



PRODUCT SPECIFICATION SHEET

Plate Count Agar / Standard Methods Agar (DM212)

Intended Use

Plate Count Agar / Standard Methods Agar (DM212) is used for the enumeration of bacteria in water, wastewater, food, and dairy products. This formula conforms to American Public Health Association (APHA)¹, and Association of Official Analytical Chemists (AOAC).²

Product Summary and Explanation

Standard Methods Agar was developed by Buchbinder, Baris, and Goldstein³ in 1953 at the request of the American Public Health Association. Results showed that a dehydrated milk-free medium containing 0.25% Yeast Extract, 0.5% Tryptone, 0.1% Dextrose, and 1.5% Agar per liter approximated the productivity of Tryptone Glucose Extract Agar with added milk. Buchbinder et al.⁴ recommended that a dehydrated culture medium be used in preparing the standard plate count medium rather than preparing the medium from ingredients. Standard Methods Agar as originally suggested by Buchbinder et al.⁴ is also referred to as Plate Count Agar and Tryptone Glucose Yeast Agar. This formula is specified in standard method procedures.^{1,2,5-7}

Principles of the Procedure

Enzymatic Digest of Casein and Yeast Extract provide the carbon and nitrogen sources required for growth of a wide variety of organisms. Dextrose is a source of fermentable carbohydrate (energy source). Agar is the solidifying agent.

Formula / Liter

Ingredients	Gms / Litre
Enzymatic Digest of Casein	5.00
Yeast Extract	2.50
Dextrose	1.00
Agar	15.00
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 23.5 g of the medium in one liter of deionised water.
2. Heat with frequent agitation and boil for one minute to completely dissolve the medium.
3. Autoclave at 121°C, 15 psi pressure, for 15 minutes.

Quality Control Specifications

Dehydrated Appearance	Yellow colored, homogeneous, free flowing powder
Solution	2.35% Solution in Distilled or deionized water is soluble on boiling, Light to medium Amber colored, and very slightly to slightly opalescent.
Prepared Medium	Light to medium Amber colored, slightly opalescent gel.
Reaction of 2.35% Solution	pH 7.0 ± 0.2 at 25°C
Gel Strength	Firm, compared to 1.5% Agar Gel.





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Expected Cultural Response: Cultural response on Standard Methods Agar at 35 - 37°C after 18 - 24 hours incubation.

Sr. No.	Organisms	Results to be achieved		
		Inoculum (CFU)	Growth	Recovery
1.	<i>Escherichia coli</i> ATCC 25922	50-100	Good-Luxuriant	≥70%
2.	<i>Bacillus subtilis</i> ATCC 6633	50-100	Good-Luxuriant	≥70%
3.	<i>Staphylococcus aureus</i> ATCC 25923	50-100	Good-Luxuriant	≥70%
4.	<i>Staphylococcus epidermidis</i> ATCC 12228	50-100	Good-Luxuriant	≥70%
5.	<i>Streptococcus pneumoniae</i> ATCC 6303	50-100	Good-Luxuriant	≥70%
6.	<i>Streptococcus pyogenes</i> ATCC 19615	50-100	Good-Luxuriant	≥70%
7.	<i>Enterococcus faecalis</i> ATCC 29212	50-100	Good-Luxuriant	≥70%
8.	<i>Lactobacillus casei</i> ATCC 9595	50-100	Good-Luxuriant	≥70%

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

Test Procedure

1. Perform serial dilutions on samples (food, water) to be tested using the heterotrophic (standard) plate count method. Select dilutions that will yield plates with counts of 30 - 300 colonies.
2. Dispense a portion of each test dilution (e.g., 0.1 mL, 1.0 mL) into separate test dilutions.
3. Add 10 - 12 mL of tempered (45°C) Standard Methods Agar to petri dishes containing test dilutions.
4. Swirl the dishes to thoroughly mix the agar and test dilution.
5. Allow plates to cool and solidify.
6. Incubate at 32 ± 1°C for 48 hours.

Results

Count colonies on all plates containing 30 - 300 colonies. Calculate bacterial count per milliliter of sample by multiplying the average number of colonies per plate by the reciprocal of the dilution used. Report the count as CFU/mL.

Storage

Store the sealed bottle containing the dehydrated medium at 2 - 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

Due to nutritional variation, some strains may be encountered that grow poorly or fail to grow on this medium.

Packaging

Product Name: Standard Methods Agar (Standard Plate Count Agar)

Product Code : DM212

Available Pack sizes : 100gm / 500gm

References

1. Marshall, R. T.(ed.). 1993. Standard methods for the microbiological examination of dairy products, 16th ed. APHA, Washington, D.C.
2. Cunnif, P. (ed.). 1995. Official methods of analysis AOAC International, 16th ed. AOAC International, Arlington, VA.
3. Buchbinder, L., Y. Baris, and L. Goldstein. 1953. Further studies on new milk-free media for the standard plate count of dairy products. Am J. Public Health 43:869-872.
4. Buchbinder, L., Y. Baris, E. Alff, E. Reynolds, E. Dillon, V. Pessin, L. Pincus, and A. Strauss. 1951. Studies to formulate new media for the standard plate count of dairy products. Pub. Health Rep. 66:327-340.





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5. Vanderzant, C., and D. F. Splittstoesser (eds.). 1992. Compendium of methods for the microbiological examination of foods, 3rd ed. American Public Health Association, Washington, D.C.
6. Greenberg, A. E., L. S. Clesceri, and A. D. Eaton (eds.). 1992. Standard methods for the examination of water and wastewater, 18th ed. American Public Health Association, Washington, D.C.
7. U.S. Food and Drug Administration. 1995. Bacteriological analytical manual, 8th ed., AOAC International, Gaithersburg, MD.

Further Information

For further information please contact your local MICROMASTER Representative.



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DM212PSS QAD/FR/024,Rev.00/01.01.2018

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