



## Dey-Engley Neutralizing Broth Base

M187

### Intended Use:

Recommended for neutralizing and determining bactericidal activity of quaternary ammonium compounds.

### Composition\*\*

Ingredients	Gms / Litre
Tryptone	5.000
Yeast extract	2.500
Dextrose (Glucose)	10.000
Bromocresol purple	0.020
Final pH ( at 25°C)	7.6±0.2

\*\*Formula adjusted, standardized to suit performance parameters

### Directions

Suspend 17.52 grams in 1000 ml purified / distilled water. Heat if necessary to dissolve the medium completely. Mix well and dispense in tubes or flasks as desired. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes.

### Principle And Interpretation

Dey-Engley Neutralizing Broth is formulated as per the procedure described by Engley and Dey (1). Dey-Engley Neutralizing Broth is especially suited for environmental sampling where neutralization of the chemical is important to determine its bactericidal activity. 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 Broth Base does not contain the neutralizing components.

The Dey-Engley Neutralizing Broth neutralizes a broad spectrum of antiseptics and disinfectants including quaternary ammonium compounds, phenolics, iodine and chlorine preparations, mercurials, formaldehyde and glutaraldehyde. Dey-Engley Neutralizing Broth is used for the neutralization and testing of antiseptics and disinfectants according to the procedure of Engley and Dey (1).

Tryptone provides essential nutrients. Dextrose is an energy source. Yeast extract is also a rich source of vitamin B-complex. (1). Bromocresol purple is an indicator for dextrose utilization. Therefore, bromo cresol purple and dextrose are added to the medium. Those organisms that ferment dextrose will turn the medium from purple to yellow. (1). Neutralization Test :

For testing disinfectants, prepare two sets of test tubes, one containing 9 ml Dey-Engley Neutralizing Broth (M1062) and other with 9 ml Dey-Engley Neutralizing Broth Base (M187). Add 1 ml of disinfectant under test. Mix well and allow it to stand for 15 minutes. Inoculate 0.1 ml of 1:100,000 dilution of overnight broth cultures and incubate at 37°C for 48 hours. Growth is indicated by a colour change from purple to yellow or pellicle formation. 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 (M186). 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 mercurials etc.

### Type of specimen

Food and dairy samples; Environmental samples, cosmetic, pharmaceutical

### Specimen Collection and Handling

For food and dairy samples, follow appropriate techniques for sample collection and processing as per guidelines (1,5,6). For environmental samples, follow appropriate techniques for sample collection, processing as per guidelines and local standards.(3,4) After use, contaminated materials must be sterilized by autoclaving before discarding.

### Warning and Precautions :

Read the label before opening the container. 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. Due to nutritional variations, some strains may show poor growth

## 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.

## Quality Control

### Appearance

Light yellow to bluish grey homogeneous free flowing powder

### Colour and Clarity of prepared medium

Purple coloured, opalescent solution in tubes

### Reaction

Reaction of 1.75% w/v aqueous solution at 25°C. pH : 7.6±0.2

### pH

7.40-7.80

### Cultural Response

Cultural characteristics observed after an incubation at 35-37°C for 40-48 hours.

Organism	Inoculum (CFU)	Growth
<i>Bacillus subtilis</i> subsp. <i>spizizenii</i> ATCC 6633 (00003*)	50-100	luxuriant
<i>Escherichia coli</i> ATCC 25922 (00013*)	50-100	luxuriant
<i>Pseudomonas aeruginosa</i> ATCC 27853 (00025*)	50-100	luxuriant
<i>Salmonella</i> Typhimurium ATCC 14028 (00031*)	50-100	luxuriant
<i>Staphylococcus aureus</i> subsp. <i>aureus</i> ATCC 25923 (00034*)	50-100	luxuriant

Key : (\*) Corresponding WDCM numbers.

## Storage and Shelf Life

Store between 10-30°C in a tightly closed container and the prepared medium at 15-25°C. Use before expiry date on the label. On opening, product should be properly stored dry, after tightly capping the bottle in order to prevent lump formation due to the hygroscopic nature of the product. Improper storage of the product may lead to lump formation. Store in dry ventilated area protected from extremes of temperature and sources of ignition. Seal the container tightly after use. 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).

## Reference

1. American Public Health Association, Standard Methods for the Examination of Dairy Products, 1978, 14th Ed., Washington D.C.
2. Engley and Dey, 1970. Chem. Spec. Manuf. Assoc. Proc., Mid-Year Meet., p. 100.
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. (2015) Manual of Clinical Microbiology, 11th Edition. Vol. 1.
5. Salfinger Y., and Tortorello M.L. Fifth (Ed.), 2015, Compendium of Methods for the Microbiological Examination of Foods, 5th Ed., American Public Health Association, Washington, D.C.

6. Wehr H. M. and Frank J. H., 2004, Standard Methods for the Microbiological Examination of Dairy Products, 17th Ed., APHA Inc., Washington, D.C.

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**Disclaimer :**

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