

## Dey/ Engley Neutralizing Agar Plate

MP186

Used in disinfectant testing, where neutralization of the chemical is important for determining its bactericidal activity.

### Composition\*\*

Ingredients	Gms / Litre
Casein enzymic hydrolysate	5.000
Yeast extract	2.500
Dextrose	10.000
Sodium thiosulphate	6.000
Sodium thioglycollate	1.000
Sodium bisulphite	2.500
Lecithin	7.000
Polysorbate 80	5.000
Bromocresol purple	0.020
Agar	15.000

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

### Directions

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

### Principle And Interpretation

Dey-Engley Neutralizing Agar 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 favourable conditions. Dey-Engley Neutralizing Agar neutralizes a broad spectrum of antiseptics and disinfectants including quaternary ammonium compounds, phenolics, iodine and chlorine preparations, mercurials, formaldehyde and glutaraldehyde. (1).

Casein enzymic hydrolysate provide essential nutrients. Dextrose is an energy source. Yeast extract is also a rich source of vitamin B-complex. The present formulation incorporates neutralizing substances for almost all the active products used as antiseptics and disinfectants. Sodium bisulfite neutralizes aldehydes; sodium thioglycollate neutralizes mercurials; sodium thiosulfate neutralizes iodine and chlorine (1); lecithin neutralizes quaternary ammonium compounds; and polysorbate 80, a non-ionic surface-active agent, neutralizes substituted phenolics (2-5). 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 mercurials etc.

### Quality Control

#### Appearance

Sterile Dey/Engley Neutralizing Agar in 90mm petriplate

**Colour**

Purple coloured medium.

**Quantity of Medium**

25 ml of medium in 90 mm plate

**Reaction**

7.40- 7.80

**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.

**Sterility Test**

Passes release criteria

**Cultural Response**

Organism	Inoculum (CFU)	Growth	Lot value (CFU)
<b>Growth at 30-35°C for &lt; = 3 days</b>			
<i>Bacillus subtilis</i> ATCC 6633	50 -100	luxuriant	35 -100
<i>Staphylococcus aureus</i> ATCC25923	50 -100	luxuriant	35 -100
<i>Staphylococcus aureus</i> ATCC 6538	50 -100	luxuriant	35 -100
<i>Escherichia coli</i> ATCC 25922	50 -100	luxuriant	35 -100
<i>Escherichia coli</i> ATCC 8739	50 -100	luxuriant	35 -100
<i>Escherichia coli</i> NCTC 9002	50 -100	luxuriant	35 -100
<i>Pseudomonas aeruginosa</i> ATCC 27853	50 -100	luxuriant	35 -100
<i>Pseudomonas aeruginosa</i> ATCC 9027	50 -100	luxuriant	35 -100
<i>Salmonella</i> Abony NCTC 6017	50 -100	luxuriant	35 -100
<i>Salmonella</i> Typhimurium ATCC 14028	50 -100	luxuriant	35 -100
<b>Growth at 20-25°C for &lt; = 5 days</b>			
* <i>Aspergillus brasiliensis</i> ATCC 16404		luxuriant	
<i>Candida albicans</i> ATCC 2091	50 -100	luxuriant	35 -100
<i>Candida albicans</i> ATCC 10231	50 -100	luxuriant	35 -100

**Storage and Shelf Life**

Store between 15-25°C. Use before expiry date on the label.

**Reference**

- 1.Engley and Dey, 1970. Chem. Spec. Manuf. Assoc. Proc., Mid-Year Meet., p. 100.
- 2.Downes F. P. and Ito K., (Ed.), 2001, Compendium of Methods for the Microbiological Examination of Foods, 4th Ed. American Public Health Association, Washington, D.C.
- 3.Quisno R.A., Gibby I.W., and Foter M.J., 1946, Am. J. Phar., 118:320.
- 4.Erlandson A. L., and Lawrence C. A., 1953, Science 118:274.
- 5.Brummer B., 1976, Appl. Environ. Microbiol., 32:80.

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