



PRODUCT SPECIFICATION SHEET

B.G. Sulpha Agar (Brilliant Green Sulpha Agar) (DM619)

Intended Use

B.G. Sulpha Agar (Brilliant Green Sulpha Agar) (DM619) is recommended for selective isolation and detection of *Salmonella* species in foods, especially eggs and egg products.

Product Summary and Explanation

Salmonella species are ubiquitous in the environment. These enter the gastrointestinal tract of animals due to consumption of contaminated feed. Stringent animal husbandry practices are used in the meat (food) industry and inedible raw materials are recycled and discarded. Thus the organisms are further returned to the environment and stay in the global food chain.^(1,2) Eggshell and its contents are usually sterile at the time of oviposition. Subsequently it gets contaminated on contact with the nest, the floor and litter of other birds.⁽³⁻⁵⁾ Salmonellosis continues to be an important public health problem worldwide, despite efforts to control the prevalence of *Salmonella* in domesticated animals. Infection with non-typhi *Salmonella* often causes mild, self-limiting illness. The illness results from consumption of raw, undercooked or improperly processed foods contaminated with *Salmonella*. Many of these cases of *Salmonella*-related gastroenteritis are due to improper handling of poultry products. Various poultry products are routinely monitored for *Salmonella* before their distribution for human consumption, but in many instances, contaminated food samples elude detection.

Brilliant Green Agar was first described by Kristensen et al.⁽⁶⁾ and later modified by Kauffmann. The outstanding selectivity of this medium permits the use of moderately heavy inocula evenly distributed over the surface. The addition of sulfonamides into Brilliant Green Agar further inhibits *Escherichia coli* and *Proteus* spp. Osborne and Stokes⁽⁷⁾ used 0.1% Sodium Sulfapyridine to enhance the recovery of *Salmonella* from whole egg and egg yolk. BG (Brilliant Green) Sulfa Agar is a highly selective medium. This formula is recommended as a selective isolation medium for *Salmonella* following enrichment.⁽⁸⁾ It is also recommended for direct inoculation with primary specimens for *Salmonella* isolation. For food testing, BG Sulfa Agar has been used for detection of *Salmonella* in low and high moisture foods.^(9,10) It has also been used for detecting *Salmonella* in feeds and feed ingredients.⁽¹¹⁾ This medium is recommended when testing foods for *Salmonella* following USDA guidelines.⁽¹²⁻¹⁴⁾

Principles of the Procedure

B.G. Sulpha Agar contains proteose peptone which is a carbon and nitrogen source used for general growth requirements in this medium. Yeast extract supplies B-complex vitamins. Lactose and sucrose are the fermentable carbohydrates. In the presence of Phenol Red, a pH indicator, non-lactose and/or non-sucrose fermenting *Salmonella* spp. will produce red colonies. Sodium sulfapyridine and Brilliant green are the selective agents, inhibiting gram-positive organisms and many gram-negative bacteria, except *Salmonella*. Sodium chloride maintains the osmotic balance.

Formula / Liter

Ingredients	Gms / Liter
Yeast extract	3.00
Proteose peptone	10.00
Lactose	10.00
Sucrose	10.00
Sodium sulphapyridine	1.00
Sodium chloride	5.00
Brilliant green	0.0125
Phenol red	0.08





PRODUCT SPECIFICATION SHEET

Agar	20.00
Final pH: 6.9 ± 0.2 at 25°C	
Formula may be adjusted and/or supplemented as required to meet performance specifications	

Precautions

1. For Laboratory Use only.
2. IRRITANT. Irritating to eyes, respiratory system, and skin.

Directions

1. Suspend 59.09 grams of the medium in one liter of distilled water.
2. Heat to boiling to dissolve the medium completely.
3. Autoclave at 121°C, 15 psi pressure, for 15 minutes / validated cycle.
4. To maintain selectivity of the medium, DO NOT OVER STERILIZE OR OVERHEAT the medium.

Quality Control Specifications

Dehydrated Appearance	Light yellow to light pink homogeneous free flowing powder
Prepared Medium	Greenish brown coloured, clear to slightly opalescent gel forms in Petri plates
Reaction of 5.9% solution	pH 6.9 ± 0.2 at 25°C
Gel Strength	Firm, comparable with 2.0% Agar gel

Expected Cultural Response: Cultural characteristics observed after an incubation at 35-37°C for 24-48 hours.

Sr. No.	Organisms	Results to be achieved			
		Inoculum (CFU)	Growth	Recovery	Colour of Colony
1.	<i>Enterococcus faecalis</i> ATCC 29212	≥10 ³	inhibited	0%	--
2.	<i>Escherichia coli</i> ATCC 25922	50-100	none-poor	≤10%	yellow green surrounded by intense yellowgreen zone
3.	<i>Proteus vulgaris</i> ATCC 13315	≥10 ³	inhibited	0%	--
4.	<i>Salmonella enteritidis</i> ATCC 13076	50-100	good-luxuriant	≥50%	pink-white, surrounded by a brilliant redzone
5.	<i>Salmonella typhimurium</i> ATCC 14028	50-100	good-luxuriant	≥50%	pink - white
6.	<i>Staphylococcus aureus</i> ATCC 25923	≥10 ³	inhibited	0%	--

The organisms listed are the minimum that should be used for quality control testing.

Test Procedure

Refer to appropriate references for specific procedures for the isolation and cultivation of *Salmonella* from meat, poultry and egg products and other foods.^(8,13,14)

Results

1. The typical *Salmonella* colonies appear as pink-white to red opaque colonies surrounded by a brilliant red medium.
2. The few lactose and/or sucrose fermenting organisms that grow are readily differentiated due to the formation of a yellow-green colony surrounded by an intense yellow-green zone.
3. BG Sulfa Agar is not suitable for the isolation of *S. typhi* or *Shigella*; however, some strains of *S. typhi* may grow forming red colonies.
4. Refer to appropriate references and standard test procedures for interpretation of results.





PRODUCT SPECIFICATION SHEET

Storage

Store the sealed bottle containing the dehydrated medium at 10 - 30°C. Once opened and recapped, place container in a low humidity environment at the same storage temperature. Protect from moisture and light.

Expiration

Refer to the expiration date stamped on the container. The dehydrated medium should be discarded if not free flowing, or if the appearance has changed from the original color. Expiry applies to medium in its intact container when stored as directed.

Limitations of the Procedure

1. On BG Sulfa Agar colonies of *Salmonella* spp. vary from red to pink to white depending on length of incubation and strain.⁽¹⁵⁾
2. BG Sulfa Agar is normally orange-brown in color; however, on incubation, it turns bright red and returns to normal color at room temperature.⁽¹⁵⁾
3. *S. typhi* does not grow adequately on BG Sulfa Agar. *Shigella* spp. do not grow on BG Sulfa Agar.⁽¹⁵⁾
4. Do not autoclave BG Sulfa Agar longer than 15 minutes; longer periods decrease the selectivity of the medium.
5. Since BG Sulfa Agar is highly selective, it is recommended that less selective media, such as MacConkey Agar, be used simultaneously.
6. Consult appropriate texts for detailed information and recommended procedures.

Packaging

Product Name : B.G. Sulpha Agar (Brilliant Green Sulpha Agar)

Product Code : DM619

Available Pack sizes : 100gm / 500gm

References

1. Doyle M. P., (Ed.), 1989, Foodborne Bacterial Pathogens, Marcel Dekker, Inc., New York. 327- 445
2. DAoust J. Y., 1994, Int. J. Food Microbiol. 24: 11-31.
3. Brooks and Taylor, 1955, Rep. Rd. Invest. Bd. 60, H. M. S. O., London, England.
4. Forsythe, Ayres and Radlo, 1953, Food Technol., 7:49.
5. Stadelman, Ikeme, Roop and Simmons, 1982, Poultry Sci., 61:388.
6. Kristensen M., Lester V., and Jargens A., 1925, Brit. J. Exp. Pathol. , 6:291.
7. Osborne W. W. and Stokes J. L., 1955, Ottawa; Food and Drug Laboratories, 1962.
8. Downes and Ito (ed.). 2001. Compendium of methods for the microbiological examination of foods, 4th ed. American Public Health Association, Washington, D.C.
9. D'Aoust, Maishment, Burgener, Conley, Loit, Milling and Purvis. 1980. J. Food Prot. 43:343.
10. D'Aoust. 1984. J. Food Prot. 47:588.
11. D'Aoust, Sewell and Boville. 1983. J. Food Prot. 46:851.
12. Moats. 1981. J. Food Prot. 44:375.
13. Federal Register. 1996. Fed. Regist. 61:38917.
14. U.S. Department of Agriculture. Microbiology laboratory guidebook, online. Food Safety and Inspection Service, USDA, Washington, D.C.
15. MacFaddin. 1985. Media for isolation-cultivation-identification-maintenance of medical bacteria, vol. 1. Williams & Wilkins, Baltimore, Md.





PRODUCT SPECIFICATION SHEET

Further Information

For further information please contact your local MICROMASTER Representative.



MICROMASTER LABORATORIES PRIVATE LIMITED

DM619PSS, QAD/FR/024, Rev.00/01.01.2018

Unit 38/39, Kalpataru Industrial Estate,
Near Runwal Estate, Behind 'R-Mall', Ghodbunder Road,
Thane (W) - 400607. M.S. INDIA.
Ph: +91-22-25895505, 4760, Cell: 9320126789.

Email: micromaster@micromasterlab.com
sales@micromasterlab.com

Prepared By	Checked By	Approved By
 01.01.2018	 01.01.2018	 01.01.2018
Microbiologist	Head Quality Control	Head Quality Assurance

Disclaimer :

All Products conform exclusively to the information contained in this and other related Micromaster Publications. Users must ensure that the product(s) is appropriate for their application, prior to use. The information published in this publication is based on research and development work carried out in our laboratory and is to the best of our knowledge true and accurate. Micromaster Laboratories Pvt Ltd reserves the right to make changes to specifications and information related to the products at any time. Products are intended for laboratory, diagnostic, research or further manufacturing use only and not for human or animal or therapeutic use, unless otherwise specified. Statements included herein should not be considered as a warranty of any kind, expressed or implied, and no liability is accepted for infringement of any patents.

