



Reference : 02-007

Scharlau Microbiology - Technical data sheet

Product :  
ALGAE BROTH



### Specification

Nutritive solution for algae and cyanobacteria, appropriate for water algicide biotesting.

### Formula \* in g/L

Sodium nitrate.....	1,000
Dipotassium phosphate .....	0,250
Magnesium sulfate.....	0,513
Ammonium chloride.....	0,050
Calcium chloride.....	0,058
Ferrous chloride.....	0,003

Final pH 7,0 ±0,2 at 25 °C.

\* Adjusted and /or supplemented as required to meet performance criteria

### Directions

Dissolve 1,87 g of powder in 1 L of distilled water and distribute into suitable containers. Sterilize in the autoclave at 121°C for 15 minutes.

### Description

This liquid medium is suitable for algae and cyanobacteria cultivation, and is especially adapted for inoculum preparation and algicide biotesting, per Fitzgerald's technique. Due to the low energy source content, fungi and bacteria are inhibited.

### Technique

Fitzgerald's procedure for the testing of algicide efficacy of chemical products:

#### a) Inoculum preparation

Prepare the Algae Broth and distribute 20 mL each into 50 mL capacity conical flasks. Sterilize and keep cool until usage. Inoculate one of the conical flasks a couple of loops from *Chlorella emersonii* culture from slanted Algae agar (Art. No. 01 -007) and incubate at room temperature until good growth is observed.

This culture can then be used as biotest inoculum, it can be used for up to 30 days.

#### b) Biotest

##### 1. Samples

Prepare 1 L of pure distilled water and 1 L of distilled water containing the inhibitor. Add 120 mg of sodium nitrate and 2,5 g of di-potassium phosphate to each sample.

##### 2. Test technique

Prepare a double series of 50 mL capacity conical flasks and add 5, 12.5 and 25 mL respectively of water algicidal mixture, and then refill with pure water to get 25 mL in each conical flask.

Add only 25 mL of pure water in one or two conical flasks to use for control purposes. All the conical flasks are inoculated with the same volume of inoculum, the necessary amount to get an algae concentration about 300.000 cells/mL in each flask.

As a guide this concentration produces a slight greenish tinge. If necessary, adjust the inoculum concentration using counting or photocolourimetry methods as an aid.

Incubate the inoculated flasks at room temperature under a homogeneous and standardized light (i.e. 20 W fluorescent light).

Countings of all the flasks is carried out daily with a globule-cell count (Thoma, Neubauer type or similar).

The test is said to be over when the control conical flasks have an average concentration greater than  $5 \times 10^6$  cells/mL.

The test flasks are then compared to them.

##### 3. Interpretation

Inhibitor (algicide) concentration in the flasks with equal growth to the control is considered non toxic or ineffective. If algal concentration is maintained or remains the same as at the start of the experiment, the inhibitor is considered algistatic. Concentrations of inhibitor that have reduced the concentration of the starting population are considered as algicidal, with different effectivity ratios depending on the degree of reduction in this population.



Reference : 02-007

Scharlau Microbiology - Technical data sheet

Product :  
ALGAE BROTH



### Quality control

**Incubation temperature:** 20 ± 2,0°C

**Incubation time:** 7-20-30 days

**Inoculum:** 10<sup>5</sup>-10<sup>6</sup> CFU

#### Microorganism

*Chlorella vulgaris* BEA 0753B

#### Growth

Good

#### Remarks

Dark green at 15-30 days

### References

- CLESCERI, L., A.E. GREENBERG, A.D. EATON (1998) Standard Methods for Examination of Water and Wastewater. APHA-AWWA-WEF. Washington. DC.
- D.C. ALLEN (1952) Arch. Microbiol. 17:34.
- FITZGERALD (1962) Water and Sewage Works. 109:361.

### Storage

For laboratory use only. Keep tightly closed, away from bright light, in a cool dry place (+4 °C to 30 °C).