

Asparagine Broth

Cat. 1207

For the presumptive identification and enumeration (MPN) of *Pseudomonas aeruginosa*

Practical information

| Applications | Categories |
|-----------------------|--------------------|
| Selective enumeration | <i>Pseudomonas</i> |
| Detection | <i>Pseudomonas</i> |

Industry: Environmental monitoring

Principles and uses

Asparagine Broth is an excellent enrichment broth for *Pseudomonas aeruginosa*. This medium is recommended for its enumeration and identification based on the hydrolyzation of asparagine to aspartic acid performed by the bacteria.

Pseudomonas aeruginosa is an opportunist pathogen for humans, capable of growing in water with a low concentration of nutrients. This is why natural mineral water and spring water are *Pseudomonas aeruginosa* free at the time of their commercialization. This microorganism can also be found in swimming pool water.

The formula contains a strictly mineral base with asparagine as the sole source of nitrogen, and glycerol as the carbon source. Potassium salts act as a buffer system and magnesium sulfate provides magnesium ions required in a large variety of enzymatic reactions, including DNA replication and also acts as a buffer.

Since *P. aeruginosa* hydrolyze asparagine to aspartic acid, the appearance of growth with or without fluorescent pigmentation is considered a presumptive test for its presence. Counts are determined using the MPN tubes. Confirmation is made by subculturing a loopful from each turbid tube into Acetamide Broth (Cat. 1211).

Formula in g/L

| | | | |
|-----------------------|-----|-------------------------|----|
| Dipotassium phosphate | 1 | DL-Asparagine | 2 |
| Magnesium sulfate | 0,5 | Monopotassium phosphate | 10 |

Preparation

Suspend 13,5 grams of the medium in one liter of distilled water. Add 8 ml of glycerol. Mix well and dissolve by heating with frequent agitation. Boil for one minute until complete dissolution. Dispense into appropriate containers and sterilize in autoclave at 121 °C for 15 minutes. To obtain a double-strength broth, dissolve 27 grams of the medium and add 16 ml of glycerol.

Instructions for use

Enumeration is carried out by the MPN method.
- Incubate at 35±2 °C for 24-48 hours.

Quality control

| Solubility | Appearance | Color of the dehydrated medium | Color of the prepared medium | Final pH (25°C) |
|------------|-------------|--------------------------------|------------------------------|-----------------|
| w/o rests | Fine powder | White | Colorless | 7,0±0,2 |

Microbiological test

Incubation conditions: (35±2 °C / 24-48 h).

Microrganisms

Specification

Pseudomonas aeruginosa ATCC 10145

Good growth

Pseudomonas aeruginosa ATCC 27853

Good growth

Storage

Temp. Min.:2 °C

Temp. Max.:25 °C

Bibliography

APHA. Standard Methods for Examination of Water and wastewater, 1 4th ea. 1975.