

## M1678 MUG EC Broth (Methylumbelliferyl Glucuronide Escherichia coli Broth)

MUG EC Broth is used for the detection of *Escherichia coli* in water and food samples by a fluorogenic procedure.

### Composition:

| Ingredients                                 | Grams/Litre |
|---|-------------|
| Casein Enzymic Hydrolysate                  | 20.0        |
| Lactose                                     | 5.0         |
| Bile Salts Mixture                          | 1.5         |
| Dipotassium Phosphate                       | 4.0         |
| Monopotassium Phosphate                     | 1.5         |
| Sodium Chloride                             | 5.0         |
| 4-Methylumbelliferyl $\beta$ -D Glucuronide | 0.05        |
| Final pH 6.9 +/- 0.2 at 25°C                |             |

Store prepared media below 8°C, protected from direct light. Store dehydrated powder in a dry place in tightly-sealed containers at 2-25°C.

Appearance: Yellow colored, homogeneous, free flowing powder.

Color and Clarity: Yellow colored, clear solution without any precipitate.

### Directions:

Suspend 37 g of MUG EC Broth in 1000 ml of distilled water. Dispense in tubes containing inverted Durham's tubes. Sterilize by autoclaving at 15 lbs. pressure (121°C) for 12-15 minutes.

### Principle and Interpretation:

MUG permits the rapid detection of *Escherichia coli* when the medium is observed for fluorescence using a UV light. MUG is hydrolyzed by the enzyme  $\beta$ -glucuronidase which is produced by *E. coli* to yield a fluorescent end product 4- methylumbelliferone. Casein enzymic hydrolysate provides the essential nutrients. Lactose is the fermentable carbohydrate. Sodium chloride maintains the osmotic equilibrium. The medium has a strong buffering system to control the pH in the presence of fermentative action. The bile salts inhibit gram-positive bacteria especially the *Bacillus* species and faecal Streptococci.

Cultural characteristics after 4-24 hours at 35°C.

| Organisms (ATCC)                      | Growth | Fluorescence at 366 nm |
|---------------------------------------|--------|------------------------|
| <i>Escherichia coli</i> (25922)       | +++    | +                      |
| <i>Enterobacter aerogenes</i> (13048) | +++    | -                      |
| <i>Salmonella typhi</i> (6539)        | ++     | -                      |
| <i>Shigella flexneri</i> (12022)      | ++     | -                      |



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#### References:

1. Feng, P.C.S., et al., (1982). Appl. Environ. Microbiol. 43, 132.
2. Standard Methods for the Examination of Water and Wastewater, (1985). Greenberg, A.E., et al., eds. 16<sup>th</sup> Edition. APHA. Washington, D.C.
3. American Type Culture Collection, Manassas, Va., U.S.A.

#### **Precautions and Disclaimer**

This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.

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