

## EMB (Teague medium)/Agar (Eosin-Methylene Blue)

355-4217  
356-4374

### DEFINITION

Medium conducive to the development of coliforms used for the isolation of Enterobacteria.

### PRINCIPLE

The principle of the medium relies on the ability or otherwise of Enterobacteria to ferment lactose and/or saccharose. Due to the presence of eosin and methylene blue, this medium inhibits other bacteria.

### PRESENTATION

- **Ready-to-use**  
200 ml x 6 bottles **code 355-4217**
- **Dehydrated**  
500 g **code 356-4374**

### STORAGE

- Ready-to-use: + 2°C to 8°C in a dark place.
- Dehydrated: + 15°C to 25°C, in carefully-sealed bottles in a cool, dry place.
- Expiration date and batch number are shown on the package.

### THEORETICAL FORMULA

Bacteriological peptone	10 g
Dipotassium phosphate	2 g
Lactose	5 g
Saccharose	5 g
Eosin	400 mg
Methylene blue	65 mg
Agar	12 g
Distilled water	1,000 ml
Final pH (25°C) = 7.2 ± 0.2	

### OTHER PRODUCTS REQUIRED (NOT SUPPLIED)

- Distilled water

### EQUIPMENT REQUIRED (NOT SUPPLIED) (non-exhaustive)

- Scales
- Sterile weighing bags
- Grinder
- Hotplate
- Mixer-homogenizer
- Test tubes (20 x 200 mm) with autoclave-proof stoppers
- 125 ml Pyrex bottles with autoclave-proof stoppers
- Sterile Petri dishes (Ø = 90 mm)

- Sterile Pasteur pipettes (**code 355-0751**) or inoculating loop
- Water-bath precise to ± 1°C
- Thermostatically-controlled incubator or incubating room, precise to ± 1°C
- Autoclave
- All usual laboratory equipment

### PREPARATION OF DEHYDRATED MEDIUM

#### Always shake well before use

Dissolve 34.5 g of powder in 1 liter of distilled water.

Wait for 5 minutes, then mix until a homogenous suspension is obtained.

Heat gently, swirling frequently, then bring to the boil until completely dissolved.

Dispense in 100 ml bottles, and sterilize in autoclave at 121°C ± 1°C for 15 minutes.

*N.B.: The medium may vary in shade following reduction of methylene blue. Once the medium is poured into the dishes, it adopts its definitive dark purple color as it cools.*

**Reconstitution ratio: 34.5 g/l.  
500 g of powder makes 14.4 liters of medium.**

### PROTOCOL

#### • Inoculation and incubation

Inoculate in streaks using an inoculating loop or a Pasteur pipette loop (previously flame-sterilized), then incubate the Petri dishes at 37°C ± 1°C for 24 hours.

### READING AND INTERPRETATION

- *Escherichia coli*: Colonies of 2 to 3 mm, flat, deep violet, usually with a metallic sheen.
- *Klebsiella*, *Enterobacter*: Large, convex, pinkish colonies, sometimes mucous (*Klebsiella*) and tending to merge.
- *Citrobacter*: Pale violet colonies with a center and generally a less marked metallic sheen.
- *Proteus*: Small grayish colonies.
- *Salmonella*, *Shigella*, *Providencia*, *Serratia*, *Hafnia*: Small, grayish colonies, 1 to 2 mm in diameter.
- *Pseudomonas aeruginosa*: Flat colonies with an irregular contour, 2 to 5 mm in diameter.

- *Enterococcus faecalis*: Small, opaque, gray colonies.

### PRECAUTIONS

- The time lapse between the end of preparation of the stock solution (or the 10<sup>-1</sup> dilution in the case of a solid product) and the moment when the dilutions come into contact with the culture medium must not exceed 15 minutes.
- Comply with Good Laboratory Practice.

### PERFORMANCES / QUALITY CONTROL OF THE TEST

The growth performances of the media are verified with the following strains:

STRAINS	Results after 24h culture at 37°C
<i>Escherichia coli</i> ATCC 25922	Good growth Bronzed colonies
<i>Enterobacter aerogenes</i> ATCC 13048	Good growth Sugar +
<i>Klebsiella pneumoniae</i> ATCC 13883	Good growth Sugar +, mucous
<i>Proteus mirabilis</i> ATCC 25933	Good growth Sugar -
<i>Salmonella Typhimurium</i> ATCC 14028	Good growth Sugar -
<i>Shigella sonnei</i> ATCC 25931	Good growth Sugar -
<i>Staphylococcus aureus</i> ATCC 25923	Slight or no culture

### QUALITY CONTROL OF MANUFACTURER

Every product manufactured and marketed by Bio-Rad is subject to a quality-assurance procedure at all stages, from the reception of raw materials to the marketing of the end-product.

Each batch of finished product undergoes quality control and is marketed only if it satisfies the acceptability criteria.

Documentation relative to the production and control of each batch is kept on file.

### KEY WORDS

EMB / Enterobacteria / Coliforms / Enumeration / Isolation / Fermentation / Lactose / Saccharose / MPN / Medium.