

Technical Information

Dey-Engley Neutralizing Agar Plate

Product Code: PM 1186

Application:- Dey-Engley Neutralizing Agar Plate is used in disinfectant testing, where neutralization of the chemical is important for determining its bactericidal activity.

Composition**

Ingredients	Gms / Litre
Tryptone	5.000
Yeast extract	2.500
Dextrose	10.000
Sodium thiosulphate	6.000
Sodium thioglycollate	1.000
Sodium bisulphite	2.500
Lecithin	7.000
Polysorbate80	5.000
Bromocresol purple	0.020
Agar	15.000
Final pH (at 25°C)	7.6±0.2

**Formula adjusted, standardized to suit performance parameters

Principle & Interpretation

Dey-Engley Neutralizing Agar Plate is formulated as per the procedure described by Engley and Dey (1). A strongly bacteriostatic substance inhibits the growth and reproduction of bacteria without killing them. These bacteria hold the ability to cause infection under favorable conditions. Dey-Engley Neutralizing Agar neutralizes a broad spectrum of antiseptics and disinfectants including quaternary ammonium compounds, phenolic, iodine and chlorine preparations, mercurial, formaldehyde and glutaraldehyde. (2). Tryptone provide nitrogen and carbon source, long chain amino acids, vitamins and other essential nutrients. Dextrose is an energy source. Yeast extract is also a rich source of vitamin B-complex. The present formulation incorporate neutralizing substances for almost all the active products used as antiseptics and disinfectants. Sodium bisulfite neutralizes aldehydes; sodium thioglycollate neutralizes mercurial; sodium thiosulfate neutralizes iodine and chlorine (1); lecithin neutralizes quaternary ammonium compounds; and polysorbate 80, a non-ionic surface-active agent, neutralizes substituted phenolic (1,2,5,6). Bromocresol purple is an indicator for dextrose utilization. Due to the high concentration of lecithin in the broth medium, turbidity cannot be used to detect growth. Therefore, bromocresol purple and dextrose are added to the medium. Those organisms that ferment dextrose will turn the medium from purple to yellow. (1). For Agar Medium: Dey -Engley Neutralizing Agar medium can be over-filled, producing a meniscus or dome-shaped surface that can be pressed onto a surface for sampling its microbial burden. Incubate the plates, by covering the lids, at an appropriate temperature. The presence of microorganism is determined by the appearance of colonies on the surface of agar medium. Neutralization Test: Growth in Neutralizing Broth and no growth in Neutralizing Broth Base indicate neutralization of disinfectant. To check bactericidal activity, both broth tubes are inoculated on D/E Neutralizing Agar. Positive growth from negative tubes of Neutralizing Broth Base indicates bacteriostatic substance while negative growth indicates a bactericidal disinfectant. All positive tubes should show growth on Dey-Engley Neutralizing Agar. The control disinfectants used in test procedure are 2% chlorine, 2% formaldehyde, 1% glutaraldehyde, 2% iodine, 2% phenol, 1/750 quaternary ammonium compounds, 1/1000 mercurial etc.

Type of specimen

Food and dairy samples; Environmental samples

Specimen Collection and Handling:

For food and dairy samples, follow appropriate techniques for sample collection and processing as per guidelines (1,6,7). After use, contaminated materials must be sterilized by autoclaving before discarding.

Warning and Precautions :

Read the label before opening the pack. Wear protective gloves/protective clothing/eye protection/ face protection. Follow good microbiological lab practices while handling specimens and culture. Standard precautions as per established guidelines should be followed while handling specimens. Safety guidelines may be referred in individual safety data sheets.

Limitations :

1. Individual organisms differ in their growth requirement and may show variable growth patterns on the medium
2. Each lot of the medium has been tested for the organisms specified on the COA. It is recommended to users to validate the medium for any specific microorganism other than mentioned in the COA based on the user's unique requirement.
3. It is recommended to store the plates at 24-30°C to avoid minimum condensation.

Performance and Evaluation

Performance of the medium is expected when used as per the direction on the label within the expiry period when stored at recommended temperature.

Methodology

Either streak, inoculate or surface spread the test inoculum (50-100 CFU) aseptically on the plate.

Quality Control

Appearance

Sterile Dey-Engley Neutralizing Agar in 90 mm disposable plates.

pH

7.40-7.80

Quantity of medium

25 ml of medium in 90 mm disposable plates

Colour of medium

Purple to reddish purple coloured medium

Sterility Test

Passes release criteria

Cultural Response

Growth Promotion was carried out and growth was observed after incubation at 30-35°C for 40-48 hours. (*-Formerly known as *Aspergillus niger*). Recovery rate is considered 100% for bacteria growth on Blood Agar and fungus growth on Sabouraud Dextrose Agar.

Organism	Inoculum (CFU)	Growth	Recovery
<i>Escherichia coli</i> ATCC 25922 (00013*)	50-100	luxuriant	>=70%
<i>Pseudomonas aeruginosa</i> ATCC 27853 (00025*)	50-100	luxuriant	>=70%
<i>Salmonella Typhimurium</i> ATCC 14028 (00031*)	50-100	luxuriant	>=70%
<i>Staphylococcus aureus</i> subsp. aureus ATCC 25923 (00034*)	50-100	luxuriant	>=70%
<i>Bacillus subtilis subsp. spizizenii</i> ATCC 6633 (00003*)	50-100	luxuriant	>=70%
<i>Candida albicans</i> ATCC 10231 (00054*)	50-100	luxuriant	>=70%
<i>Aspergillus brasiliensis</i> ATCC 16404 (00053*)	50-100	luxuriant	>=50%

* - Corresponding WDCM numbers

Storage and Shelf Life

- On receipt store between 20-30°C.
- Use before expiry date on the label.
- Product performance is best if used within stated expiry period.

Disposal

User must ensure safe disposal by autoclaving and/or incineration of used or unusable preparations of this product. Follow established laboratory procedures in disposing of infectious materials and material that comes into contact with sample must be decontaminated and disposed of in accordance with current laboratory techniques (3,4).

Further Reading

1. Engley and Dey, 1970. Chem. Spec. Manuf. Assoc. Proc., Mid-Year Meet., p. 100.
2. Erlandson A. L., and Lawrence C. A., 1953, Science 118:274.
3. Isenberg, H.D. Clinical Microbiological 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. (2015) Manual of Clinical Microbiology, 11th Edition. Vol. 1.
5. Quisno R.A., Gibby I.W., and Foter M.J., 1946, Am. J. Phar., 118:320.
6. Salfinger Y., and Tortorello M.L., 2015 Compendium of Methods for the Microbiological Examination of Foods, 5th Ed., American Public Health Association, Washington, D.C.
7. Wehr H. M. and Frank J. H., 2004, Standard Methods for the Microbiological Examination of Dairy Products, 17th Ed., APHA Inc., Washington, D.C.

Disclaimer :

- User must ensure suitability of the product(s) in their application prior to use.
- The product conform solely to the technical information provided in this booklet and to the best of knowledge research and development work carried at CDH is true and accurate
- **Central Drug House Pvt. Ltd.** reserves the right to make changes to specifications and information related to the products at any time.
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