

## CM 21,253 -MUG LAURYL SULPHATE BROTH, MODIFIED (ISO 11866-2-1997)

### INTENDED USE

For selective enumeration of presumptive *Escherichia coli* and other coliforms from milk products.

### PRODUCT SUMMARY AND EXPLANATION

Mug Lauryl Sulphate Broth, modified is used as a selective enrichment medium for enumeration of presumptive *Escherichia coli* and other coliforms from milk products. Lauryl sulphate broth was originally formulated by Mallmann and Darby, for the detection and enumeration of coliform organisms in foods, water and waste water. This medium contains MUG as the fluorogenic compound which permits the rapid detection of *E. coli*, when observed under UV. The composition & performance criteria of this medium are as per the specifications laid down in ISO 11866-2: 1997. Medium can also be used for enumeration purpose using of Most Probable Number (MPN) method.

### COMPOSITION

| Ingredients                                            | Gms / Ltr |
|--------------------------------------------------------|-----------|
| Tryptone                                               | 20.000    |
| Lactose                                                | 5.000     |
| Sodium chloride                                        | 5.000     |
| Dipotassium phosphate                                  | 2.750     |
| Mono potassium phosphate                               | 2.750     |
| Tryptophan                                             | 1.000     |
| Sodium lauryl sulphate                                 | 0.100     |
| 4-Methumbelliferyl 1 - $\beta$ - D - glucuronide (MUG) | 0.100     |

### PRINCIPLE

The medium contains Tryptone which provides the nitrogen, carbon compounds, vitamins and amino acids. The addition of MUG to the medium allows the positive discrimination of *E. coli* strains. As the majority of *E. coli* produces the  $\beta$ -glucuronidase enzyme, they are able to hydrolyze MUG, releasing a fluorogenic compound which is detected by UV light. Tryptophan acts as a substrate for the indole test. Lactose is the fermentable sugar. Sodium chloride maintains the osmotic balance of the medium. Dipotassium phosphate and Mono potassium phosphate control the pH of the medium during fermentation of Lactose. Sodium lauryl sulphate inhibits many organisms other than coliforms.

### INSTRUCTION FOR USE

Dissolve 36.70 grams in 1000ml distilled water.

Gently heat to boiling with swirling to dissolve the medium completely.

Dispense into tubes. Dispense into tubes with inverted Durham's tubes as required, taking into account the volume of the sample to be tested

Sterilize by autoclaving at 15 psi (121°C) for 15 minutes.

### QUALITY CONTROL SPECIFICATIONS

|                                 |   |                                                         |
|---------------------------------|---|---------------------------------------------------------|
| Appearance of Dehydrated powder | : | Cream to yellow colour, homogeneous free flowing powder |
| Appearance of Prepared medium   | : | Light amber coloured, clear solution                    |
| pH (at 25°C)                    | : | 6.8 $\pm$ 0.2                                           |



## INTERPRETATION

Cultural characteristics observed after an incubation.

| Microorganism          | ATCC  | Inoculum (CFU/ml) | Growth                                      | Fluorescence under uv | Indole production                                          | Incubation Temp. | Incubation Period |
|------------------------|-------|-------------------|---------------------------------------------|-----------------------|------------------------------------------------------------|------------------|-------------------|
| Escherichia coli       | 25922 | 50-100            | Luxuriant, with gas <sup>#</sup>            | positive              | Positive reaction, red ring at the interface of the medium | 30°C             | 24 Hours          |
| Enterobacter aerogenes | 13048 | 50-100            | Luxuriant, with or without gas <sup>#</sup> | Negative              | Negative reaction                                          | 30°C             | 24 Hours          |
| Staphylococcus aureus  | 25922 | ≥1000             | Inhibited, no gas <sup>#</sup>              | -                     | -                                                          | 30°C             | 24 Hours          |

#The MPN index can be determined from the number of positive tubes of selected dilutions by means of MPN table. Calculation of the most probable number of presumptive Escherichia coli or coliforms per gram or per milliliter of the original sample can be carried out.

## PACKAGING:

In 500g packaging size.

## STORAGE

Dehydrated powder, hygroscopic in nature, store in a dry place, in tightly-sealed containers below 25°C and protect from direct sunlight. Under optimal conditions, the medium has a shelf life of 4 years. When the container is opened for the first time, note the time and date on the label space provided on the container. After the desired amount of medium has been taken out, replace the cap tightly to protect from hydration.

Product Deterioration: Do not use, if powder shows evidence of microbial contamination, discoloration, drying, or other signs of deterioration.

## DISPOSAL

After use, prepared plates, specimen/sample containers and other contaminated materials must be sterilized before discarding.

## REFERENCES

1. Mallmann, W. L., and C. W. Darby. Uses of a lauryl sulphate tryptose broth for the detection of coliform organisms. Am J. Public Health. 31:12. (1941).
2. ISO 11866-1:2005 Milk and milk products – Enumeration of presumptive Escherichia coli – Part 1: Most probable number technique using 4-methylumbelliferyl-β-D-glucuronide (MUG).

|                                                                                                                               |                                                                                                           |                                                                                                                       |                                                                                                           |                                                                                                       |
|-------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|
| <br>Good Manufacturing Practices Certified | <br>Best Before        | <br>Quantity                       | <br>Catalogue Number | <br>Manufacturer |
| <br>Temperature Unit                       | <br>Lot / Batch Number | <br>Consults Instructions for Use | <br>QR Code          |                                                                                                       |

NOTE: Please consult the Material Safety Data Sheet for information regarding hazards and safe handling Practices.

\*For Lab Use Only

