

Letheen Broth, Modified (i23092)

Letheen Broth is special formulations for the determination of bacterial activity of quaternary ammonium compounds.

Industry: Cosmetics

Principles & Uses

In the 1940s, Weber and Black introduced lecithin and polysorbates to counteract the antimicrobial effects of Quaternary Ammonium Compounds (QACs). This method, endorsed by AOAC in 1965, expanded to include cationic detergents. The FDA adopted it in 1978 as a primary presumptive and enrichment medium for cosmetics' microbial examination.

Letheen Broth, Modified aligns with FDA standards for screening cosmetics for microbial contamination, crucial to prevent adverse chemical changes due to microbial metabolism. Direct colony counts and enrichment culturing are the preferred approaches for isolating microorganisms in cosmetics.

This highly nutritious Letheen medium, containing Lecithin and Tween® 80, effectively neutralizes QACs, phenolic compounds, hexachlorophene, formalin, and ethanol. Its key components, like peptones, beef extract, and yeast extract, provide vital nutrients and maintain osmotic balance. Enrichment in this medium is performed for 7 days at 30-32°C before subculturing on agar media. ISO/TC 217 also recognizes this formulation as an alternative enrichment medium for microbiological cosmetics examination.

Composition (gr/L)

Peptone from Casein 10, Yeast Extract 2, Beef Extract 5, Proteose Peptone 10, Meat Peptone 5, Lecithin 0.7, NaCl 5, Sodium Bisulfite 0.1, Tween 80 5.

Final pH at 25°C 7.2 ± 0.2

Preparation from dehydrated Powder

Suspend 37.8 g of Part A powder plus 5 g of Part B in 1 Liter of distilled water. Mix thoroughly. Heat with frequent agitation and boil for 1 minute to completely dissolve it completely. Autoclave at 121°C for 15 minutes.

Quality Control

Dehydrated Appearance: Cream to yellow, free-flowing, homogeneous.

Prepared Appearance: Yellow colored, clear.

Reaction of 4.28% Solution at 25°C: pH 7.2 ± 0.2

Cultural Response

Inoculate and incubate at 35 ± 2°C for 24-48 hours.

Organism (ATCC*)	Recovery
<i>Staphylococcus aureus</i> (25923)	Good
<i>Escherichia coli</i> (25922)	Good

*ATCC is a registered trade mark of the American Type Culture Collection.



Both *S. aureus* (left) and *E. coli* (right) display turbidity indicative of good growth.

Storage

Keep the container at 15-30 °C. Store prepared medium at 2-8 °C.