



## Sulphate API Broth w/o NaCl

M523

Sulphate API Broth w/o NaCl is used for detection, differentiation and estimation of sulphate reducing bacteria.

### Composition\*\*

Ingredients	Gms / Litre
Yeast extract	1.000
Ascorbic acid	0.100
Magnesium sulphate	0.200
Dipotassium phosphate	0.010
Ferrous ammonium sulphate	0.100
Final pH ( at 25°C)	7.4±0.2

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

### Directions

Suspend 1.41 grams in 1000 ml distilled water. Add 4 ml of sodium lactate. Heat if necessary to dissolve the medium completely. Dispense preferably in screw-capped tubes in 9 ml amounts. Sterilize by autoclaving at 15 lbs pressure (121°C) for 10 minutes. Close the caps immediately while the medium is still hot.

### Principle And Interpretation

Sulphate API Broth w/o NaCl is prepared according to the formulation described in the American Petroleum Institute Recommended Practice (1) for detection of sulphate reducing bacteria. Sulphate-reducing bacteria cause corrosion of oil well systems resulting in perforations in the pipes. Sulphate-reducing bacteria convert sulphate to sulphide which with the ferrous ion gives black colour. The insoluble sulphide results in plugging.

Yeast extract in the medium provides nitrogen and other nutrients necessary to support bacterial growth. Ascorbic acid is the carbohydrate source. Dipotassium phosphate buffers the medium. Sodium chloride, magnesium sulphate and ferrous ammonium sulphate provide essential ions. *Desulfovibrio* oxidizes reduced substrates i.e. sodium lactate, further with stepwise reduction of sulfate to sulfide. The detection and estimation of these bacteria is done on the basis of their ability to grow and produce sulphide in this medium. For the estimation, appropriate dilutions of water samples are inoculated.

### Quality Control

#### Appearance

White to yellow homogeneous free flowing powder

#### Colour and Clarity of prepared medium

Light yellow coloured clear solution in tubes

#### Reaction

Reaction of 0.14% w/v aqueous solution (containing 0.4% v/v sodium lactate) at 25°C. pH : 7.4±0.2

#### pH

7.20-7.60

#### Cultural Response

M523: Cultural characteristics observed after an incubation at 30°C for upto 1 week, under anaerobic condition.

Organism	Inoculum (CFU)	Growth
<i>Desulfovibrio desulfuricans</i> ATCC 13541	50-100	good - luxuriant

### Storage and Shelf Life

Store dehydrated medium and the prepared medium at 2 - 8°C. Use before expiry date on the label.

### Reference

1. American Petroleum Institute Recommended Practice 28, 1959, First ed.

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