



## Lethen Broth I Modified

M1933

This medium is recommended for screening cosmetic products for microbial contamination.

### Composition\*\*

| Ingredients         | Gms / Litre |
|---------------------|-------------|
| Beef extract        | 5.000       |
| Proteose peptone    | 20.000      |
| Polysorbate 80      | 5.000       |
| Lecithin            | 0.700       |
| Sodium chloride     | 5.000       |
| Tryptone            | 5.000       |
| Yeast extract       | 2.000       |
| Sodium bisulfite    | 0.100       |
| Final pH ( at 25°C) | 7.2±0.2     |

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

### Directions

Suspend 42.8 grams in 1000 ml distilled water. Heat if necessary to dissolve the medium completely. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. Mix well and dispense as desired.

### Principle And Interpretation

In the early 40s, Weber and Black recommended the use of lecithin and polysorbates to neutralize the antimicrobial action of the quaternary ammonium compounds (5). In 1965, the methodology was accepted by AOAC for the antimicrobial assays and extended their use to all the cationic detergents. In 1978, the FDA incorporated it as pre-enrichment medium for every microbial examination of cosmetics.

Lethen Broth, Modified is prepared as per FDA (1) for screening cosmetic products for microbial contamination. There are great chances of altering the chemical composition of cosmetics by the metabolism of organisms thereby spoiling and causing harm to the users (2, 3, 4). Direct colony counts and enrichment culturing are the methods of choice for isolating microorganisms from cosmetic products. The word Lethen represents a combination of lecithin and polysorbate (tween) 80.

Proteose peptone, beef extract, tryptone and yeast extract provide nitrogenous nutrients, carbon compounds and trace elements to the microorganisms. Incorporation of lecithin and polysorbate 80 to the medium enables the recovery of bacteria from materials containing residues of disinfectant compounds or preservatives used in cosmetics. Polysorbate 80 is added to nullify phenolic compounds, hexachlorophene, formalin and along with lecithin neutralizes ethyl alcohol (6). Lecithin also neutralizes quaternary ammonium compounds present in the cosmetics. Sodium chloride maintains the osmotic balance of the medium.

### Quality Control

#### Appearance

Cream to yellow homogeneous free flowing powder

#### Colour and Clarity of prepared medium

Yellow coloured, clear solution in tubes

#### Reaction

Reaction of 4.28% w/v aqueous solution at 25°C. pH : 7.2±0.2

#### pH

7.00-7.40

#### Cultural Response

Cultural characteristics observed after an incubation at 35-37°C for 24-48 hours.

#### Cultural Response

---

| Organism                                | Inoculum (CFU) | Growth    |
|---|----------------|-----------|
| <b>Cultural Response</b>                |                |           |
| <i>Escherichia coli</i> ATCC 25922      | 50-100         | luxuriant |
| <i>Staphylococcus aureus</i> ATCC 25923 | 50-100         | luxuriant |

### Storage and Shelf Life

Store below 30°C in tightly closed container and prepared medium at 2-8°C. Use before expiry period on the label.

### Reference

1. Bacteriological Analytical Manual, 1995, Food and Drug Administration, 8th Ed., AOAC International, Gaithersburg, MD, U.S.A.
2. Dunningan A. P., 1968, Drug Cosmet. Ind., 102:43.
3. Smart R. and Spooner D. F., 1972, J. Soc. Cosmet. Chem., 23:721.
4. Wilson L. A. and Ahearn D. G., 1977, Am. J. Ophthalmol., 84:112.
5. Weber and Black, 1948, Soap Sanitary Chem., 24:134-139
6. Favero (Chm.), 1967, A State of the Art Report, Biological Contamination Control Committee, American Association for Contamination Control.

Revision : 0 / 2013



#### Disclaimer :

User must ensure suitability of the product(s) in their application prior to use. Products conform solely to the information contained in this and other related HiMedia™ publications. The information contained in this publication is based on our research and development work and is to the best of our knowledge true and accurate. HiMedia™ Laboratories Pvt Ltd reserves the right to make changes to specifications and information related to the products at any time. Products are not intended for human or animal or therapeutic use but for laboratory, diagnostic, research or further manufacturing use only, unless otherwise specified. Statements contained herein should not be considered as a warranty of any kind, expressed or implied, and no liability is accepted for infringement of any patents.