

Revisions

Rev from	Rev to	ECO #
0803	2010/07	5431-10


Notes:

- BD Cat. Number 297640, 298263
- Blank (Sheet) Size: Length: 11" Width: 8.5"
 Number of Pages: 2 Number of Sheets: 1
 Page Size: Length 11" Width 8.5" Final Folded Size: N/A
- Style (see illustrations below): # 1



- See Specification Control Number N/A for Material Information
- Ink Colors: Printed two sides Yes No
 No. of Colors: 1 PMS# Black
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Proofer	Date			
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Part Number: 8806031JAA		Category and Description Package Insert, BHI and TSB	Sheet: 1 of 3 Scale: N/A	A

BD BBL™ Prepared Tubed Media for Growth of Microorganisms

8806031JAA
2010/07

BHI with 0.1% Agar, 10 mL, Trypticase™ Soy Broth with 0.15% Agar, 9 mL

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INTENDED USE

Brain Heart Infusion (BHI) with 0.1% Agar and Trypticase™ Soy Broth (TSB) with 0.15% Agar are general-purpose media used in the cultivation of fastidious and non-fastidious microorganisms, especially anaerobic bacteria.

SUMMARY AND EXPLANATION

BHI is an infusion medium used for the cultivation of a wide variety of microorganisms, including bacteria, yeasts and molds.¹ BHI with 0.1% Agar is for the cultivation of anaerobes because of the reduced oxygen tension of the medium.

TSB is a nutritious medium that supports the growth of a wide variety of microorganisms, including common aerobic, anaerobic and facultative bacteria and fungi.^{1,2} The addition of agar enhances the cultivation of some microorganisms, particularly anaerobes from root canal and other clinical specimens.¹

PRINCIPLES OF THE PROCEDURE

BHI broth is a nutritious, buffered culture medium that contains infusions of brain and heart tissue and peptones to supply protein and other nutrients necessary to support the growth of fastidious and nonfastidious microorganisms.

TSB contains enzymatic digests of casein and soybean meal to provide nitrogenous substances. Dextrose is a source of energy, and sodium chloride provides osmotic equilibrium.

Supplementing these media with agar is useful for the cultivation of anaerobes. The agar in the medium retards the absorption of oxygen by reducing convection currents in the medium.

REAGENTS

BHI with 0.1% Agar

Approximate Formula* Per Liter Purified Water

Pancreatic Digest of Gelatin	14.5 g
Brain Heart, Infusion from (solids)	6.0 g
Peptic Digest of Animal Tissue	6.0 g
Dextrose	3.0 g
Sodium Chloride	5.0 g
Disodium Phosphate	2.5 g
Agar	1.0 g

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

Trypticase™ Soy Broth with 0.15% Agar

Approximate Formula* Per Liter Purified Water

Pancreatic Digest of Casein	17.0 g
Papaic Digest of Soybean Meal	3.0 g
Dextrose	2.5 g
Sodium Chloride	5.0 g
Disodium Phosphate	2.5 g
Agar	1.5 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 to 25°C. Avoid freezing and overheating. Do not open until ready to use. Minimize exposure to light. Tubed media stored as labelled until just prior to use may be inoculated up to the expiration date and incubated for 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.

SPECIMEN COLLECTION AND HANDLING

BHI and TSB with agar are not suitable for use directly with clinical specimens or other sources containing mixed microbial flora, except as "back-up" media in addition to primary isolation media. Consult appropriate texts for more information.³⁻⁵

PROCEDURE

Material Provided: BHI with 0.1% Agar or Trypticase™ Soy Broth with 0.15% Agar

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

Test Procedure: Observe aseptic techniques.

Liquid media for anaerobic incubation should be reduced prior to inoculation by placing the tubes, with caps loosened, under anaerobic conditions for 18 to 24 h. An efficient and easy way to obtain suitable anaerobic conditions is through the use of the GasPak™ and GasPak™ EZ anaerobic systems.⁶

The organisms to be cultivated must first be isolated in pure culture on an appropriate plated or slanted medium.

Using a sterile inoculating loop or needle, transfer fresh growth from the plate or slant to the tubed medium to achieve the desired concentration of viable organisms. Specimens known or suspected to contain obligate anaerobes should be inoculated near the bottom of the tube.

Tubed media intended for isolation and cultivation of anaerobes should be incubated under anaerobic conditions for up to 7 days.

User Quality Control:

1. Examine the media for signs of deterioration as described under "Product Deterioration".
2. Check performance by inoculating a representative sample of tubes with pure cultures of stable control organisms that give known, desired reactions. The following test strains are recommended:

TEST STRAIN	EXPECTED RESULT
<i>Bacteroides fragilis</i> ATCC™ 25285	Growth
<i>Streptococcus pyogenes</i> ATCC 19615	Growth

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 NCCLS guidance and CLIA regulations for appropriate Quality Control practices.

RESULTS

Growth in tubes is indicated by the presence of turbidity compared to an uninoculated control.

If growth appears, cultures should be examined by Gram staining and sub culturing onto appropriate media, e.g., a Blood Agar and/or Chocolate II Agar plate, EMB Agar or MacConkey II Agar plate, etc. If anaerobes are suspected, subcultures should be incubated anaerobically, as in a GasPak or GasPak EZ anaerobic system.

LIMITATIONS OF THE PROCEDURE

The presence of agar in these media produces a slight cloudiness which could be mistaken for growth. A Gram stained smear should be examined and a subculture prepared to determine the presence of microbial growth.

For identification, the organism must be in pure culture. Biochemical and other identification tests may be performed for complete identification. Appropriate texts should be consulted for further information.^{3,7-9}

PERFORMANCE CHARACTERISTICS

BHI with 0.1% Agar

Prior to release, all lots of Brain Heart Infusion with 0.1% Agar are tested for performance characteristics. Representative samples of the lot are tested with cell suspensions of *Bacteroides fragilis* ATCC 25285 and *Streptococcus pyogenes* ATCC 19615, diluted in normal saline to yield 1 x 10³ to 1 x 10⁴ CFUs. Tubes are incubated under anaerobic conditions with loose caps at 35 - 37°C for up to seven days in a BBL GasPak jar. Fair to heavy growth is observed with both organisms.

AVAILABILITY

Cat. No.	Description
297640	BBL™ BHI Agar with 0.1% Agar, 10 mL, Ctn. of 100 size D tubes CE
298263	BBL™ Trypticase™ Soy Broth with 0.15% Agar, 9 mL, Ctn. of 100 size K tubes

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REF Catalog number / Katalogové číslo / Katalognummer / Catalogusnummer / Kataloogi number / Tuotenumero / Numéro catalogue / Bestellnummer / Αριθμός καταλόγου / Katalógusszám / Numero di catalogo / Katalogo numeris / Numer katalogowy / Número do catálogo / Katalogové číslo / Número de catálogo / Каталоген номер / Număr de catalog / Katalog numarası / Kataloški broj / Номер по каталогу / Каталог нөмірі



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Becton, Dickinson and Company
7 Loveton Circle
Sparks, MD 21152 USA
800-638-8663
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