

Technical Data Sheet

Tryptic Soy Agar

Tryptic Soy Agar is a complex growth medium, used for the cultivation of a wide variety of microorganisms. Hence, this media is suitable for a large range of applications, including cultivation, maintenance of stock culture, and total aerobic microbial count.

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Tryptic Soy Agar (TSA) is suitable for the cultivation and isolation of fastidious bacteria, yeasts, and fungi. This universal agar displays a wide application range, including phage and colicin typing, X- and V-factor tests, and geno- and electrotyping (example: pulsed-field gel electrophoresis). TSA agar is applied especially for the determination of bacterial contamination of cosmetics, drinking water, and wastewater.

The formulation of the basic medium (Soybean-Casein Digest Agar) is prepared according to the recommendations of the current European, Japanese, and United States Pharmacopoeia (EP, 2.6.13.; JP, 4.05 and USP, 62).

Tryptic Soy Agar (TSA) is available with identical media formulation in different filling volumes:

- Tryptic Soy Agar (article number 1.46429): 25 mL tubes, filling volume 18 mL
- Tryptic Soy Agar (article number 1.46457): 250 mL bottles with screw cap, filling volume 200 mL
- Tryptic Soy Agar (article number 1.46375): 500 mL bottles with screw cap, filling volume 400 mL

Mode of Action

Tryptic Soy Agar is a complex medium for the cultivation and isolation of a wide range of bacteria, yeasts, and molds. This medium contains several peptones, providing amino acids and polypeptides to ensure the growth of a variety of microorganisms. Sodium chloride maintains osmotic equilibrium in the medium.

Typical Composition (g/L)

Tryptic Soy Agar	
Casein Peptones from casein	15.0
Soy Peptone	5.0
Sodium chloride	5.0
Agar-agar	15.0

The appearance of the medium is clear and yellowish. The pH value is in the range of 7.1 - 7.5. The medium can be adjusted and/or supplemented according to the performance criteria required.

Application and Interpretation

Tryptic Soy Agar, provided in a tube or bottle, can be used to prepare plates for surface spread or for the pour plate method.

Before use, melt the agar using a 95 °C water bath or an autoclave. **Slightly open the screw cap in order to avoid pressure building before heating the media. Please note that the use of a microwave is not advised.**

Melting time differs significantly based on the volume of the medium - around 10 minutes for tubes, 45 minutes for 200 mL agar, and 60 minutes for 400 mL agar. Once the agar is liquefied, allow the media to cool down in a 45 - 50 °C water bath. The cooling times correlate with the respective heating times of the different volumes of agar. When pouring, media should not exceed a temperature of 45 °C.

For surface inoculation, pour the liquid medium into an empty Petri dish (volume will depend on the diameter of the Petri dish, that is ~15 - 20 mL for 90 mm plates). Once the agar is solidified, the plates should be wrapped, stored at a cold temperature, and used within a few days.

For the pour plate method, add the prepared sample to the empty dish and cover it with the medium. Gently mix the plate and allow the agar to solidify prior to incubation.

For total aerobic bacterial count, plates should be incubated for 3 to 5 days at 30-35 °C (EP/USP) prior to colony counting.

Tryptic Soy Agar in slant is used for the cultivation and conservation of bacterial cultures. After streaking a strain, the tube can be incubated with a slightly loose cap to allow aeration.

Note: Agar media should not be melted a second time after solidifying.

Storage and Shelf Life

The product can be used for sampling until the expiry date if stored upright, protected from light, and properly sealed at 2 °C to 25 °C.

The testing procedures as described on the CoA can be started up to the expiry date printed on the label.

Disposal

Please mind the respective regulations for the disposal of used culture medium (for example autoclave for 20 minutes at 121 °C, disinfect, incinerate, etc.).

Quality Control

Control Strains	ATCC #	Inoculum CFU	Incubation	Expected Result Recovery in %
<i>Pseudomonas aeruginosa</i>	9027	10 -100	20-24 hours at 33-35 °C	70-200 %
<i>Bacillus subtilis</i>	6633	10 -100	20-24 hours at 33-35 °C	70-200 %
<i>Candida albicans</i>	10231	10 -100	20-24 hours at 33-35 °C	70-200 %
<i>Aspergillus brasiliensis</i>	16404	10 -100	44-48 hours at 33-35 °C	70-200 %
<i>Staphylococcus aureus</i>	6538	10 -100	20-24 hours at 33-35 °C	70-200 %
<i>Escherichia coli</i>	8739	10 -100	20-24 hours at 33-35 °C	70-200 %

Please refer to the actual batch-related Certificate of Analysis.

Literature

European Pharmacopoeia 8.0 (2014): 2.6.12. Microbial examination of non-sterile products (total viable aerobic count); 2.6.13. Microbiological examination of non-sterile products (test for specified micro-organisms)

Japanese Pharmacopoeia 16th edition (2011): 4.05 Microbial Limit Test.

MacFaddin, J.F. (1985). Media for isolation-cultivation- identification-maintenance of medical bacteria, vol. 1, Williams & Wilkins, Baltimore.

United States Pharmacopoeia 38 NF 33 (2015): <61> Microbiological Examination of Non-Sterile Products: Microbial Enumeration Tests; <62> Microbiological Examination of Non-Sterile Products: Test for Specified Microorganisms.

Ordering Information

Product	Cat. No.	Pack size
Tryptic Soy Agar Slant Tubes	1462710020	20 x 6 mL tubes
Tryptic Soy Agar	1464290020	20 x 18 mL tubes
Tryptic Soy Agar	1464290100	100 x 18 mL tubes
Tryptic Soy Agar	1464570006	6 x 200 mL bottles
Tryptic Soy Agar	1463750006	6 x 400 mL bottles
ReadyPlate™ Tryptic Soy Agar acc. ISO, FDA-BAM and EP + USP	1464310020	20 x 90 mm plates
ReadyPlate™ Tryptic Soy Agar acc. ISO, FDA-BAM and EP + USP	1464310100	100 x 90 mm plates

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