

## Specification

General purpose medium containing animal and plant peptone, according to harmonized pharmacopoeial monographs and test methods

## Presentation

	Packaging Details	Shelf Life	Storage
10 Prepared bottle			
Bottles 250 ml	1 box with 10 bottles 250 ml	16 months	8-25°C
with: 200 ± 5 g	Non injectable cap Suitable for melting in microwave ovens		

## Composition

Composition (g/l):

Casein peptone.....	15,0
Soy peptone.....	5,00
Sodium chloride.....	5,00
Agar.....	15,0

## Description /Technique

### Description

TSA 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:

1. Sensitivity testing, either by the Kirby-Bauer system or by following the WHO guidelines. Both systems recommend the use of the Mueller-Hinton Agar or verification purposes.
2. The medium provides, with added blood, perfectly defined haemolysis zones, while preventing the lysis of erythrocytes due to its sodium chloride content.
3. It can be used for the preparation of an exceptionally nutrient 'chocolate' agar, thanks to the richness of its peptones.
4. 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.
5. Most streptococci grow in this medium though clear differences can be observed from one species to another.
6. Tryptic Soy Agar can be used as a selective medium for the count of urine samples although differentiation must be done on selective differential media.
7. Several tests for the differentiation and identification of staphylococci can be performed on this medium, provided suitable additives are used.
8. Yeast, particularly Candida species, can grow in this medium forming very characteristic colonies.
9. Chromogenic pseudomonas frequently produce pigmentation on TSA and are therefore easily recognized.
10. A vast bibliography documents its applications in the food industry.
11. It has been frequently used in the Health industry to produce antigens, toxins, etc...
12. Its simple and inhibitor-free composition makes it suitable for the detection of antimicrobial agents in food and other products.
13. A balanced and high nutrient value together with a lack of fermentable carbohydrates make this medium ideal for maintaining bacterial strains.
14. Classical media for microbiological examination of non-sterile products according to Pharmacopoeial Harmonised Methods.

### Technique

To use, the contents of the bottle should be poured into plates. The melting of the culture medium should be carried out according to the manufacturer's instructions, either in a water bath or microwave oven. Never apply direct heat to melt a medium. The melting temperatures and times depend on the shape of the container, the volume of medium and the heat source. Before melting any medium loosen the screwcap of the container to avoid breaking the container. The medium should be melted only once and used. Media with agar should not be melted repeatedly as their characteristics change with each remelting. Overheating should be avoided as much as prolonged heating, especially with regard to media with an acidic or alkaline pH. Once melted pour the plates using aseptic techniques. To inoculate, follow standard laboratory methods or the applicable norms. Spiral plate method, streak plating, econometric methods, dilution banks, spread plating etc...

## Quality control

### Physical/Chemical control

Color : yellow

pH: 7,3 ± 0,2

### Microbiological control

Melt Medium - Prepare Plates - According to harmonized pharmacopoeial monographs and test methods

Spiral Spreading with 10-100\* CFU for Growth Promotion or 1000-10000 CFU for Selectivity

Aerobic. Incubation at 30-35°C±2.5 for 24-72h (bacteria) and 20-25°C for 3-5 days (moulds and yeast).

### **Microorganism**

### **Growth**

*Escherichia coli* ATCC 8739

Good (&gt;70 %)

*Candida albicans* ATCC 10231

Good (&gt;70 %)

*Pseudomonas aeruginosa* ATCC 9027

Good (&gt;70 %)

*Staphylococcus aureus* ATCC 6538

Good (&gt;70 %)

*Aspergillus brasiliensis* ATCC 16404

Good (&gt;70 %)

*Bacillus subtilis* ATCC 6633

Good (&gt;70 %)

### Sterility Control

Incubation 48 hours at 30-35°C and 48 hours at 20-25°C: NO GROWTH

Check at 7 days after incubation in same conditions

(Sterilized by autoclaving at 121 °C for 15 minutes)

## Bibliography

- 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.
- EUROPEAN PHARMACOPOEIA 7.0 (2011) 7th 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/TS 11133-1: 2009. Microbiology of food and animal feeding stuffs.- Guidelines on preparation and production of culture media. Part 1: General guidelines on quality assurance for the preparation of culture media in the laboratory.
- ISO/TS 11133-2: 2003 Corr. 2004. Microbiology of food and animal feeding stuffs.- Guidelines on preparation and production of culture media. Part 2: Practical guidelines on performance testing of culture media.
- ISO 22717 Standard (2006) Cosmetics. - Microbiology. - Detection of *Pseudomonas aeruginosa*.
- 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.