



## BISMUTH SULPHITE AGAR

Dehydrated medium for the isolation and differentiation of *Salmonella typhi* and other salmonellae

### TYPICAL FORMULA (g/L)

|                                 |           |
|---------------------------------|-----------|
| Meat extract.....               | 5.0       |
| Peptone .....                   | 5.0       |
| Tryptone.....                   | 5.0       |
| Glucose.....                    | 5.0       |
| Disodium phosphate.....         | 4.0       |
| Ferrous sulphate.....           | 0.3       |
| Bismuth sulphite indicator..... | 8.0       |
| Brilliant green.....            | 0.016     |
| Agar.....                       | 15.0      |
| Final pH                        | 7.6 ± 0.2 |

### DESCRIPTION

**BISMUTH SULPHITE AGAR** is a modification of the original Wilson and Blair selective medium for the isolation and preliminary identification of *Salmonella typhi* and other salmonellae from pathological material, sewage, water supplies, food and other products suspected of containing these pathogens.

### PRINCIPLE

Meat extract, peptone and tryptone provide nitrogen, carbon, sulphur and other essential growth factors. Glucose is the source of energy. Bismuth sulphite acts together with brilliant green as a selective agent by suppressing the growth of coliforms, whilst permitting the growth of salmonellae. Sulphur compounds provide a substrate for hydrogen sulphide production, so colonies H<sub>2</sub>S-positive salmonellae exhibit blackening, whilst the reduction of bismuth ions to metallic bismuth produces a metallic lustre around of the colonies.

### PREPARATION

Suspend 47,3 g of powder in 1 litre of distilled or deionized water. Heat to boiling and shake until completely dissolved. Do not overheat. DO NOT AUTOCLAVE. Dispense in Petri dishes.

### TECHNIQUE

Inoculate by thinly spreading the sample or material from an enriched culture on the surface of the medium.  
Incubate up to about 48 hours at 36 +/- 1°C aerobically.

### INTERPRETATION OF RESULTS

The freshly prepared medium is strongly inhibitory and is thus especially suitable for heavily contaminated samples. The metallic lustre of the colonies usually only appears after 48 hours on incubation. After 4 days storage at 4°C the inhibitory action of the medium is not as strong as it should then be used for less heavily contaminated specimens; in this case the metallic lustre appears after a shorter period of incubation.  
*Salmonella* colonies, with the exception of *S.paratyphi A* and *S.pullorum*, often display blackening after 18 hours of incubation, the metallic sheen appears several hours later depending on the age of the medium.  
Coliform bacteria, *Serratia*, *Proteus* appear as small colonies, green to brown in colour, sometimes mucoid.

### STORAGE

The powder is very hygroscopic: store the powder at 10-30°C, in a dry environment, in its original container tightly closed and use it before the expiry date on the label or until signs of deterioration or contamination are evident.  
Store prepared media at 2-8°C.

### WARNING and PRECAUTIONS

The product is not classified as hazardous by current legislation and does not contain harmful substances in concentrations of ≥1%.  
The product is designed for *In vitro* diagnostic use and must be used only by properly trained operators.

### DISPOSAL of WASTE

Disposal of waste must be carried out according to national and local regulations in force.

### REFERENCES

- American Public Health Association: Compendium of methods for Microbiological Examination of Foods. 3<sup>rd</sup> ed., 1992.
- McCoy, J.H.: The isolation of Salmonellae. J.Appl.Bact., 25; 213-224 (1962).
- Unites States Pharmacopoeia XXIII, Chapter "Microbial Limit Tests", 1995.
- Wilson, W.J., a Blair, E.M. McV.: Further experience of the bismuth sulfite media in the isolation of *Bacillus typhosus* and *Bacillus paratyphosus B* from faeces, sewage and water. J.Hyg. 31; 138-161 (1931).



### LIOFILCHEM Bacteriology Products

64026 ROSETO D.A. (TE) ITALY- Via Scozia- Zona Ind.le

Tel.+39 085 8930745 - Fax +39 085 8930330

Sito Web: <http://www.liofilchem.net> E-Mail: [liofilchem@liofilchem.net](mailto:liofilchem@liofilchem.net)



## PRODUCT SPECIFICATIONS

### NAME

**BISMUTH SULFITE AGAR**

### PRESENTATION

Dehydrated culture medium

### STORAGE

10-30°C

### PACKAGING

| Code   | Content | Packaging                          |
|--------|---------|------------------------------------|
| 610301 | 500 gr  | 500 gr of powder in plastic bottle |
| 620301 | 100 gr  | 100 gr of powder in plastic bottle |

### pH OF THE MEDIUM

7.6 ± 0.2

### USE

**BISMUTH SULFITE AGAR** is a modification of the original Wilson and Blair selective medium for the isolation and preliminary identification of *Salmonella typhi* and other salmonellae from pathological material, sewage, water supplies, food and other products suspected of containing these pathogens.

### TECHNIQUE

Refer to technical sheet of the product.

### APPEARANCE of the MEDIUM

Dehydrated medium

Appearance: free-flowing, homogeneous.

Colour: light green coloured

Prepared medium

Appearance: turbid

Colour: pale green

### SHELFLIFE

4 years

### QUALITY CONTROL

- Control of general characteristics, label and print
- Sterility control  
7 days at 25 ± 1°C, in aerobiosis  
7 days at 36 ± 1°C, in aerobiosis
- Microbiological control  
Inoculum for productivity: 10-100 UFC/ml  
Inoculum for selectivity: 10<sup>4</sup>-10<sup>5</sup> UFC/ml  
Inoculum for specificity: ≤ 10<sup>4</sup> UFC/ml  
Incubation conditions: 24 hours at 36 ± 1°C, in aerobiosis

| Microorganisms                |            | Growth    | Black centre | Metallic sheen |
|-------------------------------|------------|-----------|--------------|----------------|
| <i>Salmonella typhimurium</i> | ATCC 14028 | Good      | +            | +              |
| <i>Escherichia coli</i>       | ATCC 25922 | Poor      | -            | -              |
| <i>Proteus mirabilis</i>      | ATCC 29906 | Good      | +/-          | -              |
| <i>Staphylococcus aureus</i>  | ATCC 25923 | None/poor | -            | -              |

### TABLE of SYMBOLS

| Symbol | Meanings                                  |
|--------|---|
| REF    | Catalogue number                          |
| IVD    | <i>In vitro</i> Diagnostic Medical Device |
|        | Manufacturer                              |
|        | Temperature limitation                    |
|        | Kit content                               |
|        | Use by                                    |
| LOT    | Batch code                                |
|        | Do not reuse                              |
|        | Consult accompanying documents            |



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