IFU

Instructions for Use

CRITERION™ M PA-C AGAR

Cat. no. C7960	CRITERION™ m PA-C Agar	70gm
Cat. no. C7961	CRITERION™ m PA-C Agar	500gm
Cat. no. C7962	CRITERION™ m PA-C Agar	2kg
Cat. no. C7963	CRITERION™ m PA-C Agar	10kg
Cat. no. C7964	CRITERION™ m PA-C Agar	50kg

INTENDED USE

Hardy Diagnostics CRITERION™ m PA-C Agar is recommended for the selective recovery and enumeration of *Pseudomonas aeruginosa* from water samples by membrane filtration.

This dehydrated culture medium is a raw material intended to be used in the making of prepared media products, which will require further processing, additional ingredients, or supplements.

SUMMARY

Many different methods have been used to enumerate *Pseudomonas aeruginosa* from water samples. The most-probable-number (MPN) procedures result in satisfactory recovery of *P. aeruginosa*, but are not suitable for large-volume water testing and lack precision. The membrane filter (MF) techniques eliminate these deficiencies.

Levin and Cabelli formulated m PA Agar as a selective membrane filter medium for *P. aeruginosa*.[1] m PA Agar contains kanamycin, nalidixic acid, sulfapyridine and cycloheximide to achieve a moderately selective medium. The original formulation was modified by raising the pH and altering the content or concentration of ingredients.[2,3] The resulting medium was designated m PA-B Agar. Both formulations are found in the *Standard Methods for the Examination of Water and Wastewater*.[4]

Brodsky and Ciebin further modified those media by removing sulfapyridine and cycloheximide and produced m PA-C Agar.[5] This formulation allowed *P. aeruginosa* to be enumerated after only 24 hours of incubation compared to 72 hours for m PA-B Agar and 96 hours for a presumptive MPN test.[5]

CRITERION™ m PA-C Agar contains yeast extract and lysine which provide necessary growth nutrients. Lactose, sucrose, and xylose are sources of fermentable carbohydrates. The salts provide essential ions and sodium chloride provides osmotic balance. Phenol red is the pH indicator, which becomes yellow when acid is produced during fermentation. Kanamycin inhibits protein synthesis in gram-positive organisms and nalidixic acid blocks replication of susceptible gram-negative bacteria.[6]

FORMULA

Gram weight per liter:	35.0gm/L

Sodium Thiosulfate	5.0gm
Lysine	5.0gm
Sodium Chloride	5.0gm
Yeast Extract	2.0gm
Magnesium Sulfate	1.5gm
Lactose	1.25gm
Sucrose	1.25gm
Xylose	1.25gm
Ferric Ammonium Citrate	0.80gm
Phenol Red	80.0mg
Nalidixic Acid	37.0mg
Kanamycin	8.0mg
Agar	12.0gm

Final pH 7.2 +/- 0.1 at 25ºC.

* Adjusted and/or supplemented as required to meet performance criteria.

STORAGE AND SHELF LIFE

Store the sealed bottle(s) containing dehydrated culture medium at 2-30ºC. Dehydrated culture medium is very hygroscopic. Keep lid tightly sealed. Protect dehydrated culture media from moisture and light. The dehydrated culture media should be discarded if it is not free-flowing or if the color has changed from its original pinkish-beige.

Store the prepared culture media at 2-8ºC.

The expiration date on the product label applies to the product in its intact packaging when stored as directed. The product may be used and tested up to the expiration date on the product label and incubated for the recommended incubation times as stated below.

Refer to the document "Storage" for more information.

PRECAUTIONS

This product may contain components of animal origin. Certified knowledge of the origin and/or sanitary state of the animals does not guarantee the absence of transmissible pathogenic agents. Therefore, it is recommended that these products be treated as potentially infectious, and handle observing the usual universal blood precautions. Do not ingest, inhale, or allow to come into contact with skin.

This product is for laboratory use only. It is to be used only by adequately trained and qualified laboratory personnel. Observe approved biohazard precautions and aseptic techniques. All laboratory specimens should be considered infectious and handled according to "standard precautions." Refer to the document "Guidelines for Isolation Precautions" from the Centers for Disease Control and Prevention.

For additional information regarding specific precautions for the prevention of the transmission of all infectious agents from laboratory instruments and materials, and for recommendations for the management of exposure to infectious disease, refer to CLSI document M29: *Protection of Laboratory Workers from Occupationally Acquired Infections.*

Sterilize all biohazard waste before disposal.

Refer to the document "Precautions When Using Media" for more information.

METHOD OF PREPARATION FOR DEHYDRATED CULTURE MEDIA

1. Suspend 35.0gm of the dehydrated culture media in 1 liter of distilled or deionized water.

2. Heat with frequent agitation and boil for one minute to completely dissolve the powder. DO NOT AUTOCLAVE.

3. Cool to 45-50ºC. and pour into sterile 50mm petri plates. Use media within one week after preparation.

4. Test samples of the prepared media for performance using typical control cultures.

PROCEDURE AND INTERPRETATION OF RESULTS

For information on procedures and interpretation of results, consult listed references or refer to the prepared media Instructions for Use (IFU) for Cat. No. G150.

LIMITATIONS

It is recommended that biochemical, immunological, molecular, or mass spectrometry testing be performed on colonies from pure culture for complete identification.

Some formulations may require a settling period before pH testing of the prepared medium. If the pH is tested immediately after preparation and is out of specification, retest the medium after 24 hours to obtain final pH results. Always take pH reading at room temperature.

Refer to the document "Limitations of Procedures and Warranty" for more information.

MATERIALS REQUIRED BUT NOT PROVIDED

Standard microbiological supplies and equipment such as autoclaves, incinerators, and incubators, etc., are not provided.

QUALITY CONTROL

Hardy Diagnostics tests each lot of commercially manufactured media using appropriate quality control microorganisms and quality specifications as outlined on the Certificate of Analysis (CofA) and the CLSI document M22-A3 *Quality Assurance for Commercially Prepared Microbiological Culture Media*. The following microorganisms are routinely used for testing at Hardy Diagnostics:

Test Organisms	Inoculation Method*	Incubation			Results
		Time	Temperature	Atmosphere	
Pseudomonas aeruginosa ATCC® 27853	MF	18-24hr	35°C	Aerobic	Growth; no color change
Escherichia coli ATCC® 25922	B	18-24hr	35°C	Aerobic	Partial to complete inhibition
Proteus mirabilis ATCC® 12453	B	18-24hr	35°C	Aerobic	Partial to complete inhibition; no swarming

* Refer to the document "Inoculation Procedures for Media QC" for more information.

USER QUALITY CONTROL

Users of dehydrated culture media should perform QC testing in accordance with applicable government regulatory agencies, and in compliance with accreditation requirements. Hardy Diagnostics recommends end users check for signs of contamination and deterioration and, if dictated by laboratory quality control procedures or regulation, perform quality control testing to demonstrate growth or a positive reaction and to demonstrate inhibition or a negative reaction, if applicable. Hardy Diagnostics quality control testing is documented on the certificate of analysis (CofA) available from Hardy Diagnostics Certificate of Analysis website. In addition, refer to the following document "Finished Product Quality Control Procedures," for more information on QC or see the reference(s) for more specific information.

PHYSICAL APPEARANCE

CRITERION™ m PA-C Agar powder should appear homogeneous, free-flowing, and pinkish-beige in color. The prepared media should appear clear, slightly opalescent, and medium to dark orange-red to pinkish-red in color.

REFERENCES

1. Levin and Cabelli. 1972. *Appl. Microgiol.*; 24:864.

2. Carson, Peterson, Favero, Doto, Collins, and Lecin. 1975. *Appl. Microbiol.*; 30:935.

3. Dutka and Kwan. 1977. *Appl. Environ. Microbiol.*; 33:240.

4. American Public Health Association. *Standard Methods for the Examination of Water and Wastewater,* APHA, Washington, D.C.

5. Brodsky and Ciebin. 1978. *Appl. Environ. Microbiol.*; 36:36.

6. Estevez. Bacteriologic plate media: review of mechanisms of action. 1984. *Lab. Med.*; 15:258.

IFU-10303[A]

1430 West McCoy Lane, Santa Maria, CA 93455, USA
Phone: (805) 346-2766 ext. 5658
Fax: (805) 346-2760
Website: HardyDiagnostics.com
Email: TechnicalServices@HardyDiagnostics.com
Ordering Information

Distribution Centers:
California · Washington · Utah · Arizona · Texas · Ohio · New York · Florida · North Carolina

The Hardy Diagnostics manufacturing facility and quality management system is certified to ISO 13485.

HDQA 2207B [D]