

QUALITY CONTROL PROCEDURES

I INTRODUCTION

Nutrient Broth is a general-purpose medium for the cultivation of nonfastidious bacteria.

II PERFORMANCE TEST PROCEDURE

- Inoculate representative samples with the cultures listed below.
 - Inoculate tubes with two serial tenfold dilutions of 18- to 24-h **Trypticase™** Soy Broth cultures. The highest dilution used should contain 1000 or less CFU/mL.
 - Incubate tubes with loosened caps at 35 ± 2°C in an aerobic atmosphere.
- Examine tubes for up to 7 days for growth.
- Expected Results

| Organisms | ATCC™ | Recovery |
|--------------------------------|-------|----------|
| * <i>Staphylococcus aureus</i> | 25923 | Growth |
| * <i>Escherichia coli</i> | 25922 | Growth |

*Recommended organism strain for User Quality Control.

III ADDITIONAL QUALITY CONTROL

- Examine tubes as described under "Product Deterioration."
- Visually examine representative tubes to assure that any existing physical defects will not interfere with use.
- Incubate uninoculated representative tubes at 20 – 25°C and 30 – 35°C and examine after 7 days for microbial contamination.

PRODUCT INFORMATION

IV INTENDED USE

Nutrient Broth is used for the cultivation of many species of nonfastidious microorganisms.

V SUMMARY AND EXPLANATION

Nutrient Broth has the formula originally designed for use in the *Standard Methods for the Examination of Water and Wastewater*. It is not a recommended bacteriological medium in later editions of this publication. It is one of several nonselective media recommended for use in the Most Probable Number (MPN) technique of estimating the density of viable organisms in food samples¹ and is useful in routine cultivation of microorganisms.

VI PRINCIPLES OF THE PROCEDURE

This relatively simple formulation supports the growth of nonfastidious microorganisms due to its content of peptone and beef extract.

VII REAGENTS

Nutrient Broth

Approximate Formula* Per Liter Purified Water

| | |
|------------------------------------|-------|
| Pancreatic Digest of Gelatin | 5.0 g |
| Beef Extract | 3.0 g |

*Adjusted and/or supplemented as required to meet performance criteria.

Warnings and Precautions: For *in vitro* Diagnostic Use.

Tubes with tight caps should be opened carefully to avoid injury due to breakage of glass.

Observe aseptic techniques and established precautions against microbiological hazards throughout all procedures. After use, prepared tubes, specimen containers and other contaminated materials must be sterilized by autoclaving before discarding.

Storage Instructions: On receipt, store tubes in the dark at 2 – 25°C. Avoid freezing and overheating. Do not open until ready to use. Minimize exposure to light. Tubed media stored as labeled until just prior to use may be inoculated up to the expiration date and incubated for the recommended incubation times. Allow the medium to warm to room temperature before inoculation.

Product Deterioration: Do not use tubes if they show evidence of microbial contamination, discoloration, drying or other signs of deterioration.

VIII SPECIMEN COLLECTION AND HANDLING

Specimens suitable for culture may be handled using various techniques. For detailed information, consult appropriate texts.^{2,3} Specimens should be obtained before antimicrobial agents have been administered. Provisions must be made for prompt delivery to the laboratory.

IX PROCEDURE

Material Provided: Nutrient Broth

Materials Required But Not Provided: Ancillary culture media, reagents, quality control organisms and laboratory equipment as required.

Test Procedure: Observe aseptic techniques.

Inoculate tubes of the broth medium with the test samples. Incubate tubes for 18 – 24 h at 35 ± 2°C in an aerobic atmosphere.

User Quality Control: See "Quality Control Procedures."

Quality Control requirements must be performed in accordance with applicable local, state and/or federal regulations or accreditation requirements and your laboratory's standard Quality Control procedures. It is recommended that the user refer to pertinent CLSI (formerly NCCLS) guidance and CLIA regulations for appropriate Quality Control practices.

X RESULTS

After incubation, growth is evidenced by the appearance of turbidity in the broth. Aliquots of the broth can be used for subculturing to solid media for purification and identification purposes.

XI LIMITATIONS OF THE PROCEDURE

For identification, organisms must be in pure culture. Morphological, biochemical, and/or serological tests should be performed for final identification. Consult appropriate texts for detailed information and recommended procedures.²⁻⁴

XII PERFORMANCE CHARACTERISTICS


Prior to release, all lots of Nutrient Broth are tested for performance characteristics. Representative samples of the lot are inoculated with 1.0 mL of **Trypticase** Soy Broth cultures of *Escherichia coli* (ATCC 25922) and *Staphylococcus aureus* (ATCC 25923) diluted to contain 1,000 or less colony forming units (CFU) per mL. Inoculated tubes with loosened caps are incubated at 35 ± 2°C. Tubes are read for growth at intervals for up to 7 days. Growth of *E. coli* and *S. aureus* is moderate to heavy.


XIII AVAILABILITY

| Cat. No. | Description |
|----------|--|
| 221669 | BBL™ Nutrient Broth, 5 mL, Pkg. of 10 size K tubes |

XIV REFERENCES

1. Downes and Ito (ed.). 2001. Compendium of methods for the microbiological examination of foods, 4th ed. American Public Health Association, Washington, D.C.
2. Murray, P.R., E.J. Baron, J.H. Jorgensen, M.A. Pfaller, and R.H. Tenover (ed.) 2003. Manual of clinical microbiology, 8th ed. American Society for Microbiology, Washington, D.C.
3. Forbes, B.A., D.F. Sahm, and A.S. Weissfeld. 2002. Bailey & Scott's diagnostic microbiology, 11th ed. Mosby, Inc., St. Louis.
4. Holt, J.G., N.R. Krieg, P.H.A. Sneath, J.T. Staley, and S.T. Williams (ed.). 1994. Bergey's Manual™ of determinative bacteriology, 9th ed. Williams & Wilkins, Baltimore.

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