

CM 20,007 – A-1 MEDIUM

INTENDED USE

For determination of faecal coliforms in water and foods by MPN technique.

PRODUCT SUMMARY AND EXPLANATION

Escherichia coli is used as the indicator organism to detect the faecal contamination of water. Andrews and Presnell devised A-1 Medium, which was capable of recovering Escherichia coli from estuarine waters in 24 hours instead of 72 hours by avoiding the pre-enrichment step as recommended by APHA. This greatly reduced the time required for the complete identification of E. coli by the elevated temperature and most probable number (MPN) methods, routinely used for water analysis. A-1 Medium substantially reduces the incidence of false positive cultures. Also, Stanbridge and Delfino found that the results obtained by using 3-hours pre-incubation step (using A-1 Medium) were statistically comparable with the two-step MPN technique for the enumeration of E. coli in chlorinated waste-water. Fast recovery of faecal coliforms from shell fish and sea water was also reported. A-1 Medium also conforms to the standard methods identified for the isolation of faecal coliforms in food, water and wastewater.

COMPOSITION

| Ingredients | Gms / Ltr |
|---|-----------|
| Tryptone | 20.000 |
| Lactose | 5.000 |
| Sodium chloride | 5.000 |
| Salicin | 0.500 |
| Polyethylene glycol p-isooctylphenyl ether (Triton 100) | 1.000 |

PRINCIPLE

Tryptone provides carbonaceous and nitrogenous compounds, long chain amino acids, vitamins and other essential nutrients required for bacterial metabolism. Lactose and salicin act as energy sources and sodium chloride maintains osmotic equilibrium. Polyethylene glycol p-isooctylphenyl ether acts as a surfactant. Presence of gas bubbles in the inverted Durham's tubes is a positive indication of presence of faecal coliforms. The density of faecal coliform can be calculated by the standard methods using the MPN table.

INSTRUCTION FOR USE

- Suspend 31.5 grams in 1000 ml purified/distilled water.
- Heat if necessary to dissolve the medium completely.
- Distribute 10 ml amounts into tubes containing inverted Durham's tubes.
- Sterilize by autoclaving at 15 psi pressure (121°C) for 10 minutes.

QUALITY CONTROL SPECIFICATIONS

- Appearance of Powder : Cream to yellow homogeneous free flowing powder.
- Appearance of prepared medium : Light amber coloured clear solution after cooling to room temperature.
- pH (at 25°C) : 6.9±0.1

INTERPRETATION

Cultural characteristics observed after incubation.



| Microorganism | ATCC | Inoculum (CFU) | Growth at 35°C | Growth at 44.5°C | Incubation Period |
|-------------------------------------|-------|----------------|--|-----------------------|-------------------|
| Bacillus spizizenii subsp. subtilis | 6633 | 50-100 | None | None | 18-24 Hours |
| Klebsiella aerogenes | 13048 | 50-100 | Luxuriant (may or may not produce gas) | Poor-fair | 18-24 Hours |
| Escherichia coli | 25922 | 50-100 | Luxuriant with gas | Luxuriant with gas | 18-24 Hours |
| Salmonella Typhimurium | 14028 | 50-100 | Luxuriant without gas | Luxuriant without gas | 18-24 Hours |
| Enterococcus faecalis | 19433 | 50-100 | Poor | None - poor | 18-24 Hours |

PACKAGING:

In pack size of 100gm and 500 gm bottles.

STORAGE

Dehydrated powder, hygroscopic in nature, store in a dry place, in tightly-sealed containers between 25-30°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 they show evidence of microbial contamination, discoloration, drying or any other signs of deterioration.










DISPOSAL

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

REFERENCES

1. Hunt and Springer, 1978, J. Assoc. Off. Anal. Chem., 61:1317.
2. Miescier et al, 1978, J. Assoc. Off. Anal. Chem., 61:772.
3. Standridge and Delfino, 1981, Appl. Environ. Microbiol., 42:918.
4. Andrews and Presnell, 1972, Appl. Microbiol., 23:521.
5. Andrews, Diggs and Wilson, 1975, Appl. Microbiol., 29:130.
6. Baird R.B., Eaton A.D., and Rice E.W., (Eds.), 2015, Standard Methods for the Examination of Water and Wastewater, 23rd ed., APHA, Washington, D.C.



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

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