

## TM 1226 -LISTERIA IDENTIFICATION AGAR BASE (PALCAM) (ISO 11290-2)

### INTENDED USE

For detection and enumeration of *Listeria monocytogenes* from food and animal feeds.

### PRODUCT SUMMARY AND EXPLANATION

Listeria identification Agar Base is used for the selective isolation and identification of *Listeria* spp. Also known as Polymyxin Acriflavine Lithium Chloride Ceftazidime Esculin Mannitol (PALCAM) Agar, it was originally formulated by Van Netten et al. for the isolation of *L.monocytogenes* from foods. This medium uses two indicator system for differentiating the *Listeria* spp, and those are, esculin & ferric citrate and mannitol & phenol red. The composition and performance of this medium are as per the specification laid down in ISO 11290-2.

### COMPOSITION

Ingredients	Gms / Ltr
Peptic digest of animal tissue	23.000
Lithium chloride	15.000
Agar	13.000
Mannitol	10.000
Sodium chloride	5.000
Yeast extract	3.000
Starch	1.000
Esculin	0.800
Dextrose	0.500
Ammonium ferric citrate	0.500
Phenol red	0.080

### PRINCIPLE

Medium contains Peptic digest of animal tissue which provide nitrogen, vitamins and other mineral sources to the organism. Sodium chloride maintains the osmotic balance of the medium. This medium is highly selective due to Polymyxin B, Acriflavin, Ceftazidime, and Lithium chloride which are used to suppress gram - negative and certain gram - positive bacteria. In this medium, Esculin, Ammonium ferric citrate and Phenol red are working as indicators. Esculin is hydrolyzed by *Listeria* sp. to form esculatin and dextrose. Esculatin reacts with ferric citrate and forms a brown - black complex which is seen as a black halo around colonies. Dextrose and starch act as energy source. *Listeria monocytogenes* does not ferment mannitol, but contaminants such as Enterococci and Staphylococci ferment mannitol and this is demonstrated by a colour change in the colony and /or the surrounding medium from red to yellow.

### INSTRUCTION FOR USE

- Dissolve 34.44 grams in 500ml distilled water.
- Gently heat to boiling with gentle swirling to dissolve the medium completely.
- Sterilize by autoclaving at 15 psi (121°C) for 15 minutes.
- Cool to 45-50°C.
- Aseptically add rehydrated contents 1 vial of Listeria Selective Supplement (PALCAM) (TS 119).
- Mix well and pour into sterile petri plates.



## QUALITY CONTROL SPECIFICATIONS

<b>Appearance of Dehydrated powder</b>	:	Light yellow to pink, homogeneous free flowing powder
<b>Appearance of Prepared medium</b>	:	Red coloured, clear to slightly opalescent gel
<b>pH (at 25°C)</b>	:	7.2± 0.2

## INTERPRETATION

Cultural characteristics observed after incubation with addition of Listeria Selective Supplement (PALCAM) (TS 119).

Microorganism	ATCC	Inoculum (CFU/ml)	Growth	Recovery	Colony characteristics	Incubation Temp.	Incubation Period
<i>Listeria monocytogenes</i>	19111	50-100	Good-Luxuriant	>=50%	Grey-green with black center and a black halo	35-37°C	48 Hours
<i>Listeria monocytogenes</i>	19112	50-100	Good-Luxuriant	>=50%	Grey-green with black center and a black halo	35-37°C	48 Hours
<i>Listeria monocytogenes</i>	19117	50-100	Good-Luxuriant	>=50%	Grey-green with black center and a black halo	35-37°C	48 Hours
<i>Listeria monocytogenes</i>	19118	50-100	Good-Luxuriant	>=50%	Grey-green with black center and a black halo	35-37°C	48 Hours
<i>Enterococcus faecalis</i>	29212	50-100	None-Poor	<=10%	Grey colonies with a brown green halo	35-37°C	48 Hours
<i>Staphylococcus aureus</i>	25923	50-100	None-Poor	<=10%	Yellow colonies with yellow halo	35-37°C	48 Hours
<i>Escherichia coli</i>	25922	50-100	None-Poor	<=10%	-	35-37°C	48 Hours

## PACKAGING

In 100 & 500 gm packaging size.

## STORAGE

Dehydrated powder, hygroscopic in nature, store in a dry place, in tightly-sealed containers below 25°C and protect from direct Sunlight. Under optimal conditions, the medium has a shelf life of 4 years. When the container is opened for the first time, note the time and date on the label space provided on the container. After the desired amount of medium has been taken out replace the cap tightly to protect from hydration.

**Product Deterioration:** Do not use, if powder show evidence of microbial contamination, discoloration, drying, or other signs of deterioration.










## DISPOSAL

After use, prepared plates, specimen/sample containers and other contaminated materials must be sterilized before discarding.

## REFERENCES

1. International Organisation for Standardization (ISO), ISO/DIS11290-2 : 2017. Microbiology of food and other animal feeding stuffs- Horizontal method for the detection and enumeration of *L. monocytogenes* and other *Listeria* species. Isenberg, H.D. Clinical Microbiology Procedures Handbook 2nd Edition.
2. Isenberg, H.D. Clinical Microbiology Procedures Handbook 2nd Edition.
3. Jorgensen, J.H., Pfaller, M.A., Carroll, K.C., Funke, G., Landry, M.L., Richter, S.S and Warnock., D.W. (2015) Manual of Clinical Microbiology, 11th Edition. Vol. 1.
4. Salfinger Y., and Tortorello M.L. Fifth (Ed.), 2015, Compendium of Methods for the Microbiological Examination of Foods, American Public Health Association, Washington, D.C.
5. Van Netten P. et al, 1989, Int. J. Food Microbiol., 8(4):299.



 GMP Good Manufacturing Practices Certified	 Best Before	 Quantity	 Catalogue Number	 Manufacturer
 Temperature Unit	 Lot / Batch Number	 Consults Instructions for Use	 QR Code	

**NOTE:** Please consult the Material Safety Data Sheet for information regarding hazards and safe handling Practices.

**\*For Lab Use Only**

**Revision: 23<sup>th</sup> May 2023**