

Technical Information

Sulphur Medium (Twin Pack)

Product Code: DM 1559

Application: Sulphur Medium is used for the cultivation of *Thiobacillus thiooxidans*.

Composition**

Ingredients	Gms / Litre
Potassium dihydrogen phosphate	3.000
Magnesium sulphate,7H ₂ O	0.500
Ammonium sulphate	0.300
Calcium chloride,2H ₂ O	0.250
Ferric chloride,6H ₂ O	0.020
Part B	-
Sulphur, elemental	10.000
Final pH (at 25°C)	4.8±0.2

**Formula adjusted, standardized to suit performance parameters

Principle & Interpretation

Sulphur Medium is prepared as per the recommendation of APHA ⁽¹⁾ for cultivating *T. thiooxidans*. Waksman and Joffe ⁽²⁾ were the first to discover this organism in soils containing free sulphur and rock phosphate. *T. thiooxidans* derives its energy by the sulphur oxidation and survives at very acidic pH levels. *Thiobacillus thiooxidans* are single-celled aerobic sulphur oxidizers that can reduce significant amount of inorganic sulphur compounds. The sulphate-reducing bacteria contribute greatly to tuberculations and galvanic corrosion of water mains and to taste and odour problems in water. *Thiobacillus*, by its production of sulphuric acid, has contributed to the destruction of concrete sewers and the acid corrosion of metals.

Elemental sulphur in the medium serves as the energy source for the organism. Ammonium sulphate serves as the nitrogen source while calcium, ferric chloride and magnesium sulphate supply inorganic ions. Potassium dihydrogen phosphate buffers the medium against pH changes.

Methodology

Suspend 3.74 grams of Part A powder media in 1000 ml distilled water. Dissolve and dispense in 100 ml amounts in 250 ml conical flasks. Add 1 gram of Part B to each 100 ml medium. Sterilize with intermittent steam for 30 minutes on 3 consecutive days.

Quality Control

Physical Appearance

Part A - White to cream homogeneous free flowing powder Part B - Yellow to greenish yellow homogeneous free flowing powder

Colour and Clarity of prepared medium

Colourless clear solution with sulphur sediment.

Reaction

Reaction of 0.4 1% w/v aqueous solutions at 25°C. pH : 4.8±0.2

pH Range 4.60-5.00

Cultural Response/Characteristics

DM 1559: Cultural characteristics observed after an incubation at 25-30°C after 4-5 days.



Dehydrated Culture Media
Bases / Media Supplements

Organism	Growth
Thiobacillus thiooxidans ATCC 19377	Luxuriant

Storage and Shelf Life

Dried Media: Store below 30°C in tightly closed container and use before expiry date as mentioned on the label.

Prepared Media: 2-8⁰ in sealable plastic bags for 2-5 days.

Further Reading

1. Eaton A. D., Clesceri L. S. and Greenberg A. W., (Eds.), 2005, Standard Methods for the Examination of water and Wastewater, 21st Ed., APHA, Washington, D.C.
2. Waksman S. A. and Joffe J. S., 1922, J. Bacteriol., 7:239.

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