

## Technical Information

### M-TEC Agar

#### Product Code: DM 2391

**Application:** - M-TEC Agar is recommended for isolation, differentiation and rapid enumeration of thermotolerant *Escherichia coli* from water by membrane filtration.

#### Composition\*\*

Ingredients	Gms / Litre
Proteose peptone	5.000
Yeast extract	3.000
Lactose	10.000
Sodium chloride	7.500
Potassium dihydrogen phosphate	1.000
Dipotassium hydrogen phosphate	3.300
Sodium lauryl sulphate	0.200
Sodium deoxycholate	0.100
Bromocresol purple	0.080
Bromphenol red	0.080
Agar	15.000
Final pH ( at 25°C)	7.3±0.2

\*\*Formula adjusted, standardized to suit performance parameters

#### Principle & Interpretation

M-TEC Agar is recommended for rapid isolation, differentiation and rapid enumeration of thermotolerant *E. coli* from water by membrane filtration. TEC stands for thermotolerant *E. coli*, the presence of which is widely used as an indicator of faecal contamination in water. There are many procedures for enumerating *E. coli* based on its ability to grow at elevated temperatures and produce indole from tryptophan (1, 2). The determination of indole production along with MPN procedures requires the use of additional medium and additional incubation time. Dufour et al (3) developed a simple membrane filtration technique for rapid enumeration of *E. coli*, which quantified *E. coli* within 24 hours without requiring subculturing and identification of isolates.

M-TEC Agar and urea substrate are recommended for use in the detection of *E. coli* when evaluating microbiological quality of recreational water (2).

Proteose peptone and yeast extract serve source of nitrogen, carbon, amino acids and vitamins. Potassium phosphate salts help in buffering the medium. Lactose act as source of fermentable carbohydrate. Bromocresol purple and bromophenol red acts as indicator. Sodium lauryl sulphate and sodium deoxycholate inhibit gram-positive bacteria.

Membrane filters that are used for filtration are aseptically placed with face upwards on the surface of M-TEC Agar. These plates are then incubated at  $44.5 \pm 0.5^\circ\text{C}$ . Following incubation, these filters are aseptically placed on sterile absorbent cotton pads saturated with urease substrate i.e. urea (approx. 2 ml). Urease substrate is prepared by dissolving 2 grams urea and 0.01 gram phenol red in 100 ml distilled water with the pH adjusted to  $5.0 \pm 0.2$  (2). Urease-negative reaction or formation of yellow to yellow brown colonies observed after 15-20 minutes is confirmatory for presence of thermotolerant *E. coli*.

#### Methodology

Suspend 45.26 grams of dehydrated powder media in 1000 ml distilled water. Mix thoroughly & heat to boil to dissolve the medium completely. Sterilize by autoclaving at 15 lbs pressure ( $121^\circ\text{C}$ ) for 15 minutes. Cool to  $45^\circ\text{C}$ . Shake well before pour into sterile Petri plates.



Dehydrated Culture Media  
Bases / Media Supplements

## Quality Control

### Appearance

Cream to greenish yellow homogeneous free flowing powder

### Gelling

Firm, comparable with 1.5% Agar gel

### Colour and Clarity

Dark purple coloured with red cast clear to slightly opalescent gel forms in Petri plates

### Reaction

Reaction of 4.53% w/v aqueous solution at 25°C. pH : 7.3±0.2

### pH Range

7.10-7.50

### Cultural Response

DM2391: Cultural characteristics observed after an incubation at 35-37°C for 2 hours and at 44.5°±0.5°C for 22 hours.

### Organism

### Inoculum (CFU)

### Growth

*Escherichia coli* ATCC25922

50-100

good (further testing using urease substrate should be performed)

## Storage and Shelf Life

**Dried Media:** Store below 30°C in tightly closed container and the prepared medium at 2 - 8°C. Use before expiry date on the label.

**Prepared Media:** 2-8° in sealable plastic bags for 2-5 days.

## Further Reading

1. Mara D. D., 1973, J. Hyg. 71: 783.

2. Clesceri L. S., Greenberg A. E. and Eaton A. D., (Ed.), 1998, Standard Methods for the Examination of Water and Waste water, 20th Ed., American Public Health Association, Washington, D.C.

3. Dufour A. P., Strickland E. R. and Cabelli V. J., 1981, Appl. Environ. Microbiol., 41: 1152

## Disclaimer :

- User must ensure suitability of the product(s) in their application prior to use.
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