

## CM 21,288 – NITRATE BROTH (IS: 5887(Part IV)-1999)

### INTENDED USE

For detection of nitrate reduction and enumeration of *Bacillus cereus*.

### PRODUCT SUMMARY AND EXPLANATION

Nitrate Broth is prepared in accordance with the formula published in 'Pure Culture Study of Bacteria' of the Society of American Bacteriologist and present modified formula is recommended by BIS. The ability to reduce nitrate is valuable for differentiating and identifying various types of bacteria especially Enterobacteriaceae family. Recently ISO committee has recommended Nitrate Broth for the enumeration of *Bacillus cereus* - colony count technique at 30°C.

### COMPOSITION

| Ingredients                    | Gms / Ltr |
|--------------------------------|-----------|
| Peptic digest of animal tissue | 5.000     |
| Meat extract                   | 3.000     |
| Potassium Nitrate              | 1.000     |
| Sodium chloride                | 30.000    |

### PRINCIPLE

Non-fermenters and other miscellaneous gram-negative bacilli vary in their ability to reduce nitrates. Some members of this group are capable of denitrification which is a reduction of nitrate to nitrogen gas. For the glucose fermenting gram-negative bacilli, the production of nitrogen gas from nitrate is an important differential test. Reduction of nitrate is generally an anaerobic respiration in which an organism derives its oxygen from nitrate. If an organism grows rapidly and reduces nitrate actively, the test should be performed after an early incubation period since the nitrite may be further reduced to nitrogen.

### INSTRUCTION FOR USE

Dissolve 39 grams in 1000 ml distilled water.

Heat if necessary to dissolve the medium completely.

Dispense in tubes and sterilize by autoclaving at 15 psi pressure (121°C) for 15 minutes.

### QUALITY CONTROL SPECIFICATIONS

Appearance of Powder : Cream to yellow coloured homogeneous free flowing powder.  
 Appearance of prepared medium : Light amber coloured clear to slightly opalescent solution forms in tubes.  
 pH (at 25°C) : 7.0 ± 0.2

### INTERPRETATION

Cultural characteristics observed after incubation.

| Microorganism | ATCC | Inoculum (CFU/ml) | Growth | Nitrate Reduction | Incubation Temperature | Incubation Period |
|---------------|------|-------------------|--------|-------------------|------------------------|-------------------|
|---------------|------|-------------------|--------|-------------------|------------------------|-------------------|



|                        |       |        |           |                                                            |         |             |
|------------------------|-------|--------|-----------|------------------------------------------------------------|---------|-------------|
| Salmonella Typhimurium | 14028 | 50-100 | Luxuriant | Positive reaction, red colour developed within 1-2 minutes | 35-37°C | 18-24 Hours |
| Escherichia coli       | 25922 | 50-100 | Luxuriant | Positive reaction, red colour developed within 1-2 minutes | 35-37°C | 18-24 Hours |
| Enterobacter aerogenes | 13048 | 50-100 | Luxuriant | Positive reaction, red colour developed within 1-2 minutes | 35-37°C | 18-24 Hours |
| Bacillus cereus        | 10876 | 50-100 | Luxuriant | Positive reaction, red colour developed within 1-2 minutes | 35-37°C | 18-24 Hours |

#### PACKAGING:

In pack size of 100 gm 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. Society of American Bacteriologist, Pure Culture Study of Bacteria, 1994, 12 : Leaflet 11:8.
2. Bureau of Indian Standards IS : 5887 (Part IV) 1976.
3. Ewing, 1986, Edwards and Ewings Identification of Enterobacteriaceae, 4th ed., Elsevier Science Pub. Co., Inc., N.Y.
4. International Organization for Standardization (ISO), 1993, Draft ISO/DIS 7932.
5. MacFaddin, 1980, Biochemical Tests for the Identification of Medical Bacteria, 2nd ed., Williams and Wilkins, Baltimore.

|                                                                                                                               |                                                                                                                                                                                              |                                                                                                            |                                                                                                           |                                                                                                                        |                                                                                                       |
|-------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|
| <br>Good Manufacturing Practices Certified | <br>For In Vitro Diagnostic Use                                                                           | <br>Quantity            | <br>Lot / Batch Number | <br>Catalogue Number              | <br>Manufacturer |
| <br>Temperature Unit                       | <br>Authorized Representative<br><small>MedMet GmbH<br/>Barkstrasse 10,<br/>49163 Menden, Germany</small> | <br>European Conformity | <br>QR Code            | <br>Consults Instructions for Use | <br>Best Before  |

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

\*For Lab Use Only

