# SALMONELLA SHIGELLA (SS) AGAR

## INTENDED USE
Remel Salmonella Shigella (SS) Agar is a solid medium recommended for use in qualitative procedures for selective and differential isolation of *Salmonella* and, to a lesser degree, *Shigella*.

## SUMMARY AND EXPLANATION
SS Agar is a modification of Desoxycholate-Citrate Agar described by Leifson which was used for the detection of enteric pathogens.[1] The modified medium contains a bile salts mixture to inhibit the growth of gram-positive organisms. SS Agar is recommended for isolation and differentiation of pathogenic enteric bacilli, especially *Salmonella* and *Shigella* from clinical specimens, including feces, and food samples. [2]

## PRINCIPLE
Differentiation of gram-negative bacilli on SS Agar is based on the fermentation of lactose and subsequent absorption of neutral red; gram-negative bacilli which ferment lactose produce pink to red colonies. Lactose-nonfermenters, such as *Salmonella* and *Shigella*, form transparent, colorless colonies. Bile salts, brilliant green, and citrates are selective agents which inhibit gram-positive bacteria and coliforms. Sodium thiosulfate, a sulfur source, and ferric ammonium citrate, an indicator, are added to enable organisms which produce $H_2S$ to form black-centered colonies, including some strains of *Salmonella*.

## REAGENTS (CLASSICAL FORMULA)*

| | | | |
|---|---|---|---|
| Lactose | 10.0 g | Meat Peptone | 2.5 g |
| Bile Salts | 8.5 g | Ferric Citrate | 1.0 g |
| Sodium Citrate | 8.5 g | Neutral Red | 25.0 mg |
| Sodium Thiosulfate | 8.5 g | Brilliant Green | 0.33 mg |
| Beef Extract | 5.0 g | Agar | 13.5 g |
| Casein Peptone | 2.5 g | Demineralized Water | 1000.0 ml |

pH 7.0 ± 0.2 @ 25°C

*Adjusted as required to meet performance standards.

## PROCEDURE
1. Inoculate and streak the specimen as soon as possible after it is received in the laboratory. Selective and nonselective media should be inoculated to increase the potential for isolation of enteric pathogens.
2. If material is being cultured directly from a swab, roll the swab over a small area of the agar surface. Streak the plate for isolation using a sterile inoculating loop.
3. Incubate the plates in ambient air at 33-37°C for 18-24 hours.
4. Examine plate for growth and typical colony morphology. On SS Agar, colonies of *Salmonella* or *Shigella* are smooth and opaque or colorless. Strains of *Salmonella* which produce $H_2S$ will form black-centered colonies. Lactose-fermenters are pink to rose-red in color and may have a precipitate.

## QUALITY CONTROL
All lot numbers of Salmonella Shigella Agar have been tested using the following quality control organisms and have been found to be acceptable. This quality control testing meets or exceeds CLSI standards.[3] Testing of control organisms should be performed in accordance with established laboratory quality control procedures. If aberrant quality control results are noted, patient results should not be reported.

| CONTROL | INCUBATION | RESULTS |
|---|---|---|
| **Salmonella enterica* serovar Typhimurium ATCC® 14028 | Ambient, 18-24 h @ 33-37°C | Growth, clear colonies w/ black centers |
| **Shigella flexneri* ATCC® 12022 | Ambient, 18-24 h @ 33-37°C | Growth, clear colonies |
| **Enterococcus faecalis* ATCC® 29212 | Ambient, 18-24 h @ 33-37°C | Inhibition (partial to complete) |
| **Escherichia coli* ATCC® 25922 | Ambient, 18-24 h @ 33-37°C | Inhibition (partial); colonies pink to rose-red w/ precipitate |

*CLSI recommended organism

## LIMITATIONS
1. Organisms other than *Salmonella* and *Shigella* which grow on this medium may be differentiated by their ability to ferment lactose and form pink or red colonies.[2]
2. SS Agar is not recommended for primary isolation of *Shigella* spp. because it is highly selective and may inhibit some strains.[2]

## BIBLIOGRAPHY

1. Leifson, E., 1935. J. Pathol. Bacteriol. 40:581.
2. MacFaddin, J.F. 1985. Media for Isolation-Cultivation-Identification-Maintenance of Medical Bacteria. Vol. 1. Williams & Wilkins, Baltimore, MD.
3. Clinical and Laboratory Standards Institute (CLSI). 2004. Quality Control for Commercially Prepared Microbiological Culture Media; Approved Standard, 3rd ed. M22-A3. CLSI, Wayne, PA.


Refer to the front of Remel *Technical Manual of Microbiological Media* for **General Information** regarding precautions, product storage and deterioration, specimen collection, storage and transportation, materials required, quality control, and limitations.



IFU 1840, Revised September 28, 2010

Printed in U.S.A.

remel

**12076 Santa Fe Drive, Lenexa, KS 66215, USA**
**General Information: (800) 255-6730 Website: www.remel.com Email: remel@remel.com**
**Local/International Phone: (913) 888-0939 International Fax: (913) 895-4128**