Technical Data Sheet

GranuCult® prime
Cetrimide Agar (base)
acc. ISO 22717, FDA-BAM and Ph. Eur./USP/JP

Ordering number: 1.05284.0500

For the isolation and identification of *Pseudomonas aeruginosa* from pharmaceutical, cosmetic and other material.

Cetrimide Agar (base) acc. ISO 22717, FDA-BAM and Ph. Eur./USP/JP is also known as Cetrimide agar medium (base) and Pseudomonas selective agar (base).

This culture medium complies with the specifications given by EN ISO 22717:2025/Amd 1:2022, FDA-BAM Medium M37, AOAC Official Method 991.49, the harmonized methods of Ph. Eur./USP/JP: Ph. Eur. chapter 2.6.13, USP chapter <62>, JP chapter 4.05-II and ChP chapter 1106.

The performance test of this culture medium complies with the current versions of EN ISO 11133, EN ISO 4973, the harmonized methods of Ph. Eur./USP/JP: Ph. Eur. chapter 2.6.13, USP chapter <62>, JP chapter 4.05-II and ChP chapter 1106.

This culture medium is released by the quality control laboratory of Merck KGaA, Darmstadt, Germany. The laboratory is accredited by the German accreditation authority DAkkS as registered test laboratory D-PL-15185-01-00 according to DIN EN ISO/IEC 17025 for the performance testing of media for microbiology according to DIN EN ISO 11133.

Mode of Action

This culture medium contains cetrimide (N-Cetyl-N,N,N-trimethylammonium bromide), a quaternary ammonium compound. It has an inhibitory effect on a wide range of bacterial species, including most *Pseudomonas* species other than *Pseudomonas aeruginosa*.

Pigment formation by *Pseudomonas aeruginosa* is not inhibited when cultured on this medium. Magnesium chloride and potassium sulfate stimulate the production of pyocyanin. Pancreatic digest of gelatin provides amino acids and other essential nitrogenous substances whilst agar acts as a gelling agent for solidification.

The low phosphorous content of gelatin peptone minimizes the inhibitory effect on pyocyanin production. Glycerol is added to the base medium and acts as a source of energy and enhances pigment production.

Typical Composition

Specified by EN ISO 22717:2025/Amd 1:2022, FDA-BAM Medium M37, AOAC Official Method 991.49 Ph. Eur. 2.6.13, USP <62> and <2022>, JP 4.05-II, ChP 1106		**GranuCult® prime Cetrimide Agar (base) acc. ISO 22717, FDA-BAM and Ph. Eur./USP/JP**	
Pancreatic digest of gelatin	20.0 g/l	Pancreatic digest of gelatin	20.0 g/l
Magnesium chloride	1.4 g/l	Magnesium chloride	1.4 g/l
Potassium sulfate	10.0 g/l	Potassium sulfate (Dipotassium sulfate)	10.0 g/l
Cetrimide (cetyltrimethyl ammonium bromide)	0.3 g/l	N-Cetyl-N,N,N-trimethylammonium bromide (cetrimide)	0.3 g/l
Agar	13.6 g/l	Agar-Agar*	13.6 g/l
Supplementation:			
Glycerol	10.0 ml	Glycerol	10.0 ml
Water	1000 ml/l	Water	n/a
pH at 25 °C	7.2 ± 0.2	pH at 25 °C	7.2 ± 0.2

* Agar-Agar is equivalent to other different terms of agar.

Preparation

Dissolve 45.3 g in 1 liter of purified water. Heat in boiling water and agitate frequently until completely dissolved. Add 10 ml/l of Glycerol (CAS No. 56-81-5, e.g. Cat. No. 104057). Autoclave (15 minutes at 121°C). Pour to plates.

Allow the prepared medium to equilibrate at room temperature if it was stored at a lower temperature. There should be no visible moisture on the plates before use. When moisture is present, the plates should be dried for the minimum time required to remove visible moisture, following the procedure as described by EN ISO 11133.

The dehydrated medium is a granulate with yellow colour.

The prepared medium is slightly opalescent to turbid and light yellowish.

The pH value at 25 °C is in the range of 7.2 ± 0.2.

Experimental Procedure and Evaluation

Depending on the purpose for which the medium is used.

According to harmonized methods of Ph. Eur./USP/JP: Ph. Eur. chapter 2.6.13, USP chapter <62>, JP chapter 4.05-II and ChP chapter 1106,

- subculture the pre-incubated sample on a plate of Cetrimide agar and incubate at (30 – 35) °C for (18 – 72) h.
- Growth of colonies indicates the possible presence of *Pseudomonas aeruginosa*. This is confirmed by identification tests.

According to EN ISO 22717,

- streak an aliquot of the incubated enrichment broth on the surface of Cetrimide agar to obtain isolated colonies.
- Invert the Petri dish and then incubate at (32,5 ± 2,5) °C for at least 24 h (maximum 48 h).
- Check for characteristic colonial morphology of *Pseudomonas aeruginosa* on Cetrimide agar: Yellow-green pigment (pyocyanin), which fluoresces under UV light.
- Proceed with suitable identification tests:
  - Gram's stain: Check for Gram-negative rods;
  - Oxidase test: Check for oxidase positive test;
  - Pyocyanin detection on Pseudomonas agar P:
    Check for colonies surrounded by a blue to green zone due to pyocyanin formation or with a red to dark brown zone due to pyronin production.

Storage

Store at +15 °C to +25 °C, dry and tightly closed. Do not use clumped or discolored medium. Protect from UV light (including sun light). For *in vitro* use only.

According to MacFaddin, self-prepared plates can be stored at (5 ± 3) °C in the dark and protected against evaporation for up to six to eight weeks.

Microbiological Performance

The performance test complies with the current versions of EN ISO 11133, EN ISO 4973, the harmonized methods of Ph. Eur./USP/JP: Ph. Eur. chapter 2.6.13, USP chapter <62>, JP chapter 4.05-II and ChP chapter 1106.

Test method: Performance testing of solid culture media – Qualitative method (streaking method)

Control strains	Incubation	Method of control	Expected results		Specified by
			Growth	Typical reaction	
Pseudomonas paraeruginosa (formerly *Pseudomonas aerugonosa*) ATCC® 9027™ [WDCM 00026] [CMCC(B) 10104]	(24 – 48) hours at (32,5 ± 2,5) °C, aerobic	Qualitative	Good to very good	Formation of yellowish-green pigment (pyocyanin) with fluorescence under UV light (360 ± 20 nm)	EN ISO 4973

Test method: Performance testing of solid culture media – Growth promoting properties

Control strains	Incubation	Method of control	Expected results		Specified by
			Recovery rate	Typical reaction	
Pseudomonas paraeruginosa (formerly *Pseudomonas aerugonosa*) ATCC® 9027™ [WDCM 00026] [CMCC(B) 10104]	≤ 18 hours at (32,5 ± 2,5) °C; aerobic	Quantitative	50 – 150 %	yellowish-green to blue coloration of the colonies	EN ISO 4973, Ph. Eur./ USP/JP ChP
Pseudomonas aeruginosa ATCC® 27853™ [WDCM 00025]			50 – 150 %	yellowish-green to blue coloration of the colonies	Additional control strains not specified by a standard
Pseudomonas aeruginosa ATCC® 25668™ [WDCM 00114]			50 – 150 %	yellowish-green to blue coloration of the colonies	

Test method: Performance testing of solid culture media – Inhibitory properties				
Control strains	**Incubation**	**Method of control**	**Expected results**	**Specified by**
			Growth	
Escherichia coli ATCC® 8739™ [WDCM 00012] [CMCC(B) 44102]	≥ 72 hours at (32,5 ± 2,5) °C; aerobic	Qualitative	No Growth	EN ISO 4973, Ph. Eur./ USP/JP ChP
Proteus mirabilis ATCC® 29906™ [WDCM 00023]			No Growth	Additional control strains not specified by a standard
Staphylococcus aureus ATCC® 6538™ [WDCM 00032]			No Growth	
Salmonella enterica servar Typhimurium ATCC® 14028™ [WDCM 00031]			No Growth	

Please refer to the actual batch related Certificate of Analysis.

Pseudomonas paraeruginosa
(formerly *Pseudomonas aerugonosa*)
ATCC® 9027™ [WDCM 00026] on
GranuCult® prime Cetrimide Agar (base)
acc. ISO 22717, FDA-BAM and Ph. Eur./USP/JP

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Literature

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FDA-BAM (2001): Media Index for BAM - BAM Medium M37: Ceramide agar. Food and Drug Administration - Bacteriological Analytical Manual.

ISO International Standardization Organisation. Microbiology of food, animal feed and water - Preparation, production, storage and performance testing of culture media + Amendment 1 + Amendment 2. EN ISO 11133:2014/Amd1:2018/Amd2:2020.

ISO International Standardization Organisation. Cosmetics — Microbiology — Quality control of culture media and diluents used in cosmetics standards. EN ISO 4973:2023.

ISO International Standardisation Organisation. Cosmetics — Microbiology — Detection of *Pseudomonas aeruginosa* + Amendment 1. EN ISO 22717:2015/Amd1:2022.

Japanese Ministry of Health, Labor and Welfare. (2021): The Japanese Pharmacopoeia (JP). 18th Ed. Chapter 4.05 Microbial Limit Test-II. Microbiological examination of non-sterile products: Test for specified products. Japanese Ministry of Health, Labor and Welfare. Tokyo, Japan.

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Pharmacopoeia of the People's Republic of China (ChP). (2025): Section 1100 Biological Tests. Chapter 1106 Microbiological examination of nonsterile products: Test for specified microorganisms. People's Medical Publishing House, Beijing, China.

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Lowbury, E.J.L. and Collins, A.G: (1955) The use of a new cetrimide product in a selective medium for *Pseudomonas aeruginosa*. J. Clin. Path., **8**, pp 47.

McFaddin, J.F. (1985): Media for isolation – cultivation – identification – maintenance of medical bacteria. Vol 1. Cetrimide Agar. pp. 146 – 149. Williams & Wilkins, Baltimore, MD, USA.

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Ordering Information

Product	Cat. No.	Pack size
GranuCult® prime Cetrimide Agar (base) acc. ISO 22717, FDA-BAM and Ph. Eur./USP/JP	1052840500	500 g
Glycerol (CAS No. 56-81-5)	1040572511	2,5 litre
UV Lamp (366 nm)	1132030001	1 unit
GranuCult® prime Pseudomonas Agar P (KING A Medium) (base) acc. ISO 22717 and FDA-BAM	1109880500	500 g
Bactident® Oxidase	1001810002	1x 50 strips

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