



PRODUCT SPECIFICATION SHEET

SPS Agar (DM454)

Intended Use

SPS Agar (DM454) is recommended for detecting and enumerating *Clostridium perfringens* in food.

Product Summary and Explanation

In the 1950s, Mossel⁽¹⁾ and Mossel et al⁽²⁾ proposed media for enumerating anaerobic sulfite-reducing clostridia in foods. SPS (Sulphite Polymyxin Sulphadiazine) Agar was developed by Angelotti et al⁽³⁾ based on the Wilson and Blair Medium for selective isolation and enumeration of *C. perfringens* from foods. *C. perfringens* is found in raw meats, poultry, dehydrated soups and sauces, raw vegetables and other foods and food ingredients. Occurrences of foodborne illness from *C. perfringens* are usually associated with cooked meat or poultry products.⁽⁴⁾ Spores of some strains that may resist heat during cooking germinate and grow in foods that are not adequately refrigerated.⁽⁵⁾ Enumerating the microorganism in food samples plays a role in epidemiological investigation of outbreaks of foodborne illness. The medium of Mossel et al included the use of Miller-Prickett tubes. The modified SPS Agar however obviates the inclusion of Miller-Prickett tubes.

Principles of the Procedure

SPS Agar contains casein enzymic hydrolysate and yeast extract supply nitrogenous compounds. Yeast extract supplies B-complex vitamins which stimulate growth *C. perfringens*. Ferric citrate and sodium sulphite are H₂S indicators. Clostridia reduces sulphite to sulphide which reacts with iron of ferric citrate to form a black precipitate of iron sulphide and hence the colonies appear black.⁽⁶⁾ Polymyxin B and sulphadiazine inhibit a wide variety of gram-positive and gram-negative bacteria.⁽⁷⁾ Few organisms found in food other than *C. perfringens* also form black colonies on this medium.

Formula / Liter

Ingredients	Gms / Liter
Casein enzymic hydrolysate	15.00
Yeast extract	10.00
Sodium sulphite	0.50
Polymyxin B sulphate	0.01
Sulphadiazine	0.12
Ferric citrate	0.50
Agar	13.90
Final pH: 7.0 ± 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 40.03 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. Mix well and pour into sterile Petri plates.





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Quality Control Specifications

Dehydrated Appearance	Cream to yellow homogeneous free flowing powder
Prepared Medium	Medium amber coloured slightly opalescent gel forms in Petri plates
Reaction of 4.0% solution	pH 7.0 ± 0.2 at 25°C
Gel Strength	Firm, comparable with 1.39% Agar gel

Expected Cultural Response: Cultural characteristics observed after an incubation at 35-37°C for 18-48 hours under anaerobic conditions.

Sr. No.	Organisms	Results to be achieved			
		Inoculum (CFU)	Growth	Recovery	Color of colony
1.	<i>Clostridium perfringens</i> ATCC 12924	50-100	good-luxuriant	≥50%	black
2.	<i>Clostridium sporogenes</i> ATCC 11437	50-100	fair-good	30-40%	black
3.	<i>Escherichia coli</i> ATCC 25922	≥10 ³	inhibited	0%	--
4.	<i>Staphylococcus aureus</i> ATCC 25923	50-100	none-poor	<10%	white

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

Test Procedure

1. Dispense inoculums into sterile Petri dish.
2. Pour medium cooled to 50-55°C over the inoculum.
3. Gently but thoroughly mix the inoculum and medium. Allow to solidify on a flat surface.
4. Incubate anaerobically at 35 ± 2°C for 24-48 hours.
5. Refer to appropriate references for standard test procedures.

Results

Clostridium perfringens will grow as black colonies with good growth. Refer to appropriate references and standard test procedures for interpretation of results.

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. The high degree of selectivity of SPS Agar may inhibit some strains of *C. perfringens* while other strains that grow may fail to produce distinguishing black colonies.⁽⁴⁾
2. Consult appropriate texts for detailed information and recommended procedures.

Packaging

Product Name : SPS Agar

Product Code : DM454

Available Pack sizes : 500gm





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References

1. Mossel D. A. A., De Bruit A. S., Van Dipen H. M. J., Vending C. M. A. and Zoutewelle G., 1956, J. Appl. Microbiol., 19:142.
2. Mossel R. S., 1959, J. Sci. Food Agric., 19:662.
3. Angelotti R., Han H. E., Foter M. J. and Lewis K. H., 1962, Appl. Microbiol., 10:193.
4. Labbe. 2001. *In*D of foods, 4th ed. American Public Health Association, Washington, D.C.
5. U.S. Food and Drug Administration. 2001. Bacteriological analytical manual, online. AOAC International, Gaithersburg, Md.
6. Downes F. P. and Ito K., (Eds.), 2001, Compendium of Methods for the Microbiological Examination of Foods, 4th Ed., APHA, Washington, D.C.
7. MacFaddin J. F., 1985, Media for Isolation-Cultivation-Identification-Maintenance of Medical Bacteria, Vol. 1, Williams and Wilkins, Baltimore

Further Information

For further information please contact your local MICROMASTER Representative.



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