

Neutralizing and General dilution buffers

Neutralizing buffer contains nutritive components which aid in the recovery and growth of microorganisms in samples taken from surfaces exposed to sanitizing agents. It has the ability to inactivate the bactericidal and bacteriostatic effects of sanitizing agents such as chlorine and quaternary ammonium compounds (quats).

***Recommended use:** Neutralizing Buffer is recommended for **detection of microorganisms found on dairy and food equipment** disinfected with chlorine or quats. It is also recommended for the digestion and decontamination process of mycobacteria during **TB diagnoses**¹. Decontamination and digestion of the mucous components kills contaminating normal flora and allows slower growing mycobacteria to grow. Timely neutralization prevents potential loss of mycobacteria caused by high pH levels of decontaminants, resulting in the preservation of more viable organisms for diagnostic protocols.

D/E Neutralizing Buffer was developed by Dey and Engley and contains additional compounds to the neutralizing buffer. It is used to neutralize a broad spectrum of disinfectants and preservative antimicrobial chemicals, including chlorine and quaternary ammonium compounds, phenolics, iodine, mercurials, peracetic acid, hydrogen peroxide, formaldehyde, and glutaraldehyde. D/E Neutralizing media neutralize higher concentrations of residual antimicrobials when compared with other standard neutralizing formulations, such as Neutralizing Buffer, Lethen media etc.

***Recommended use:** D/E Neutralizing Broth is recommended for use in **disinfectant evaluations, environmental sampling** (swab and contact plate methods), and **testing of water-miscible cosmetics/antiseptics**.

-As per CFIA, used for *Listeria* sample collection.

Lethen Broth is a liquid medium recommended for use in qualitative procedures for testing chlorine, fluoride and quaternary ammonium compounds for antimicrobial activity. It was originally developed as a subculture medium for the neutralization of quats.

***Recommended use:** Recovering bacteria from the solutions containing residues of sanitizers from **food utensils and equipment**.

Buffered Peptone Water (BPW) is a pre-enrichment medium designed to help recovery of sub-lethally damaged *Salmonella* before transfer to a selective medium. This pre-enrichment medium is free from inhibitors and is well buffered and provides conditions for resuscitation of the cells that have been injured by processes of food preservation (heat, desiccation, low pH, food preservatives etc.)³

***Recommended use:** Buffered peptone water is highly **recommended for vegetable specimens and fermented products** which have low buffering capacity. This medium can be used for testing dry poultry feed.

Butterfield's Phosphate buffer provides a standardized medium for the preparation of sample dilutions during plate count and other laboratory procedures. It eliminates the variations in pH associated with the use of distilled water. BPB is also known as Butterfield's phosphate buffered dilution water or Butterfield's Phosphate Diluent.

***Recommended use:** It is recommended as a **general diluent in laboratory procedures**. In addition, BPB is described in *Standard Methods for the Examination of Water and Wastewater* for use in water testing. The buffer is also recommended for use in **microbial limit testing for pharmaceutical products**⁴.

References:

1. Cernoch, Enns, Saubolle and Wallace. 1994. Cumitech 16A, Laboratory diagnosis of the mycobacterioses. Coord. ed., Weissfeld. American Society for Microbiology, Washington, D.C
2. Engley, F. B., Jr. and B. P. Dey. 1970. A universal neutralizing medium for antimicrobial chemicals. Presented at the Chemical Specialties Manufacturing Association (CSMA) Proceedings. 56th Mid-Year Meeting.
3. Sadowski A.Y. (1977) *J. Food Technol.* 12. 85-91.
4. The United States Pharmacopeia. 2009. 32nd ed. United states Pharmacopeial Convention, Rockville, MD



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