



## Zobell Marine Broth 2216

M385

Zobell Marine Broth 2216 is recommended for cultivation, isolation and enumeration of heterotrophic marine bacteria.

### Composition\*\*

| Ingredients                    | Gms / Litre |
|--------------------------------|-------------|
| Peptic digest of animal tissue | 5.000       |
| Yeast extract                  | 1.000       |
| Ferric citrate                 | 0.100       |
| Sodium chloride                | 19.450      |
| Magnesium chloride             | 8.800       |
| Sodium sulphate                | 3.240       |
| Calcium chloride               | 1.800       |
| Potassium chloride             | 0.550       |
| Sodium bicarbonate             | 0.160       |
| Potassium bromide              | 0.080       |
| Strontium chloride             | 0.034       |
| Boric acid                     | 0.022       |
| Sodium silicate                | 0.004       |
| Ammonium nitrate               | 0.0016      |
| Disodium phosphate             | 0.008       |
| Sodium fluoride                | 0.0024      |
| Final pH ( at 25°C)            | 7.6±0.2     |

\*\*Formula adjusted, standardized to suit performance parameters

### Directions

Suspend 40.25 grams in 1000 ml distilled water. Heat if necessary to dissolve the medium. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. Mix well and dispense as desired.

### Principle And Interpretation

Microorganisms in an aquatic environment may occur at all depths ranging from the surface region to the very bottom of the ocean trenches. The top layers and the bottom sediments harbour higher concentration of microorganisms (1). Marine microorganisms are vital to ecological cycles because they form the foundations of many food chains (2). Zobell Marine Broth formulated by Zobell (3), has a composition that mimics seawater (4) and thus helps the marine bacteria to grow abundantly. This medium has been used for the growth of marine bacteria (5, 6).

Zobell Marine Broth contains the nutrients, which are required for the growth of marine bacteria. These media have minerals as in seawater (7) and peptic digest of animal tissue and yeast extract as the sources of nutrients for the marine bacteria as reported by Jones (8). High amount of salt content is used to simulate seawater. Other minerals are used to mimic the mineral composition of seawater.

### Quality Control

#### Appearance

Cream to yellow homogeneous free flowing powder

#### Colour and Clarity of prepared medium

Yellow coloured opalescent solution in tubes.

#### Reaction

Reaction of 4.03% w/v aqueous solution at 25°C. pH : 7.6±0.2

#### pH

7.40-7.80

#### Cultural Response

M385: Cultural characteristics observed after an incubation at 20-25°C for 40-72 hours .

| Organism                         | Inoculum<br>(CFU) | Growth         |
|----------------------------------|-------------------|----------------|
| <b>Cultural Response</b>         |                   |                |
| <i>Vibrio fischeri</i> ATCC 7744 | 50-100            | good-luxuriant |
| <i>Vibrio harveyi</i> ATCC 14126 | 50-100            | good-luxuriant |

## Storage and Shelf Life

Store below 30°C in tightly closed container and the prepared medium at 2 - 8°C. Use before expiry date on the label.

## Reference

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4. Lyman J. and Fleming R. H., 1940, J. Mar. Res. 3:134.
5. Sizemore R. K. and Stevenson L. H., 1970, Appl. Microbiol., 20:991
6. Weiner R. M., Segall A. M. and Colwell R. R., 1985, Appl. Environ. Microbiol., 49:83.
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8. Jones, 1960, Bact. Proc. Pg. 36 (A29).

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