

# TECHNICAL DATA SHEET

Article No. 9738

Tryptic Soy Agar (TSA) Ph. Eur.

## SYNONYMS

Casein Soybean Digest Agar, Caso Agar

## SPECIFICATION

General purpose medium containing animal and plant peptone, according to Pharmacopoeial Harmonized Methods and ISO standards.

## FORMULA\* IN 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

\*Adjusted and/or supplemented as required to meet performance criteria.

## DIRECTIONS

Suspend 40 g of powder in 1 l of distilled water. Let it soak and heat to boiling to dissolve the agar. Sterilize by autoclaving at 121 °C for 15 minutes.

## DESCRIPTION

Tryptic Soy Agar is a widely used medium containing two peptones which support the growth of a wide variety of organisms, even that of very fastidious ones such as *Neisseria*, *Listeria*, *Brucella*, etc. It is frequently used for routine diagnostic purposes due to its reliability and its easily reproducible results.

The following list includes some of its most common applications:

- The medium provides, with added blood, perfectly defined haemolysis zones, while preventing the lysis of erythrocytes due to its sodium chloride content.

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Amtsgericht Stuttgart / HRA-Nr. 254140  
Persönlich haftende Gesellschafterin:  
Geyer Beteiligungsgesellschaft mbH  
Amtsgericht Stuttgart / HRB-Nr. 252035  
Geschäftsführer: Lutz-Alexander Geyer / Thomas Roth

- It can be used for the preparation of an exceptionally nutrient 'chocolate' agar, thanks to the richness of its peptones. In a reducing environment or with a CO<sub>2</sub> enriched atmosphere, it provides an excellent medium for the isolation of *Brucella* and *Neisseria*. It may be made selective by using additives.
- Most streptococci grow in this medium though clear differences can be observed from one species to another.
- Several tests for the differentiation and identification of staphylococci can be performed on this medium, provided suitable additives are used.
- Yeast, particularly *Candida* species, can grow in this medium forming very characteristic colonies.
- Chromogenic pseudomonas frequently produce pigmentation on TSA and are therefore easily recognized.
- A vast bibliography documents its applications in the food industry.
- It has been frequently used in the Health industry to produce antigens, toxins, etc.
- Its simple and inhibitor-free composition makes it suitable for the detection of antimicrobial agents in food and other products.
- A balanced and high nutrient value together with a lack of fermentable carbohydrates make this medium ideal for maintaining bacterial strains.
- If it is desired to use as an alternative medium in confirming the presumptive *Legionella* colonies isolated on the BCYE medium, the pH of the TSA must be adjusted so that after sterilization it is 6.8 ±0.2 at 25 °C.

## QUALITY CONTROL

- Incubation temperature: 30-35 °C
- Incubation time: 24-48 h/5 d
- Inoculum: Practical range 50-100 CFU (productivity), according to Ph. Eur. And ISO 11133:2014. Spiral Plate Method.

Microorganism	Growth	Remarks
<i>Bacillus subtilis</i> ATCC® 6633	Productivity >0.70	None
<i>Staphylococcus aureus</i> ATCC® 6538	Productivity >0.70	None
<i>Escherichia coli</i> ATCC® 8739	Productivity >0.70	None
<i>Candida albicans</i> ATCC® 10231	Productivity >0.70	48 h/5 d
<i>Pseudomonas aeruginosa</i> ATCC® 9027	Productivity >0.70	None
<i>Aspergillus brasiliensis</i> ATCC® 16404	Productivity >0.70	5 d (black sporulation)
<i>Listeria monocytogenes</i> ATCC® 13932	Productivity >0.70	None

## REFERENCES

- ATLAS, R.M. & L.C. PARKS (1993) Handbook of Microbiological Media. CRC Press, Inc. London.
- COLIPA (1997) Guidelines on Microbial Quality Management (MQM). Brussels.
- DOWNES, F.P. & K. ITO (2001) Compendium of Methods for the Microbiological Examination of Food, 4th ed, ASM, Washington D.C.

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- EUROPEAN PHARMACOPOEIA 8.0 (2014) 8th ed. § 2.6.13. Microbiological examination of non-sterile products: Test for specified microorganisms. Harmonised Method. EDQM. Council of Europe. Strasbourg.
- FDA (Food and Drug Administrations) (1998) Bacteriological Analytical Manual. 8th ed. Revision A. AOAC International. Gaithersburg. MD.
- HORWITZ, W. (2000) Official Methods of Analysis of AOAC INTERNATIONAL, 17th ed. Gaithersburg, MD. USA.
- ISO 9308-1 Standard (2000) Water Quality. Detection and enumeration of E. coli and coliform bacteria. Membrane filtration method.
- ISO 11731 Standard (2017) Water Quality. - Enumeration of Legionella.
- ISO 11133:2014. Microbiology of food, animal feed and water. Preparation, production, storage and performance testing of culture media.
- ISO 22717 Standard (2006) Cosmetics. - Microbiology. - Detection of Pseudomonas aeruginosa.
- ISO/TS 22964 (2006) Milk and milk products- Detection of Enterobacter sakazakii.
- PASCUAL ANDERSON, M<sup>ª</sup>R<sup>a</sup> (1992) Microbiología Alimentaria. Díaz de Santos S.A., Madrid.
- USP 33 - NF 28 (2011) <62> Microbiological examination of non-sterile products: Test for specified microorganisms. Harmonised Method. USP Corp. Inc. Rockville. MD. USA.

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## STORAGE

Keep tightly closed, away from light, in a dry place (4-30 °C).

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## SHELF LIFE

5 years from date of production.

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