

NUTRIENT BROTH (7146)

Intended Use

Nutrient Broth is used for the cultivation of a wide variety of microorganisms.

Product Summary and Explanation

In the early 1900's, the American Public Health Association (APHA) suggested the formula of Nutrient Agar as a standard culture medium used in water testing.¹ Nutrient Broth is the same formulation as Nutrient Agar, only Agar has been omitted.

Nutrient Broth is used as a pre-enrichment medium when testing certain foods and dairy products for *Salmonella* spp. In dried or processed foods, salmonellae may be sublethally injured and in low numbers. The presence of other bacteria and food sample components may hinder growth and recovery of *Salmonella* spp. Pre-enrichment in a nonselective medium such as Nutrient Broth allows for cell damage repair, dilutes toxic or inhibitory substances, and provides a nutritional advantage to *Salmonella* over other bacteria.²

Nutrient Broth is included in many standard methods procedures for testing food, dairy products, and other materials.²⁻⁶

Principles of the Procedure

The nitrogen, carbon, vitamins, and amino acids in Nutrient Broth are provided by Enzymatic Digest of Gelatin and Beef Extract.

Formula / Liter

Enzymatic Digest of Gelatin..... 5 g
 Beef Extract..... 3 g

Final pH: 6.8 ± 0.2 at 25°C

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

Precaution

1. For Laboratory Use.

Directions

1. Dissolve 8 g of the medium in one liter of purified water.
2. Heat with frequent agitation and boil for one minute 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.

Prepared Appearance: Prepared medium is clear and yellow to gold.

Expected Cultural Response: Cultural response in Nutrient Broth at 35°C after 18 - 24 hours incubation.

| Microorganism | Response |
|---|----------|
| <i>Bacillus subtilis</i> ATCC® 9372 | growth |
| <i>Escherichia coli</i> ATCC® 25922 | growth |
| <i>Salmonella typhimurium</i> ATCC® 14028 | growth |
| <i>Staphylococcus aureus</i> ATCC® 25923 | growth |

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

Test Procedure

Direct:

1. Inoculate broth with specimen.
2. Incubate aerobically at 35°C for 18 – 24 hours or longer if necessary.

Pre-enrichment:

1. Mix 25 g of the sample with 225 mL of Nutrient Broth.
2. Incubate at 35°C for 18 – 24 hours.
3. Transfer a portion to one or more selective enrichment broths.

Note: Refer to appropriate references for specific recommendations when testing certain foods and dairy products for *Salmonella* spp.

Results

Turbidity indicates good growth.

Storage

Store sealed bottle containing the dehydrated medium at 2 - 30°C. 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.

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.

Packaging

| Nutrient Broth | Code No. | 7146A | 500 g |
|-----------------------|-----------------|--------------|--------------|
| | | 7146B | 2 kg |
| | | 7146C | 10 kg |

References

1. **American Public Health Association.** 1917. Standard methods of water analysis, 3rd ed. American Public Health Association, Washington, D.C.
2. **Vanderzant, C., and D. F. Splittstoesser (eds.).** 1992. Compendium of methods for the microbiological examination of foods, 3rd ed. American Public Health Association, Washington, D.C.
3. **Eaton, A. D., L. S. Clesceri, and A. E. Greenberg (eds.).** 1995. Standard methods for the examination of water and wastewater, 19th ed. American Public Health Association, Washington, D.C.
4. **Marshall, R. T. (ed.).** 1993. Standard methods for the microbiological examination of dairy products, 16th ed. American Public Health Association, Washington, D.C.
5. **Association of Official Analytical Chemists.** 1995. Official methods of analysis of AOAC International, 16th ed. AOAC International, Arlington, VA.
6. **Bacteriological Analytical Manual.** 1995. 8th ed. Association of Official Analytical Chemists. Gaithersburg, MD.

Technical Information

Contact Acumedia Manufacturers, Inc. for Technical Service or questions involving dehydrated culture media preparation or performance at (517)372-9200 or fax us at (517)372-2006.