Technical Data Sheet

CE Bismuth Sulfite Agar acc. to Wilson-Blair

Ordering number: 1.05418.0500

Bismuth Sulfite Agar acc to Wilson-Blair is a selective agar introduced by Wilson and Blair (1927, 1931) for the isolation and differentiation of *Salmonella* typhi and other *salmonellae* from clinical specimens, e.g. feces.

IVD in vitro diagnosticum - For professional use only

Mode of Action

Brilliant green and bismuth largely inhibit the accompanying bacterial flora. Colonies of H_2S-positive *salmonellae* exhibit blackening due to the formation of iron sulfide. Reduction of bismuth ions to metallic bismuth produces a metallic lustre around the colonies (McCoy 1962).

Bismuth sulfite agar is highly selective and a preferred medium for the isolation of Salmonella typhi. Salmonella typhi is more frequently isolated from blood cultures than from fecal specimens. Blood cultures are positive for 80% of typhoid patients during the first week of fever but show decreasing positive results thereafter. Gram-positive bacteria and coliforms are inhibited on Bismuth Sulfite Agar. It is a standard methods medium for the clinical environment, industrial applications and it is accepted for routine detection of most Salmonella spp. The freshly prepared medium is strongly inhibitory and is suitable for heavily contaminated samples.

Typical Composition

Meat Extract	5 g/l
Peptone from Meat	5 g/l
Peptone from Casein	5 g/l
D(+)-Glucose	5 g/l
K_2HPO_4	4 g/l
Iron(III) Sulfate	0.3 g/l
Brilliant Green	0.025 g/l
Bismuth Sulfite Indicator	8.5 g/l
Agar-Agar	15 g/l

Preparation

Suspend 47.5 g/l. Mix the resulting precipitate to give a uniform suspension. Pour plates to give thick layers (25 ml). **Do not autoclave.**

The appearance of the prepared medium is turbid and green.

The pH at 25 °C is in the range of 7.4 -7.8.

The freshly prepared medium is strongly inhibitory and is thus especially suitable for heavily contaminated specimen, e.g. feces.

Acc. to FDA-BAM the medium should be prepared 1 day before use, store dark. Loss of selectivity after 48 h.

Specimen

e.g. Stool.

Clinical specimen collection, handling and processing. See general instructions of use.

Experimental Procedure and Evaluation

Inoculate by thinly spreading the sample or material from an enriched culture on the surface of the medium.

Incubation: up to about 48 h at 35 °C aerobically.

Salmonella colonies often display blackening after 18 h of incubation, the metallic sheen appears several hours later depending on the age of the medium.

Appearance of Colonies	**Microorganisms**
Black colonies with sheen surrounded by brownish-black zones	*Salmonella* typhi
Black or greenish-gray colonies, may have sheen, with or without darkening of the surrounding medium	*Salmonella* spp.
Small, green to brown colonies, sometimes mucoid	*Coliform bacteria, Proteus* and others

Limitations

1. It is important to streak for well isolated colonies.
2. With confluent growth typical colonial characteristics of *Salmonella spp.* will not develop
3. Some *Salmonella* strains are markedly inhibited, for example *Salmonella gallinarum*, *Salmonella sendai*, *Salmonella berta, Salmonella abortus-equi* (Hajna 1951)

Therefore, when in doubt, almost any growth on the medium should be subject to further tests e.g. subculture onto a less selective medium in a manner to obtain well-isolated colonies. Use pure cultures for biochemical and serological confirmation.

Storage

The product can be used for sampling until the expiry date if stored upright, protected from light and properly sealed at +15 °C to +25 °C.

After first opening of the bottle the content can be used up to the expiry date when stored dry and tightly closed at +15 to +25° C.

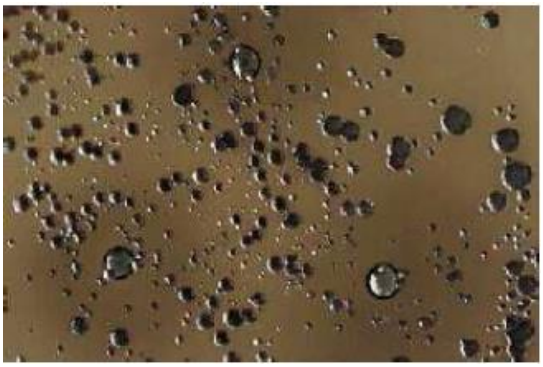
Disposal

Please mind the respective regulations for the disposal of used culture medium (e.g. autoclave for 20 min at 121 °C, disinfect, incinerate etc.).

Quality Control

Control Strains	ATCC #	Incubation	Expected Results
Salmonella typhimurium	14028	48 h at 35 °C	Growth good to very good, black colonies, metallic lustre
Salmonella typhimurium	13311	48 h at 35 °C	Growth good to very good, black colonies, metallic lustre
Salmonella enteritidis	5188	48 h at 35 °C	Growth good to very good, black colonies, metallic lustre
Salmonella arizonae	13314	48 h at 35 °C	Growth fair to very good, black colonies, metallic lustre
Salmonella aboni	6017	48 h at 35 °C	Growth good to very good, black colonies, metallic lustre
Escherichia coli	25922	48 h at 35 °C	Growth poor to fair, green colonies, no metallic lustre
Proteus mirabilis	19906	48 h at 35 °C	Growth good to very good, olive colonies, no metallic clustre
Shigella sonnei	11060	48 h at 35 °C	No growth
Staphylococcus aureus	25923	48 h at 35 °C	No growth
Bacillus cereus	11778	48 h at 35 °C	No growth

Please refer to the actual batch related Certificate of Analysis.



Salmonella typhimurium

Literature

American Public Health Association (1992). Compendium of Methods for the Microbiological Examination of Foods. 3rd edition.

Hajna, A. A. (1951). Preparation and application of Wilson and Blair's bismuth sulfite agar medium. The Public Health Laboratory, 9: 48-50.

McCoy, J.H. (1962). The isolation of *Salmonellae*. J. Appl. Bact. **25**: 213-224.

Wilson, W.J. and Blair, E.M. (1927). McV.: Use of glucose bismuth sulfite iron medium for the isolation of *Bacillus typhosus* and *Bacillus proteus*. J. Hyg., **26**: 374-391.

Wilson, W.J. and Blair, E.M. (1931). 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.

Ordering Information

Product	Cat. No.	Pack size
Bismuth Sulfite Agar acc. to Wilson-Blair	1.05418.0500	500 g

Merck KGaA, 64271 Darmstadt, Germany
Fax: +49 (0) 61 51 / 72-60 80
mibio@merckgroup.com
www.merckmillipore.com/biomonitoring

Find contact information for your country at:
www.merckmillipore.com/offices
For Technical Service, please visit:
www.merckmillipore.com/techservice