DEY-ENGLEY NEUTRALIZING BROTH

DNBR-0EP-500

- **Principle**

Dey-Engley Neutralizing Broth is formulated according to the procedure described by Engley and Dey in 1970 for the effective neutralization of a wide range of antiseptics and disinfectants. It is recommended for use in disinfectant efficacy testing, environmental monitoring, and validation of sanitation procedures in pharmaceutical, cosmetic, food, and healthcare industries, where the recovery of microorganisms potentially injured by residual antimicrobial agents is required.

The medium contains tryptone and yeast extract as sources of nitrogen, carbon, vitamins, and essential growth factors, including B-complex vitamins and other cofactors necessary for bacterial metabolism. Dextrose serves as a fermentable carbohydrate and primary energy source. Bromocresol purple is incorporated as a pH indicator to facilitate the detection of dextrose fermentation through a visible colour change.

A distinctive feature of this formulation is its broad neutralizing capacity. Sodium thioglycolate neutralizes mercurial compounds, sodium thiosulfate inactivates iodine and chlorine, and sodium bisulphite neutralizes aldehydes. Lecithin neutralizes quaternary ammonium compounds, while polysorbate 80, a non-ionic surfactant, neutralizes substituted phenolic compounds. The combined action of these neutralizing agents enables the recovery of microorganisms exposed to a wide spectrum of disinfectants and antiseptics commonly used in commercial and industrial applications.

Due to the relatively high concentration of lecithin required for effective neutralization, the medium may appear slightly hazy, making turbidity measurements by spectrophotometry unreliable. For this reason, dextrose and bromocresol purple are included to provide a visual indication of microbial growth. Organisms capable of fermenting dextrose produce acid, resulting in a colour change of the medium from purple to yellow. Non-fermentative organisms, such as many Pseudomonas species, do not produce this colour change but can be detected by the formation of a surface pellicle or by visible turbidity associated with growth.

- **Regulatory compliance**

This product is manufactured under a quality management system in accordance with ISO 9001 and ISO 13485, and its formulation and quality control comply with applicable international standards, such as ISO 11133, where relevant.

- **Composition**

Ingredients	**g/L**
Tryptone	5.00
Yeast Extract	2.50
Dextrose	10.00
Sodium Thioglycolate	1.00
Sodium Thiosulphate	6.00

Sodium Bisulphate	2.50
Polysorbate 80	5.00
Lecithin	7.00
Bromocresol purple	0.02

- **Preparation**

Dissolve 39 grams in 1,000 ml distilled water. Boil to dissolve the medium completely and sterilize by autoclaving at 15 lbs. pressure (121 °C) for 15 min, cool it to 42-45 °Cand distribute aseptically as desired and inoculate the test sample.

- **Applications and use**

Recommended for neutralizing and determining the bactericidal activity of antiseptics, disinfectants and chemicals in commercial products after treatment.

- **Quality control**

Solubility	w/o rests
Appearance	Fine powder
Colour of the dehydrated medium	Blueish-beige
Colour of the prepared medium	Light purple
Final pH (25 °C)	7.2 ± 0.1

- **Microbiological test**

Cultural characteristics observed after incubation at 33-37 °C for 18-24 hours. Inoculum 50-100 CFU for bacteria and 25±2 °C for 24-48 hours for yeast and mould.

Microorganism	ATCC	Growth	Media colour
Staphylococcus aureus	25923	Luxuriant	Yellow
Bacillus spizizenii	6633	Luxuriant	Yellow
Pseudomonas aeruginosa	27853	Luxuriant	Yellow
Salmonella typhimurium	14028	Luxuriant	Yellow
Escherichia coli	8739	Luxuriant	Yellow
Candida albicans	10231	Luxuriant	Yellow

- **Storage**

The product is highly hygroscopic; keep the container always closed and store it properly as per the conditions mentioned on the label. The declared expiry is valid only when stored as per the conditions mentioned on the label. Temp. Min.:2 °C Temp. Max.:25 °C.

Note: Sterilize media immediately after reconstitution.

- **Bibliography**

American Public Health Association (1978), Standard Methods for the Examination of Dairy Products, 14thEd., Washington D.C.

Baird R.B., Eaton A.D., and Rice E.W., (Eds.), (2015), Standard Methods for the Examination of Water and Wastewater, Wastewater, 20thEd., American Public Health Association, Washington, D.C.

Difco Manual (1998). 11thEdition. Difco Laboratories., Division of Becton Dickinson and Company, Sparks, Maryland, USA.

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, 11thEdition. Vol. 1

- **Product use limitation**

This product is developed, designed and supplied exclusively for research use only. It is not intended for diagnostic applications or drug development, and it is not suitable for administration to humans or animals.