
SELENITE BROTH w/ and w/o CYSTINE

INTENDED USE

Remel Selenite Cystine Broth w/ and w/o Cystine are liquid media recommended for use in qualitative procedures as an enrichment broth for the isolation of *Salmonella*.

SUMMARY AND EXPLANATION

Selenite Broth was developed by Leifson for enrichment of *Salmonella* from sources such as feces, urine, and food. Selenite was found to inhibit coliforms and fecal streptococci; however, breakthrough of inhibited strains would occur after 12-18 hours of incubation.¹ Cystine enhances the recovery of *Salmonella* and allows for incubation periods longer than 12-18 hours.² Selenite Broth w/ Cystine is recommended by the Food and Drug Administration for detection of *Salmonella* in food materials and in the *United States Pharmacopeia* for microbial limits testing.^{3,4} Selenite Broth w/ and w/o Cystine are especially useful for recovery of *Salmonella* when it occurs in low numbers in certain specimens, and for epidemiological studies to detect organisms from asymptomatic or convalescent patients.⁵ It is recommended by the American Public Health Association (APHA) for isolation of *Salmonella* from water, foods, and dairy products.⁶⁻⁸

PRINCIPLE

Casein peptone supplies nitrogenous substances and carbon compounds required for bacterial growth. L-Cystine is an enrichment agent which improves the recovery of *Salmonella*. Sodium phosphate maintains a stable pH and lessens the toxicity of the selenite. Bacteria that reduce selenite produce alkali and increase the pH. In turn, acid produced by lactose fermentation causes a decrease in pH, resulting in a neutral or slightly decreased pH in the medium. Sodium selenite is a selective agent which inhibits coliforms, enterococci, and other gram-positive organisms.

REAGENTS (CLASSICAL FORMULA)*

Sodium Phosphate.....	10.0 g	Lactose.....	4.0 g
Casein Peptone.....	5.0 g	Sodium Selenite.....	4.0 g
		Demineralized Water.....	1000.0 ml

pH 7.0 ± 0.2 @ 25°C

*Adjusted as required to meet performance standards.

The following optional ingredient is available per liter of medium:

L-Cystine..... 0.01 g

PRECAUTIONS*

This product is For Laboratory Use only. It is not intended for use in the diagnosis of disease or other conditions.

DANGER! POISON, may be harmful or fatal if swallowed. Sodium Selenite may cause irritation to skin, eyes, and respiratory tract. Avoid breathing powder dust and eye/skin contact. Prolonged or repeated skin contact may cause dermatitis. Chronic absorption by any primary route of entry may cause selenosis.

*Precautions pertain to dehydrated culture medium ONLY.

PREPARATION OF DEHYDRATED CULTURE MEDIUM*

1. Suspend 23 g of medium in 1000 ml demineralized water. Mix thoroughly
2. Heat just to boiling. Avoid excessive heating. **Do not autoclave.**
3. Dispense into sterile tubes.

*Excessive heating during preparation or exposure to excessive moisture during storage may cause a brick red precipitate to form in the media.

PROCEDURE

1. Consult appropriate references for the recommended procedure for sample inoculation and cultivation.³⁻⁷
2. Incubate in ambient air for up to 24 hours at 35°C. Coliforms may overgrow target organisms if incubated for longer than 24 hours.
3. Subculture after 12-18 hours incubation onto a differential medium, such as XLD or HE Agar.
4. Incubate plates in ambient air for 18-24 hours at 35°C.
5. Examine for typical colonial morphology.

QUALITY CONTROL

Each lot number of the Selenite Broth w/ and w/o Cystine has been manufactured, packaged, and processed in accordance with current Good Manufacturing Practice regulations. All lot numbers have been tested using the following quality control organisms and have been found to be acceptable. Testing of control organisms should be performed in accordance with established laboratory quality control procedures.

CONTROL

Salmonella enterica serovar Typhimurium ATCC® 14028
Escherichia coli ATCC® 25922

INCUBATION

Ambient, 18-24h @ 33-37°C
Ambient, 18-24h @ 33-37°C

RESULTS

Growth on subculture
Inhibition (partial to complete) on subculture

LIMITATIONS

1. The inhibitory effect of selenite diminishes after the first 6-12 hours of incubation. Because most *Salmonella* strains die rapidly after full growth in Selenite Broth allowing for heavier growth of competitors, incubation over 24 hours is not recommended.⁹
2. Discard media if selenite oxidizes and forms large amounts of red precipitate; small amounts of precipitate are not detrimental.^{1,9}

BIBLIOGRAPHY

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

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IFU 112570, Revised October 2, 2012

Printed in U.S.A.

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