



## Shigella Broth Base

M1326

Shigella Broth Base is used for the isolation and cultivation of *Shigella* species from food.

### Composition\*\*

Ingredients	Gms / Litre
Casein enzymic hydrolysate	20.000
Sodium chloride	5.000
Dipotassium hydrogen phosphate	2.000
Potassium dihydrogen phosphate	2.000
Dextrose	1.000
Polysorbate 80	1.500
Final pH ( at 25°C)	7.0±0.2

\*\*Formula adjusted, standardized to suit performance parameters

### Directions

Suspend 31.5 grams in 1000 ml distilled water. Heat if necessary to dissolve the medium completely. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. Cool medium to 45-50°C and add rehydrated content of 1 vial of Shigella Selective Supplement (FD108) under aseptic conditions. Mix well and dispense in sterile test tubes.

### Principle And Interpretation

*Shigella* are gram-negative, non-motile, non-spore forming rod-shaped bacteria closely related to *Escherichia coli* and *Salmonella*. *Shigella* infection is typically via ingestion (faecal-oral contamination), depending on age and condition of the host, as few as 10 bacterial cells can be enough to cause an infection. *Shigella* causes dysentery that results in the destruction of the epithelial cells of the intestinal mucosa in the cecum and rectum. Some strains produce enterotoxin and Shiga toxin, similar to the verotoxin of *E. coli* O157:H7(1). Shigella Broth Base is used for the isolation and cultivation of *Shigella* species (2), as recommended by APHA (3).

Shigella Broth Base contains casein enzymic hydrolysate as a source of carbon, nitrogen, vitamins and minerals. Dextrose provides the necessary carbohydrates. Buffering action in the medium is provided by dipotassium hydrogen phosphate and potassium dihydrogen phosphate. Sodium chloride maintains the osmotic balance of the medium. Polysorbate 80 is inhibitory for growth of accompanying microflora besides providing growth factors. Novobiocin is inhibitory for gram-positive bacteria such as *S. aureus* and certain gram-negative organisms such as *H. influenzae* and some species of *Proteus*.

### Quality Control

#### Appearance

Cream to yellow homogeneous free flowing powder

#### Colour and Clarity of prepared medium

Light amber coloured clear solution

#### Reaction

Reaction of 3.15% aqueous solution at 25°C. pH : 7.0±0.2

#### pH

6.80-7.20

#### Cultural Response

M1326: Cultural characteristics observed after an incubation at 35-37°C for 18-24 hours with added Shigella Selective Supplement (FD108).

Organism	Inoculum (CFU)	Growth
<b>Cultural Response</b> <i>Shigella dysenteriae</i> ATCC 13313	50-100	luxuriant

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<i>Shigella flexneri</i> ATCC 12022	50-100	luxuriant
<i>Shigella sonnei</i> ATCC 25931	50-100	luxuriant
<i>Staphylococcus aureus</i> ATCC 25923	$\geq 10^3$	inhibited

### Storage and Shelf Life

Store below 30°C in tightly closed container and the prepared medium at 2-8°C. Use before expiry date on the label.

### Reference

1. Hale T. L., Keusch G. T., 1996, Shigella. In: Barons Medical Microbiology (Barron S et al, Eds.), 4th Ed., Univ of Texas Medical Branch.
2. Atlas R.M., 1997, Handbook of Microbiological Media 2nd Edition, CRC Press, Boca Raton, New York, London, Tokyo.
3. Downes F. P. and Ito K., (Ed.), 2001, Compendium of Methods for the Microbiological Examination of Foods, 4th Ed., American Public Health Association, Washington, D.C.

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