

## Marine Agar

For the isolation and enumeration of heterotrophic marine bacteria

### Practical information

| Applications          | Categories                    |
|-----------------------|-------------------------------|
| Selective enumeration | Heterotrophic marine bacteria |

Industry: Environmental monitoring

### Principles and uses

Marine Agar is a medium containing all the nutrients necessary to cultivate the majority of marine bacteria.

Since the marine environment is characterized by unique environmental conditions, its microflora is also unique. Marine microorganisms have the ability to survive at very low temperatures and at high salinity levels.

Both Marine Agar and Marine Broth (Cat. 1217) are prepared according to ZoBell, containing almost double the mineral content of sea water. The high salt content helps to simulate sea water. Bacteriological peptone provides nitrogen, vitamins, minerals and amino acids essential for growth. Yeast extract is a source of vitamins, particularly of the B-group. Bacteriological agar is the solidifying agent.

### Formula in g/L

|                              |        |                      |        |
|------------------------------|--------|----------------------|--------|
| Ammonium nitrate             | 0,0016 | Bacteriological agar | 15     |
| Bacteriological peptone      | 5      | Boric acid           | 0,022  |
| Calcium chloride             | 1,8    | Disodium phosphate   | 0,008  |
| Magnesium chloride anhydrous | 8,8    | Potassium bromide    | 0,08   |
| Potassium chloride           | 0,55   | Sodium bicarbonate   | 0,16   |
| Sodium chloride              | 19,4   | Sodium fluoride      | 0,0024 |
| Sodium silicate              | 0,004  | Sodium sulfate       | 3,24   |
| Strontium chloride           | 0,034  | Yeast extract        | 1      |
| Ferric citrate               | 0,1    |                      |        |

### Preparation

Suspend 55,20 grams of the medium in one liter of distilled water. Mix well and dissolve by heating with frequent agitation. Boil for one minute until complete dissolution. Sterilize in autoclave at 121°C for 15 minutes. Cool to 50°C, mix well and dispense into plates. It is recommended to homogenize the medium in its container before pouring into plates.

### Instructions for use

Inoculate and incubate at 20 - 25°C for 24 – 72 hours.

Using the conventional plate count technique or streaking the surface of the plate yields good results. In the spread plate technique, the agar is poured while hot and allowed to cool before inoculation. However, precaution must be taken in the pour plate method to cool the medium to 42°C before pouring, as the majority of marine organisms are heat-sensitive.

### Quality control

| Solubility                        | Appearance  | Color of the dehydrated medium | Color of the prepared medium | Final pH (25°C) |
|-----------------------------------|-------------|--------------------------------|------------------------------|-----------------|
| May present a light precipitation | Fine powder | Beige                          | Amber, slightly opalescent   | 7,6 ± 0,2       |

## Microbiological test

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Incubation conditions: (20-25 °C / 24-72 h)

### Microorganisms

Vibrio harveyi ATCC 14126

Vibrio fischeri ATCC 7744

### Specification

Good growth

Good growth

## Storage

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Temp. Min.:2 °C

Temp. Max.:8 °C

## Bibliography

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J. Marine Research N:42. 1941. Limnology and Oceanography 5:78, 1960.

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