

# Technical Specification Sheet



## Lethen Broth Base (no tween) SKU: 700003388, 700003389, 700003390 NCM0145

### Intended Use

Lethen Broth Base (no tween) is used with Tween 80 (Polysorbate 80) for the testing of samples containing quaternary ammonium compounds for antimicrobial activity in a laboratory setting. Lethen Broth Base (no tween) is not intended for use in the diagnosis of disease or other conditions in humans.

### Description

In 1948, Weber and Black described the value of a highly nutritional solid medium containing neutralizing agents for quaternary ammonium compounds in sanitizers. The addition of Lecithin and Polysorbate 80 to Tryptone Glucose Extract (TGE) Agar resulted in a medium that effectively neutralizes quaternary ammonium compounds while testing germicidal activity. Lethen Agar is a modification of TGE Agar with the addition of Lecithin and Polysorbate 80.

Lethen Broth Base was developed as a subculture medium for the neutralization of quaternary ammonium compounds in disinfectant testing. Quisno, Gibby, and Foter discovered that adding Lecithin and Polysorbate 80 to F.D.A. Broth resulted in a medium that neutralized high concentrations of quaternary ammonium salts. The resulting medium, termed "Lethen" (a combination of Lecithin and Tween) was easy to prepare and clear in appearance, aiding to visual inspection for growth. Lethen Broth Base is recommended by the Official Methods of Analysis of the Association of Official Analytical Chemists (AOAC) for use with disinfectants containing cationic surface active materials.

Lethen Broth Base is specified for use by the American Society for Testing Materials (ASTM) in Standard Test Method for Preservatives in Water-Containing Cosmetics. Total neutralization of disinfectants is critical. Disinfectant residues can result in a false negative (no-growth) test.

### Typical Formulation

Enzymatic Digest of Animal Tissue	10.0 g/L
Beef Extract	5.0 g/L
Sodium Chloride	5.0 g/L
Lecithin	0.7 g/L

Final pH: 7.0 ± 0.2 at 25°C

Formula is adjusted and/or supplemented as required to meet performance specifications.

Supplement

NCM4081 or 700004920      Tween 80

### Precaution

Refer to SDS

### Preparation

1. Dissolve 20.7 grams of the medium and 5 grams of NCM4081 or 700004920 Tween 80 in one liter of purified water.
2. Heat with frequent agitation to completely dissolve the medium.
3. Autoclave at 121°C for 15 minutes.

### Quality Control Specifications

**Dehydrated Appearance:** Powder is homogeneous, free flowing, and beige.



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**Prepared Appearance:** Prepared medium is gold to amber, clear to moderate haze with none to slight precipitate.

**Expected Cultural Response:** Cultural response in Lethen Broth Base (no tween) supplemented with NCM4081 or 700004920 Tween 80, incubated aerobically at  $35 \pm 2^{\circ}\text{C}$  and examined for growth after 18 - 24 hours.

Microorganism	Approx. Inoculum (CFU)	Expected Results
<i>Enterococcus faecalis</i> ATCC® 29212	10 - 300	Good to excellent
<i>Escherichia coli</i> ATCC® 25922	10 - 300	Good to excellent
<i>Pseudomonas aeruginosa</i> ATCC® 27853	10 - 300	Fair to excellent
<i>Salmonella typhimurium</i> ATCC® 14028	10 - 300	Good to excellent
<i>Staphylococcus epidermidis</i> ATCC® 12228	10 - 300	Fair to excellent

The organisms listed are the minimum that should be used for quality control testing.

## Test Procedure

Lethen Broth Base (no tween) is used in a variety of procedures. Consult appropriate references for complete information.

## Results

Refer to appropriate references and procedures for results.

## Expiration

Refer to expiration date stamped on the container. The dehydrated medium should be discarded if not free flowing, or if appearance has changed from the original color. Expiry applies to medium in its intact container when stored as directed.

## Limitation of the Procedure

Due to nutritional variation, some strains may be encountered that grow poorly or fail to grow on this medium.

## Storage

Store dehydrated culture media at  $2-30^{\circ}\text{C}$  away from direct sunlight. Once opened and recapped, place container in a low humidity environment at the same storage temperature. Protect from moisture and light by keeping container tightly closed.



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## References

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