Instructions For Use
ENGLISH

Tryptic Soy Agar

General purpose medium for the cultivation of a wide variety of organisms from clinical and nonclinical specimens, according to EN ISO 11133.

DESCRIPTION

Tryptic Soy Agar (TSA) is a non selective isolation medium used for the growth of bacteria which do not have specific nutritional requirements and for the preparation of reference strains with the aim of growth promotion tests of culture media.

This medium complies with EN ISO 11133 for microbiological examination of food, animal feed and water, where it is described as the main reference medium to carry out quantitative and qualitative testing of specific culture media.

Tryptic Soy Agar is also recommended in the harmonized chapters of the United States (USP), European (EP) and Japanese Pharmacopoeia (JP). For the usage in Pharmaceutical Industry, Liofilchem offers products having the same composition as TSA described in the ISO standard, but which are specifically controlled according to the Pharmacopoeial performance requirements. **See the IFU available for the product ref. number 10037S**.

TYPICAL FORMULA	(g/l)
Casein Peptone	15.0
Soy Peptone	5.0
Sodium Chloride	5.0
Agar	15.0
Final pH 7.3 ± 0.2 at 25°C	

METHOD PRINCIPLE

Casein peptone and soy peptone provide amino acids, nitrogen, carbon, vitamins and minerals for organisms growth. Sodium chloride maintains osmotic balance in the medium. Agar is the solidifying agent.

The medium can be supplemented with blood for the growth of fastidious organisms and study of haemolytic reactions.

PREPARATION

Dehydrated medium	Suspend 40 g of the powder in 1 liter of distilled or deionized water. Mix well. Heat to boil shaking frequently until completely dissolved. Sterilize in autoclave at 121°C for 15 minutes. If desired, add appropriate volume of sterile defibrinated blood for preparing 5 to 10% blood agar.
Medium in tubes/ bottles	Melt the content of the tube/bottle in a water bath at 100°C (loosing the cap partially removed) until completely dissolved. Then screw the cap and check the homogeneity of the dissolved medium, if it is the case turning the tube/bottle upside down. Cool at 45-50°C, mix well avoiding foam formation and aseptically distribute into Petri dishes.

TEST PROCEDURE

Perform serial dilutions of the test sample in order to achieve a colony count of between 15 and 300 colonies per plate. Use a suitable diluent such as Buffered Peptone Water (ref. 24099) or Maximum Recovery Broth (ref. 20071).

Inoculate the medium by pour plating, spread/streak method or membrane filtration.

Incubation conditions may vary depending on the organisms under study. For a general aerobic count, incubate aerobically at 30°C for 72 hours.

For use as standard medium, refer to EN ISO 11133 for specific instructions.

INTERPRETING RESULTS

Observe colony growth.

APPEARANCE

Dehydrated medium: free-flowing, homogeneous, light beige.
Prepared medium: slightly opalescent, light amber.

STORAGE

The powder is very hygroscopic, store the powder at 10-30°C, in a dry environment, in its original container tightly closed. Store bottles, tubes and prepared plates at 10-25°C away from light. Do not use the product beyond its expiry date on the label or if product shows any evidence of contamination or any sign of deterioration.

SHELF LIFE

Dehydrated medium: 4 years.
Medium in tubes/bottles: 2 years.
Medium in slant tubes: 1 year.
Ready-to-use plates: 6 months.

QUALITY CONTROL

The medium is inoculated with the microbial strains indicated in the QC table.
Inoculum for productivity: 50-100 CFU.
Incubation conditions: set according to EN ISO 11133 and shown on the quality control certificate that is available for each lot on liofilchem's website.

QC Table.

Microorganism		Growth
Listeria monocytogenes 4b	WDCM 00021	Good
Staphylococcus aureus	WDCM 00034	Good
Clostridium perfringens	WDCM 00007	Good
Bacillus cereus	WDCM 00001	Good
Escherichia coli	WDCM 00012	Good
Bacillus subtilis	WDCM 00003	Good
Pseudomonas aeruginosa	WDCM 00024	Good
Enterococcus faecalis	WDCM 00087	Good

WARNING AND PRECAUTIONS

The product does not contain hazardous substances in concentrations exceeding the limits set by current legislation and therefore is not classified as dangerous. It is nevertheless recommended to consult the safety data sheet for its correct use. The product is intended for professional use and must be used only by properly trained operators.

DISPOSAL OF WASTE

Disposal of waste must be carried out according to national and local regulations in force.

BIBLIOGRAPHY

1. EN ISO 11133:2014+Amd1:2018. Microbiology of food, animal feed and water – Preparation, production, storage and performance testing of culture media.
2. United States Pharmacopoeia 41 NF 33 (2018) <61> Microbiological examination of non-sterile products: Microbial enumeration tests; <1116> Microbiological control and monitoring of aseptic processing environments.
3. European Pharmacopoeia 9.0 (2016) 2.6.12. Microbiological examination of non-sterile products: Microbial enumeration tests.
4. Japanese Pharmacopoeia 16th ed. (2011): 4.05 Microbial limit test.
5. Swanson, K.J., F.F. Busta, E.H. Peterson, and M.G. Johnson (1992). Colony Count Methods, p. 75-95.
6. Vanderzant C. and D.F. Splittstoesser (1992) Compendium of methods for the microbiological examination of foods, 3rd ed. American Public Health Association, Washington D.C.
7. Greenberg A.E, L.S. Clesceri and A.D. Eaton (1995) Standards methods for the examination of water and wastewater, 19th ed. American Public Health Association, Washington D.C.

PRESENTATION	Format	Packaging	Ref.
Tryptic Soy Agar	90 mm Plate	20 plates	10037
Tryptic Soy Agar	90 mm Plate	100 plates	10037*
Tryptic Soy Agar	60 mm Plate (membrane placement)	20 plates	163682 ◆
Tryptic Soy Agar	Slant tubes	10 x 9 ml tubes	30082
Tryptic Soy Agar	Slant tubes	20 x 9 ml tubes	31082
Tryptic Soy Agar	Tubes	100 x 20 ml tubes	26475
Tryptic Soy Agar	Bottles	6 x 500 ml bottles	470010
Tryptic Soy Agar	Bottles	6 x 225 ml bottles	414110 ◆
Tryptic Soy Agar	Bottles	6 x 200 ml bottles	432290
Tryptic Soy Agar	Bottles	25 x 200 ml bottles	452290
Tryptic Soy Agar	Bottles	6 x 100 ml bottles	442290
Tryptic Soy Agar	Dehydrated media	500 g of powder	610052
Tryptic Soy Agar	Dehydrated media	100 g of powder	620052
Tryptic Soy Agar	Dehydrated media	5 kg of powder	6100525

◆, not CE marked

TABLE OF SYMBOLS

LOT Batch code	**IVD** *In vitro* Diagnostic Medical Device	Manufacturer	Use by	Fragile, handle with care
REF Catalogue number	Temperature limitation	Contains sufficient for <n> tests	Caution, consult Instruction For Use	Do not reuse

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CE IVD