SNAPSHOOT
ENGINEERED FOR A SAFER TOMORROW

현장을 이해하고, 필요한 솔루션을 연결합니다.

산업안전 · 추락방지 시스템
산업용 소재 · 건축자재
제품 제안부터 공급·시공·설치·교육까지



COMPANY INFORMATION

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TECHNICAL DOCUMENTS

인증서 · 데이터시트 · 기술자료

제품의 규격과 성능, 인증 및 적용 조건을 확인하기 위한 자료입니다.

ABOUT SNAPSHOOT

제품 공급을 넘어, 현장에 맞는 해결책으로

스냅슛은 산업현장의 작업 환경과 요구 조건을 바탕으로
적합한 제품과 시스템을 제안합니다. 현장 실사를 통해 설치 조건을 확인하고,
공급부터 시공·설치 및 사용 교육까지 필요한 과정을 함께합니다.

추락방지 시스템

안전대부착설비 · 수평·수직 라이프라인
레일 시스템 · 리지드 포스트

밀폐공간 진입·구조 솔루션

데빗암 · 삼각대 · 구조용 윈치
윈치 안전블록 · 구조장비

산업안전 보호구

전신형 안전대 · 랜야드 · 안전블록
작업 환경에 맞춘 개인보호구

산업용 소재·건축자재

산업용 테이프 · 접착제 · 기능성 소재
구조용 스크류 · 목조건축 자재

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홈페이지 바로가기 →
문서 라이브러리 바로가기 →
시공사례 바로가기 →
문의하기 →

본 페이지는 스냅슛의 자료 제공 안내용 표지입니다. 첨부된 인증서 및 기술자료의 발행 주체, 인증 대상과 적용 범위는 해당 원문을 기준으로 확인해 주세요.

m-TEC AGAR (7421)

Intended Use

m-TEC Agar is used with urea for the isolation and enumeration of thermotolerant *Escherichia coli* from water using the membrane filtration technique in a laboratory setting. m-TEC Agar is not intended for use in the diagnosis of disease or other conditions in humans.

Product Summary and Explanation

Escherichia coli is used as an indicator of fecal pollution in water. Several tests are available for enumerating *E. coli* based on its ability to grow at elevated temperatures and indole production.[1,2] The membrane filter procedure is recognized in Standard Methods as an alternate test procedure.[3] m-TEC is an abbreviation for membrane thermotolerant *E. coli*.

In 1981, Dufour et al. developed a simple and accurate membrane filter technique for rapid enumeration of *E. coli*.[4] In this study, the researchers were able to quantitate *E. coli* on m-TEC Agar within 24 hours without requiring subculture and identification of isolates. Dufour et al. recovered *E. coli* from marine, estuarine, and fresh water samples.[4]

Principles of the Procedure

Enzymatic Digest of Animal Tissue provides nitrogen, carbon, and minerals in m-TEC Agar. Yeast Extract is a source of vitamins and trace elements. Lactose serves as a carbon source. Potassium Phosphate is a buffering agent. Sodium Lauryl Sulfate and Sodium Deoxycholate are selective agents against Gram-positive bacteria. Bromcresol Purple and Bromphenol Red are pH indicators. Sodium Chloride maintains the osmotic balance of the medium. Agar is the solidifying agent.

Formula / Liter

Enzymatic Digest of Animal Tissue	5 g
Yeast Extract	3 g
Lactose	10 g
Sodium Chloride	7.5 g
Potassium Phosphate	4.3 g
Sodium Lauryl Sulfate	0.2 g
Sodium Deoxycholate	0.1 g
Bromcresol Purple	0.08 g
Bromphenol Red	0.08 g
Agar	15 g

Final pH: 7.3 ± 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

m-TEC Agar

1. Suspend 45.3 g of the medium in one liter of purified water.
2. Heat with frequent agitation and boil to completely dissolve the medium.
3. Autoclave at 121°C for 15 minutes.
4. Dispense 4 – 5 mL amounts into 10 x 50 mm petri dishes, allow to solidify.

Urea Substrate

1. Combine 2 g urea and 10 mg phenol red in 100 mL purified water.

2. Adjust pH to 5.0 ± 0.3
3. Store at 2 - 8°C. Use within one week.

Note: Other methods may recommend an alternative pH. [3,6] Prepare substrate according to recommended guidelines.

Quality Control Specifications

Dehydrated Appearance: Powder is homogeneous, free flowing, and light grey-green beige.

Prepared Appearance: Prepared medium is trace to slightly hazy and dark purple.

Expected Cultural Response: Cultural response on m-TEC Agar using the membrane filtration technique and incubated aerobically at 44.5°C. Cultures were examined for growth after 22 ± 2 hours. Filters were transferred to a pad saturated with urea substrate and held at room temperature for 15 to 20 minutes. Urease – negative, thermotolerant *E. coli* colonies are yellow, yellow-green, to yellow-brown.

Microorganism	Approx. Inoculum (CFU)	Expected Results	
		Growth	Urease Reaction*
Enterococcus faecalis ATCC® 29212	10^3	Marked to Complete inhibition	N/A
Escherichia coli ATCC® 8739	10 - 300	Good to excellent	Negative (Yellow, yellow-green to yellow-brown colonies)
Escherichia coli ATCC® 35150	10 - 300	Good to excellent	Negative (Yellow, yellow-green to yellow-brown colonies)
Escherichia coli ATCC® 35218	10 - 300	Good to excellent	Negative (Yellow, yellow-green to yellow-brown colonies)
Proteus vulgaris ATCC® 13315	10 - 300	Markedly suppressed to inhibited	N/A
Pseudomonas aeruginosa ATCC® 27853	10^3	Markedly suppressed to inhibited	Colorless

The organisms listed are the minimum that should be used for quality control testing.
*Different membrane brands may affect the colony color

Test Procedure

1. Follow membrane filter procedure described in Standard Methods.[1]
2. Incubate inoculated plates for 2 hours at 35°C to resuscitate injured cells.
3. Transfer plates to a 44.5 ± 0.5°C waterbath or incubator and incubate for 22 ± 2 hours.
4. Place a 50 mm absorbent pad into petri dish. Add approximately 2 mL of urea substrate to pad (pad should be saturated with urea substrate without any standing liquid in petri dish).
5. Transfer countable filters to pads saturated with urea substrate.
6. After 15 - 20 minutes, count all yellow, yellow-green, to yellow-brown colonies with the aid of a stereoscopic microscope.

Results

Yellow to yellow-brown colonies (urease negative) may be presumptively identified as *E. coli*.

Storage

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

Limitations of the Procedure

1. The 35°C incubation step is required to resuscitate stressed organisms. The 44.5°C incubation temperature is required to inhibit non-thermotolerant organisms.
2. The urease test is required to presumptively identify *E. coli*.
3. Choose a water sample size that will result in 20 - 80 colonies per filter. Higher counts may not provide accurate urease test results.
4. Do not trap air bubbles underneath the filter.

Packaging

m-TEC Agar	**Code No.**	**7421A**	**500 g**
		7421B	**2 kg**
		7421C	**10 kg**

References

1. **Mara, D. D.** 1973. A single medium for the rapid detection of *Escherichia coli* at 44°C. J. Hyg. **71**:783-785.
2. **Pugsley, A. P., L. J. Evision, and A. James.** 1973. A simple technique for the differentiation of *Escherichia coli* in water examination. Water RES. **7**:1431-1437.
3. **Eaton, A. D., L. S. Clesceri, and A. E. Greenberg (eds.).** 1995. Standard methods for the examination of water and wastewater, 19th ed. American Public Health Association, Washington, D.C.
4. **Dufour, A. P., E. R. Strickland, and V. J. Cabelli.** 1981. Membrane filter method for enumerating *Escherichia coli*. Appl. Environ. Microbiol. **41**:1152-1158.
5. **Dufour, A. P., and V. J. Cabelli.** 1975. Membrane filter procedure for enumerating the component genera of the coliform group in seawater. Appl. Microbiol. **29**:826-833.
6. **1996 Annual Book of ASTM Standards,** Water and Environmental Technology (PCN: 01-11-296-16). ASTM, West Conshohocken, PA.

Technical Information

Contact Acumedia Manufacturers, Inc. for Technical Service or questions involving dehydrated culture media preparation or performance at (517)372-9200 or fax us at (517)372-2006.

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