

## TM 1587 – POLYMYXIN PYRUVATE EGG YOLK MANNITOL BROMOTHYMOLO BLUE AGAR BASE (PEMBA)

### INTENDED USE

For cultivation of *Bacillus cereus*.

### PRODUCT SUMMARY AND EXPLANATION

*Bacillus cereus* is an aerobic spore-forming bacteria commonly found in soil and isolated from different vegetables, raw and processed foods. *B. cereus* causes food poisoning due to the consumption of contaminated raw vegetables, sprouts, meat, custards, soups, boiled or fried rice. It also causes eye infections and a wide range of other clinical conditions like abscess formation, meningitis, septicaemia and wound infection. *B. cereus* is a known cause of mastitis, especially in ewes and heifers. Polymyxin Pyruvate Egg Yolk Mannitol Bromothymol Blue Agar (PEMBA), formulated as per Holbrook and Anderson, is a highly specific, selective medium for the isolation and enumeration of *B. cereus* from foods. Selectivity is attained with polymyxin and a critical concentration of nutrients. It supports the growth of even a small number of *B. cereus* cells and spores from foods having large number of microbial load.

### COMPOSITION

Ingredients	Gms / 100 ml
Peptic digest of animal tissue	0.100
Mannitol	1.000
Sodium pyruvate	1.000
Disodium phosphate	0.250
Sodium chloride	0.200
Potassium dihydrogen phosphate	0.025
Magnesium sulphate. heptahydrate	0.010
Bromo thymol blue	0.010
Agar	1.800

### PRINCIPLE

This medium consists of the low peptone content which promotes sporulation and sodium pyruvate reduces the colony size of the organisms. Egg yolk emulsion demonstrates the strong lecithinase opacity reaction. Bromothymol blue acts as pH indicator to detect mannitol fermentation.

### INSTRUCTION FOR USE

- Dissolve 4.39 grams in 90 ml purified/distilled water.
- Heat to boiling to dissolve the medium completely.
- Sterilize by autoclaving at 15 psi pressure (121°C) for 15 minutes. Cool to 45-50°C.
- Aseptically add sterile rehydrated contents of 1 vial PEMBA Supplement and 5 ml of sterile Egg Yolk Emulsion.
- Mix well and pour into sterile Petri plates.

**QUALITY CONTROL SPECIFICATIONS**

**Appearance of Powder** : Cream to greenish yellow homogeneous free flowing powder.  
**Appearance of prepared medium** : Basal medium: Green coloured clear to slightly opalescent gel. After addition of Egg Yolk Emulsion : Forest green coloured, opaque gel forms in Petri plates.  
**pH (at 25°C)** : 7.4 ± 0.2

**INTERPRETATION**

Cultural characteristics observed with added PEMBA and Egg Yolk Emulsion after incubation.

Microorganism	ATCC	Inoculum (CFU/ml)	Growth	Recovery	Colour of colony	Egg Yolk Reaction	Incubation Temperature	Incubation Period
<i>Bacillus cereus</i>	10876	50-100	Good-luxuriant	>=50%	Blue	Positive, precipitation	35-37°C	24-48 Hours
<i>Proteus vulgaris</i>	13315	50-100	Good-luxuriant	>=70%	Green	Negative	35-37°C	24-48 Hours
<i>Staphylococcus aureus</i>	25923	50-100	Good-luxuriant	>=50%	Yellow	Positive, clearing	35-37°C	24-48 Hours
<i>Escherichia coli</i>	25922	>=10 <sup>3</sup>	-	0%	-	-	35-37°C	24-48 Hours

**PACKAGING:**

In pack size of 500 gm bottles.

**STORAGE**

Dehydrated powder, hygroscopic in nature, store in a dry place, in tightly-sealed containers between 10-25°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 they show evidence of microbial contamination, discoloration, drying or any other signs of deterioration.

**DISPOSAL**










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

**REFERENCES**

1. Mortimer P. R. and McCann G., 1974, Lancet, 104:3.
2. Bouza E., Grant S., Jordan C. et al, 1979, arch. Ophthalmol., 97:488.
3. Wohlegmuth K., Kirkbride C. A., Bicknell E. J. and Ellis R. P., 1972, Am. Vet. Med. Ass., 161:1691.
4. Hollbrook R., Anderson J. M., 1980, Canadian Journal of Microbiology 26:753-759
5. Collee J. G., Fraser A. G., Marmion B. P., Simmons A., (Eds.), 1996, Mackie and McCartney, Practical Medical Microbiology, 14th Edition, Churchill Livingstone



6. Atlas R. M., 1996, Handbook of Microbiological Media, 2nd Edition, CRC Press, New York, pg. 1112.
7. Donovan K. O., 1958, J. Appl. Bacteriol., 21(1):100.
8. Mossel D. A. A., Koopman J. and Jongorius E., 1967, J. Appl. Microbiol., 15(3):650.
9. Corry J. E. L., Curtis G. D. W. and Baird R. M., (Eds.), Culture Media for Food Microbiology. Vol. 34, 1995, Elsevier, Amsterdam.

 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: 22 May., 2023