bacterial contaminants in cosmetics.<sup>5</sup>

#### PRINCIPLES:

Enzymatic Digest of Casein and Enzymatic Digest of Soybean Meal are sources for nitrogen, vitamins and carbon. Sodium Chloride maintains the osmotic balance. Agar is the solidifying agent.<sup>6</sup>

#### FORMULA:

| Components per Liter of Purified Water | Amount |
|----------------------------------------|--------|
| Enzymatic Digest of Casein             | 15.0 g |
| Enzymatic Digest of Soybean Meal       | 5.0 g  |
| Sodium Chloride                        | 5.0 g  |
| Agar                                   | 15.0 g |

pH: 7.3 ± 0.2

#### 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.

#### SPECIMEN COLLECTION:

Information on specimen collection may be found in standard reference material such as Manual of Clinical Microbiology<sup>7</sup> or Diagnostic Microbiology, Scott and Bailey<sup>8</sup>.

The specimen should be transported to the laboratory with a minimum of delay and protected from excessive heat and cold. If there is to be a delay, a swab inoculated with the specimen should be placed in a suitable transport media such as Amies or Stuarts.

#### PROCEDURE:

Before inoculation is performed, the culture medium should be brought to room temperature. The size of inoculum and the technique should be calculated to produce isolated colonies on incubation. Incubation time and temperature as well as oxygen requirements are dependent on the source of the specimen.

#### PERFORMANCE TEST:

Approval for manufacture of each lot of Tryptic Soy Agar is based on the demonstrated effectiveness in cultivating and/or differentiating the microorganisms listed below. The growth characteristics and reactions listed are typical observations made on challenged samples:

| ATCC # | CONTROL ORGANISM             | Incubation Temperature | RESULTS             |
|--------|------------------------------|------------------------|---------------------|
| 25923  | <i>Staphylococcus aureus</i> | 30-35°C                | Growth in 18-24 hrs |
| 25922  | <i>Escherichia coli</i>      | 30-35°C                | Growth in 18-24 hrs |
| 10231  | <i>Candida albicans</i>      | 30-35°C                | Growth in 18-24 hrs |

#### QUALITY CONTROL:

The performance characteristics of TSA may be confirmed by the laboratory through a judicious selection of organisms such as those recorded above.

#### REFERENCES:

- 1) Current Edition of U.S. Pharmacopeia.
- 2) Orth, D.S. 1993. Handbook of cosmetic microbiology. Marcel Dekker, Inc., New York, NY.
- 3) Greenberg, A.E., L.S. Clesceri, and A.D. Eaton (eds.). 1995. Standard methods for the examination of water and wastewater, 19<sup>th</sup> ed. American Health Association, Washington, D.C.
- 4) U.S. Food and Drug Administration. Bacteriological Analytical Manual, 8<sup>th</sup> ed., AOAC International, Gaithersburg, MD.
- 5) Curry, A.s., G.G. Joyce and G.N. McEwen, Jr. 1003. CTFA Microbiology guidelines. The Cosmetic, Toiletry, and Fragrance Association, Inc. Washington, D.C.
- 6) Acumedia Manufacturers, Inc., Product Information Sheet, Tryptic Soy Agar Cat. No. 7100, Rev NEW, 08/17/01.
- 7) Blair, J.E. Lennette, E.J. and Truant, J.P. Man of Clinical Microbiology, ASM, Bethesda, MD, 1974.
- 8) Bailey, W.R., and Scott, E.G. Diagnostic Microbiology, 3rd Ed., the CV. Mosby Co., St.Louis, 1970.
- 9) Alpha Biosciences Trypto Soy Agar T20-108 Product Information Sheet 2017.