

## User Quality Control

*Escherichia coli*  
ATCC™ 25922

*Staphylococcus aureus*  
ATCC™ 25923

### Identity Specifications

#### Difco™ Heart Infusion Agar

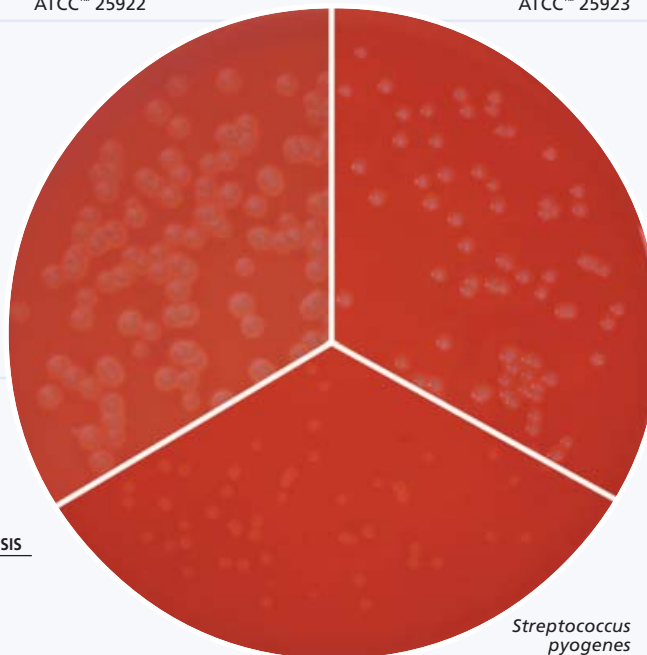
Dehydrated Appearance:	Beige, free-flowing, homogeneous.
Solution:	4% solution, soluble in purified water upon boiling. Solution is light to medium amber, very slightly to slightly opalescent.
Prepared Appearance:	Plain – Light to medium amber, slightly opalescent. With 5% sheep blood – Cherry red, opaque.
Reaction of 4% Solution at 25°C:	pH 7.4 ± 0.2

### Cultural Response

#### Difco™ Heart Infusion Agar

Prepare the medium per label directions without (plain) and with 5% sheep blood (SB). Inoculate and incubate at 35 ± 2°C for 18-48 hours.

ORGANISM	ATCC™	INOCULUM CFU	RECOVERY PLAIN	RECOVERY WITH 5% SB	HEMOLYSIS
<i>Escherichia coli</i>	25922	10 <sup>2</sup> -10 <sup>3</sup>	Good	Good	Beta
<i>Staphylococcus aureus</i>	25923	10 <sup>2</sup> -10 <sup>3</sup>	Good	Good	Beta
<i>Streptococcus pneumoniae</i>	6305	10 <sup>2</sup> -10 <sup>3</sup>	Fair	Good	Alpha
<i>Streptococcus pyogenes</i>	19615	10 <sup>2</sup> -10 <sup>3</sup>	Fair	Good	Beta



*Streptococcus pyogenes*  
ATCC™ 19615

Using a sterile inoculating loop or needle, pick several isolated colonies from the primary isolation plate and streak the surface of a slant of Heart Infusion Agar. Incubate the tubes under appropriate conditions at 35°C.

## Expected Results

Refer to appropriate references and procedures for results.

## References

- Huntoon. 1918. J. Inf. Dis. 23:169.
- Elliott, Kaysner, Jackson and Tamplin. 1995. In FDA bacteriological analytical manual, 8th ed. AOAC International, Gaithersburg, Md.
- Downes and Ito (ed.). 2001. Compendium of methods for the microbiological examination of foods, 4th ed. American Public Health Association, Washington, D.C.
- Atlas. 1997. Handbook of microbiological media, 2nd ed. CRC Press, Inc., Boca Raton, Fla.

## Availability

### Difco™ Heart Infusion Agar

**BAM** **COMPF**

Cat. No.	244400	Dehydrated – 500 g
	244100	Dehydrated – 2 kg
	211839	Dehydrated – 10 kg

### BBL™ Heart Infusion Agar

Cat. No. 297336 Tubed Slants – Pkg. of 10

### BBL™ Heart Infusion Agar with 5% Sheep Blood

Europe

Cat. No. 257026 Prepared Plates – Pkg. of 20\*

\*Store at 2-8°C.

# Bacto™ Heart Infusion Broth

## Intended Use

Bacto™ Heart Infusion Broth is used for cultivating fastidious microorganisms.

## Summary and Explanation

Heart Infusion Broth (HIB) is a nonselective general-purpose medium used for the isolation of nutritionally fastidious microorganisms. One of the first media used for the cultivation of bacteria was a liquid medium containing an infusion of meat. Huntoon<sup>1</sup> using fresh beef heart and Bacto Peptone, prepared a “hormone” broth to retain growth promoting substances. Highly pathogenic organisms, such as meningococci and pneumococci, could be grown on infusion medium without

enrichments.<sup>1</sup> The formula for HIB contains tryptose, which is better suited to the nutritional requirements of pathogenic bacteria than Bacto Peptone.

Heart infusion media are specified for the isolation of *Vibrio cholerae* and *Vibrio* species.<sup>2,3</sup> HIB may be used as the base in carbohydrate fermentation tests.<sup>4</sup>

Several modifications of heart infusion media have been described.<sup>5</sup> The addition of carbohydrates or other ingredients results in media used for a variety of purposes. The methodologies for the multiple applications using HIB are outlined in the references.

## User Quality Control

### Identity Specifications

#### Bacto™ Heart Infusion Broth

Dehydrated Appearance:	Beige, homogeneous, free-flowing.
Solution:	2.5% solution, soluble in purified water. Solution is light to medium amber, clear.
Prepared Appearance:	Light to medium amber, clear.
Reaction of 2.5% Solution at 25°C:	pH 7.4 ± 0.2

### Cultural Response

#### Bacto™ Heart Infusion Broth

Prepare the medium per label directions. Inoculate and incubate at 35 ± 2°C for 18-48 hours.

ORGANISM	ATCC™	INOCULUM CFU	RECOVERY
<i>Escherichia coli</i>	25922	10 <sup>2</sup> -10 <sup>3</sup>	Good
<i>Staphylococcus aureus</i>	25923	10 <sup>2</sup> -10 <sup>3</sup>	Good
<i>Streptococcus pneumoniae</i>	6305	10 <sup>2</sup> -10 <sup>3</sup>	Good
<i>Streptococcus pyogenes</i>	19615	10 <sup>2</sup> -10 <sup>3</sup>	Good



## Principles of the Procedure

Infusion from beef heart and tryptose supply the nutritional requirements for growth of microorganisms in heart infusion media. Sodium chloride maintains the osmotic balance of the medium.

## Formula

#### Bacto™ Heart Infusion Broth

Approximate Formula* Per Liter	
Beef Heart, Infusion from 500 g	10.0 g
Tryptose	10.0 g
Sodium Chloride	5.0 g

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

## Directions for Preparation from Dehydrated Product

1. Dissolve 25 g of the powder in 1 L of purified water.
2. Autoclave at 121°C for 15 minutes.
3. Test samples of the finished product for performance using stable, typical control cultures.

## Procedure

See appropriate references for specific procedures.

## Expected Results

Refer to appropriate references and procedures for results.

## References

1. Huntoon, 1918. *J. Infect. Dis.* 23:169.
2. Elliott, Kaysner, Jackson and Tamplin. 1995. *In* FDA bacteriological analytical manual, 8th ed. AOAC International, Gaithersburg, Md.
3. Vanderzant and Splittstoesser (ed.). 1992. *Compendium of methods for the microbiological examination of foods*, 3rd ed. American Public Health Association, Washington, D.C.
4. Ruoff. 1995. *In* Murray, Baron Pfaller, Tenover and Tenover (ed.), *Manual of clinical microbiology*, 6th ed. American Society for Microbiology, Washington, D.C.
5. Atlas. 1997. *Handbook of microbiological media*, 2nd ed. CRC Press, Inc., Boca Raton, Fla.

## Availability

#### Bacto™ Heart Infusion Broth

	<b>BAM</b>	<b>COMP</b>	<b>EP</b>	
Cat. No.	238400	238100	292844	Dehydrated – 500 g Dehydrated – 2 kg Dehydrated – 10 kg

# Hektoen Enteric Agar

## Intended Use

Hektoen Enteric (HE) Agar is a moderately selective medium used in qualitative procedures for the isolation and cultivation of gram-negative enteric microorganisms, especially *Shigella*, from a variety of clinical and nonclinical specimens.

## Summary and Explanation

Through the years many media have been devised for the isolation of enteric pathogens. These various formulations have differed in their degree of selectivity for the pathogenic species. Some were designed to isolate and differentiate *Shigella* species whereas others were formulated for the selective isolation of the salmonellae. Media that isolated a broader

spectrum of enteric pathogens were less inhibitory to members of the nonpathogenic intestinal flora.

Hektoen Enteric Agar was developed in 1967 by King and Metzger of the Hektoen Institute in order to increase the frequencies of isolation of *Shigella* and *Salmonella* organisms when compared with their recovery on other media frequently utilized in clinical laboratories at that time.<sup>1-3</sup> This medium is considered to be moderately selective, and is particularly useful in the isolation of *Shigella* species. The present formulation differs from that of the original in that sodium desoxycholate has been eliminated and the concentration of bile salts is reduced. Additionally, the peptone concentrations