17134 NutriSelect™ Plus CPC-Agar, Base (Cellobiose Polymyxin Colistin Agar, Base)

For the cultivation and identification of *Vibrio* species from foods.

Composition:

Ingredients	Grams/Litre
Peptic digest of animal tissue	10.0
Beef extract	5.0
Cellobiose	15.0
Sodium chloride	20.0
Bromothymol Blue	0.04
Cresol Red	0.04
Agar	15.0

Final pH 7.6 +/- 0.2 at 25°C

Store prepared media below 8°C, protected from direct light. Store dehydrated powder, in a dry place, in tightly-sealed containers at room temperature.

Appearance: Faint green, faint yellow to faint grey coloured, homogeneous, free flowing powder.

Color and Clarity: Olive green to brown coloured clear to slightly opalescent gel.

Directions:

Suspend 32.54 g in 500 ml of distilled water. Heat to boiling to dissolve the medium completely. Sterilize by autoclaving at 121°C for 15 minutes. Cool to 45°C and aseptically add reconstituted contents of 1 vial of CPC Supplement (Cat. No. 17137). Mix well.

Principle and Interpretation:

Vibrio species are natural inhabitants of brackish and salt water. Human disease is associated with ingestion of contaminated water or consumption of contaminated seafood. Wound and systemic infections develop following contact with contaminated water (5). CPC (Cellobiose, Polymyxin and Colistin) Agar Base formulated as per APHA (7) is recommended for the cultivation and identification of *Vibrio* species from foods. CPC Agar is a selective and differential agar medium, designed to differentiate *Vibrio vulnificus* from other *Vibrios* (7). *Vibrio cholerae* strains except *V. cholerae* 01-classical biotype grow on CPC Agar while most *Vibrio parahaemolyticus* strains do not grow on CPC Agar.

CPC Agar contains peptone, which supply the essential nitrogenous, carbonaceous compounds, long chain amino peptides, vitamins and other growth nutrients to *Vibrios*. Sodium chloride is for the optimal osmotic condition for *Vibrio* and gives the medium also some selectivity. Cellobiose is fermented by some *Vibrios* producing acid and is indicated by the pH indicator bromothymol blue, which turns yellow at acidic pH. Cresol red is the pH indicator of alkaline range, which turns red at alkaline pH. Alkaline pH of the medium enhances the recovery of *Vibrios*.

Blend approximately 25 grams of food sample with 225 ml Alkaline Peptone Water. Transfer a loopful from the surface growth of either Alkaline Peptone Water or Gelatin Phosphate Salt Broth to the surface of the dried plates of CPC Agar. Streak in a manner that will yield isolated colonies. Incubate CPC Agar at 40 - 42°C for 18 to 24 hours.

Typical colonies of *V. cholerae* on CPC Agar are small, smooth, opaque and green to purple in color as CPC Agar contains two pH indicators viz. bromothymol blue and cresol red. A purple background will

also develop in the CPC Agar upon extended incubation.

Specimen Collection and Handling:
For food and dairy samples, follow appropriate techniques for sample collection and processing as per guidelines (1,6,8).
For water samples, follow appropriate techniques for sample collection, processing as per guidelines and local standards.(2)
After use, contaminated materials must be sterilized by autoclaving before discarding.

Limitations:
1. *V. cholerae* on CPC Agar are small, smooth, opaque and green to purple in color as CPC Agar contains two pH indicators viz. bromothymol blue and cresol red.
2. A purple background will develop if incubation gets protracted.

Cultural characteristics after 18-24 hours at 40±2°C.

Organisms (ATCC)	Inoculum [cfu]	Growth	Recovery	Color of Colony
Vibrio cholerae (15748)	50-100	+++	≥ 50%	Green-purple
Vibrio parahaemolyticus (17802, WDCM 00037)	$\geq 10^4$	-	0%	-
Vibrio vulnificus	50-100	+++	≥ 50%	yellow

References:

1. American Public Health Association, Standard Methods for the Examination of Dairy Products, 14th Ed., Washington D.C. (1978)
2. Baird R.B., Eaton A.D., and Rice E.W., (Eds.), Standard Methods for the Examination of Water and Wastewater, 23rd ed., APHA, Washington, D.C. (2015)
3. Isenberg, H.D. Clinical Microbiology Procedures Handbook. 2nd Edition. 4. Jorgensen,J.H., Pfaller , M.A., Carroll, K.C., Funke, G., Landry, M.L., Richter, S.S and Warnock., D.W., Manual of Clinical Microbiology, 11th Edition. Vol. 1. (2015)
4. Murray P. R., Baron J. H., Pfaller M. A., Jorgensen J. H. and Yolken R. H., (Ed.), Manual of Clinical Microbiology, 8th Ed., American Society for Microbiology, Washington, D.C. (2003)
5. Salfinger Y., and Tortorello M.L., Compendium of Methods for the Microbiological Examination of Foods, 5th Ed., American Public Health Association, Washington, D.C. (2015)
6. Vanderzant C. and Splittstoesser D. F., (Eds), Compendium of Methods for the Microbiological Examination of Foods, 3rd Ed., APHA, Washington DC. (1992)
7. Wehr H. M. and Frank J. H., Standard Methods for the Microbiological Examination of Dairy Products, 17th Ed., APHA Inc., Washington, D.C. (2004)

Precautions and Disclaimer
This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.