

## PRODUCT INFORMATION AND QUALITY CONTROL SHEET

# SALMONELLA - SHIGELLA AGAR

### I. INTENDED USE

Salmonella - Shigella Agar is a selective and differential medium for the isolation of pathogenic gram negative enteric bacilli, especially *Salmonella* species. It is not the medium of choice for primary isolation of *Shigella* species.

### II. SUMMARY AND EXPLANATION

Various culture media have been developed for the isolation and differentiation of pathogenic enteric bacilli from sources containing mixed microbiological flora. These media inhibit the growth of gram positive organisms to differing degrees by the incorporation of bile salts or dyes. Salmonella - Shigella Agar is a derivative of one such media described by Leifson that utilizes a mixture of bile salts.<sup>1</sup>

### III. PRINCIPLES OF THE PROCEDURE

Salmonella - Shigella Agar is a moderately selective medium that inhibits gram positive organisms through a combination of bile salts, brilliant green and citrates. Differentiation of enteric organisms is based on the ability to ferment lactose in the medium. Organisms that ferment lactose produce acid end products that, in the presence of a neutral red indicator, cause the formation of red colonies. Organisms that cannot ferment lactose form colonies that are colorless. The majority of *Salmonella* and *Shigella* species are lactose non-fermenters. Ferric citrate and sodium thiosulfate are incorporated to detect the production of hydrogen sulfide. A positive result is visualized by a colony exhibiting a black center.

### IV. TYPICAL FORMULA AND APPEARANCE

(Approximate formula\* per liter of processed water)

Appearance = reddish orange, slightly opalescent	
Beef Extract	5.0 g
Pancreatic Digest of Casein	2.5
Peptic Digest of Animal Tissue	2.5
Lactose	10.0
Bile Salts	8.5
Sodium Citrate	8.5
Sodium Thiosulfate	8.5
Ferric Citrate	1.0
Neutral Red	0.025
Agar	13.5
Brilliant Green	0.330 mg

\*adjusted and/or supplemented to meet performance criteria.

### V. PRECAUTIONS

This product is for IN VITRO diagnostic use only. Culture specimens may contain microorganisms which can be potentially infectious to the user. Strict adherence to aseptic techniques and established precautions against microbiological hazards should be followed throughout the procedure. Carefully dispose of all items which contact patient specimens or isolated bacteria. (See Material Safety Data Sheet for further information.)

### VI. STORAGE/SHELF LIFE

Plated media should be stored at 2-8°C (36-46°F), media side up, in the unopened or resealed package protected from light. DO NOT FREEZE OR EXPOSE TO HIGH TEMPERATURES. Allow unopened plates to warm to room temperature prior to inoculation. Prior to and during inoculation procedures, plates should be handled in a manner that minimizes product exposure to the environment. Product which has exceeded the assigned expiration date noted on the label should not be used.

Do not use plates that exhibit evidence of drying, cracking, discoloration, microbial contamination or any other signs of deterioration. The presence of excessive condensate may indicate plates which have been damaged by exposure to temperature extremes.

### VII. SPECIMEN COLLECTION

The quality of culture results depends primarily on the adequacy and condition of the specimen submitted for examination. Proper specimen collection techniques must be followed to ensure the most accurate culture results. Sterile swabs and collection containers should be used. Plates should be inoculated promptly after specimen collection. If a delay in inoculation is unavoidable, transport medium should be employed. Specimens should be collected prior to the initiation of antimicrobial therapy.

Detailed information on proper specimen collection may be obtained from microbiology reference materials.

### VIII. MATERIALS PROVIDED

Salmonella - Shigella Agar Plates and lot specific Quality Control Certificate.

### IX. MATERIALS REQUIRED BUT NOT PROVIDED

Incubator maintaining 33-37°C.  
Ancillary culture media, reagents and laboratory equipment as required.

### X. PROCEDURE

Inoculate the specimen as soon as possible after it is received in the laboratory. The streak plate method is used primarily to isolate pure cultures from specimens containing mixed flora. If material is being cultured directly from a swab, roll the swab over a small area of the plate surface at the edge (approximately 1/4 to 1/3 of the plate); then streak in a zig-zag fashion with a sterile loop from this inoculated area to cover the entire agar surface. Avoid applying excessive pressure to the agar surface during inoculation to prevent gouging and splitting of the agar media. (Note: Agar surfaces should be smooth and moist but free of excessive moisture which could cause confluent growth patterns.) Incubate plates media side up at 33-37°C for 24-48 hours in an aerobic atmosphere.

A nonselective medium should also be inoculated to optimize recovery of enteric pathogenic organisms. This is especially valuable when the total gram negative population is low and to provide an indication of other organisms present in the specimen.

### XI. EXPECTED RESULTS

#### NCCLS Control Organisms (ATCC Strains)

<i>Salmonella typhimurium</i> (ATCC 14028)	Growth, colonies colorless with or without black centers
<i>Shigella flexneri</i> (ATCC 12022)	Growth, colorless colonies
<i>Enterococcus faecalis</i> (ATCC 29212)	No growth to inhibited growth
<i>Escherichia coli</i> (ATCC 25922)	No growth to inhibited growth (partial to complete; colonies pink to rose-red with precipitate)

### XII. LABORATORY RESULTS

This medium is intended to be used as a primary isolation medium. Presumptive identification of organisms may be made on the basis of typical organism morphology and Gram stain. Definitive identification of organisms and antimicrobial sensitivity determination requires further testing. Additional biochemical information may be obtained from reference microbiology texts.<sup>2,3,4</sup>

### **XIII. LIMITATIONS**

The ability to detect microorganisms by culture techniques can be affected by the following factors: improper specimen collection, storage and inoculation, initiation of antiinfective therapy prior to specimen collection, improper culture incubation temperatures and atmospheres, improper length of culture incubation, and improper storage and handling of culture media.

### **XIV. REFERENCES**

1. Leifson, E. 1935. New culture media based on sodium desoxycholate for the isolation of intestinal pathogens and for the enumeration of colon bacilli in milk and water. *J. Pathol. and Bacteriol.* 40:581-599.
2. Finegold, S.M. and W.S. Martin. 1982. *Bailey and Scott's Diagnostic Microbiology*, 6th ed. C.V. Mosby Company, St. Louis.
3. Koneman, E.S., S.D. Allen, V.R. Dowell, Jr. and H. M. Sommers. 1983. *Color Atlas and Textbook of Microbiology*, 2nd ed. J.B. Lippincot Company, Philadelphia.
4. Lennette, E.H., ed. 1985. *Manual of Clinical Microbiology*, 4th ed. American Society for Microbiology, Washington, D.C.

## **USER QUALITY ASSURANCE/ QUALITY CONTROL PROCEDURES AND INFORMATION**

HealthLink recommends that the following quality assurance and quality control procedures be performed on each batch of product.

### **I. QUALITY ASSURANCE**

The following quality assurance procedures must be performed to assure the product will perform according to its intended use within the assigned expiry date:

1. Daily, document that product storage refrigerator maintains temperature within the recommended range: 2-8°C.
2. Daily, document that laboratory incubator maintains temperature within the recommended range: 22-35°C.

### **II. QUALITY CONTROL**

The following incoming inspection procedures must be performed for each batch (batch = same lot, same shipment) of culture media received in the laboratory :

1. Inspect plates according to instructions contained on the "Quality Control Log Sheet." (See also Section VI "STORAGE/SHELF LIFE")
2. Peel off the lower portion of a product bag label (Quality Control Certificate) for the lot being accepted into the laboratory and affix it to the Quality Control Log Sheet.
3. Initial and date the Quality Control Log Sheet.

Note: Notify Technical Service immediately if media does not meet the inspection criteria.

## **TECHNICAL SERVICE**

HealthLink provides a toll free technical service line (1-800-638-2625) to assist with product usage. To receive additional product information, procedural instructions, QA/QC log sheets, Material Safety Data Sheets, or to have technical questions answered; please call between the hours of 9:00 am to 5:00 pm EST.

**HealthLink**  
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