



## 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 testing of specific culture media.

The medium is formulated as recommended in the harmonized chapters of the United States Pharmacopoeia (USP), European Pharmacopoeia (EP) and Japanese Pharmacopoeia (JP) although, for a use in Pharmacopoeia industry, Liofilchem offers identical products (ref. 10037S) which are specifically controlled according to the Pharmacopoeial performance requirements.

### 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

<u>Dehydrated medium</u>	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.
<u>Medium in tubes/bottles</u>	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

1. 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).
2. Inoculate the medium by pour plating or spread/streak method.
3. 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 for each batch.

**QC Table.**

Microorganism		Growth
<i>Listeria monocytogenes</i> 4b	WDCM 00021	Good
<i>Staphylococcus aureus</i>	WDCM 00034	Good
<i>Clostridium perfringens</i>	WDCM 00007	Good
<i>Bacillus cereus</i>	WDCM 00001	Good
<i>Escherichia coli</i>	WDCM 00012	Good
<i>Bacillus subtilis</i>	WDCM 00003	Good
<i>Pseudomonas aeruginosa</i>	WDCM 00024	Good
<i>Enterococcus faecalis</i>	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 *in vitro* diagnostic 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. Microbiology of food, animal feed and water – Preparation, production, storage and performance testing of culture media.
2. European Pharmacopoeia 6.5 (2009) 2.6.13. Microbiological examination of non-sterile products: Test for specified microorganisms.
3. United States Pharmacopoeia 32 NF 27 (2009) <62> Microbiological examination of non-sterile products: Test for specified microorganisms.
4. Japanese Pharmacopoeia 4.05 (2008) Microbiological examination of non-sterile products: Test for specified microorganisms.
5. ISO 4833:2003. Microbiology of food and animal feeding stuffs – Horizontal method for the enumeration of microorganisms – Colony count technique at 30°C.
6. Vanderzant C. and D.F. Splittstoesser (1992) Compendium of methods for the microbiological examination of foods, 3<sup>rd</sup> 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, 19<sup>th</sup> ed. American Public Health Association, Washington D.C.
8. ISO 9308-1:2000 Water quality - Detection and enumeration of *Escherichia coli* and coliform bacteria - Part 1: Membrane filtration method.

PRESENTATION	Category	Packaging	Ref.
Tryptic Soy Agar	90 mm ready-to-use plates	20 plates	10037
Tryptic Soy Agar	90 mm ready-to-use plates	100 plates	10037*
Tryptic Soy Agar	Tubes - Bottles	10 x 9 ml slant tubes	30082
Tryptic Soy Agar	Tubes - Bottles	20 x 9 ml slant tubes	31082
Tryptic Soy Agar	Tubes - Bottles	100 x 20 ml tubes	26475
Tryptic Soy Agar	Tubes - Bottles	6 x 500 ml bottles	470010
Tryptic Soy Agar	Tubes - Bottles	6 x 225 ml bottles	414110 ♦
Tryptic Soy Agar	Tubes - Bottles	6 x 200 ml bottles	432290
Tryptic Soy Agar	Tubes - Bottles	25 x 200 ml bottles	452290
Tryptic Soy Agar	Tubes - 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**

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



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## TRYPTIC SOY AGAR – TRIPTONO SOJOS AGARAS

TERPĖ SKIRTA PLAČIAM MIKROORGANIZMŲ SPEKTRUI KULTIVUOTI (ISO 9308-1:2000)

### PARUOŠIMAS

40g terpės suspenduojama viename litre distiliuoto vandens. Kaitinant maišoma iki užvirinimo, kol visiškai ištirpsta. Sterilizuojama autoklavuojant 121° C temperatūroje 15 minučių. Ataušinama iki 45-50° C. Gerai išmaišoma ir išpilstoma į serijas Petri lėkštes.

### PANAUDOJIMAS

TRIPTONO SOJOS AGARAS yra dažniausiai naudojama terpė daugelio įnoringų mikroorganizmų išskyrimui, išskirtų rūšių konservavimui. USP šią terpę taip pat rekomenduoja visų aerobinių mikrobo skaičiavimui farmaciniuose produktuose. Pridėjus į terpę kraujo galima nustatyti hemolizės reakcijas. Dėl anaerobinių savybių, klostridijos ir nesporiniai anaerobai auga labai gerai (vešliai).

KULTŪRŲ CHARAKTERISTIKOS PO 18 -24 VALANDŲ INKUBACIJOS 36+/-1° C TEMPERATŪROJE  
APYTIKSLIAI PRIE 5-10% CO<sub>2</sub> APLINKOJE.

MIKROORGANIZMAI	AUGIMAS	HEMOLIZĖS TIPAS
<i>Escherichia coli</i> ATCC 25922	Geras	-
<i>Staphylococcus aureus</i> ATCC 25923	Geras	Beta
<i>Streptococcus pneumoniae</i> ATCC 6305	Geras	Alfa
<i>Streptococcus pyogenes</i> ATCC 19615	Geras	Beta

Formulė (g/litre)

Triptonas	15
Sojos peptonas	5
Natrio chloridas	5
Agaras	15

pH = 7,3+/- 0,2

PRODUKTAS	KODAS	ĮPAKAVIMAS
TRYPTIC SOY AGAR	610052	500 g
	620052	100 g