



# Technical Data

## ATCC 2039 Broth (Twin Pack)

M1963

### Intended Use:

Recommended for the growth and maintenance of *Acidithiobacillus ferrooxidans* by ATCC

### Composition\*\*

Ingredients	Gms / Litre
Part A	-
Diammonium Sulphate	0.800
Magnesium Sulphate.7H <sub>2</sub> O	2.015
Dipotassium hydrogen phosphate	0.400
Nitrilotriacetic acid	0.0075
Manganese Sulphate.7H <sub>2</sub> O	0.0025
Sodium Chloride	0.005
Ferrous Sulphate.7H <sub>2</sub> O	0.0005
Cobalt Chloride. 6H <sub>2</sub> O	0.0005
Calcium Chloride	0.0005
Zinc Sulphate.7H <sub>2</sub> O	0.0005
Copper Sulphate. 5H <sub>2</sub> O	0.00005
Aluminium Potassium Sulphate.12H <sub>2</sub> O	0.00005
Boric Acid	0.00005
Sodium Molybdate. 2H <sub>2</sub> O	0.00005
Part B	-
Ferrous Sulphate.7H <sub>2</sub> O	20.000
Final pH ( at 25°C)	2.3±0.1

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

### Directions

Suspend 2.12 grams (the equivalent weight of dehydrated medium per litre ) of Part A in 800 ml purified / distilled water. Adjust the pH of the solution to 2.3 with H<sub>2</sub>SO<sub>4</sub>. Filter sterilize the solution. Suspend 20.0 grams of Part B in 200ml purified / distilled water. Mix and stir well. Quickly filter sterilize the solution. Aseptically mix both the parts (Part A and B). Dispense as desired.

### Principle And Interpretation

*Acidithiobacillus ferrooxidans* is gram negative, acidophilic, chemolithoautotrophic bacteria which obtains its energy source from oxidation of ferrous ions, elemental sulphur or partially oxidized sulphur compounds.(4,5)

This medium is recommended by ATCC for the maintenance and cultivation of *Acidithiobacillus ferrooxidans* (1).

### Type of specimen

Pure isolates.

### Specimen Collection and Handling

For pure isolates samples follow appropriate techniques for handling specimens as per established guidelines (1). After use, contaminated materials must be sterilized by autoclaving before discarding.

### Warning and Precautions :

Read the label before opening the container. Wear protective gloves/protective clothing/eye protection/ face protection. Follow good microbiological lab practices while handling specimens and culture. Standard precautions as per established guidelines should be followed while handling specimens. Safety guidelines may be referred in individual safety data sheets.

### Limitations :

1. Further biochemical testing is required for complete identification.

## Performance and Evaluation

Performance of the medium is expected when used as per the direction on the label within the expiry period when stored at recommended temperature.

## Quality Control

### Appearance

Part A : White to pale green homogeneous free flowing powder Part B : Light green to green crystals

### Colour and Clarity of prepared medium

Yellow coloured opalescent solution with yellow precipitate which may become darker on standing.

### Reaction

Reaction of 2.12 grams of Part A at 25°C. pH : 2.3±0.1

### pH

2.20-2.40

### Cultural Response

Cultural characteristics after an incubation at 25-30°C for 7 days.

Organism	Inoculum (CFU)	Growth
<i>Acidithiobacillus ferrooxidans</i> ATCC 23270	50-100	good

## Storage and Shelf Life

Store between 10-30°C in a tightly closed container and the prepared medium at 20-30°C. Use before expiry date on the label. On opening, product should be properly stored dry, after tightly capping the bottle in order to prevent lump formation due to the hygroscopic nature of the product. Improper storage of the product may lead to lump formation. Store in dry ventilated area protected from extremes of temperature and sources of ignition Seal the container tightly after use.

Product performance is best if used within stated expiry period.

## Disposal

User must ensure safe disposal by autoclaving and/or incineration of used or unusable preparations of this product. Follow established laboratory procedures in disposing of infectious materials and material that comes into contact with clinical sample must be decontaminated and disposed of in accordance with current laboratory techniques (2,3).

## Reference

1. American Type Culture Collection. Catalogue of Bacteria and phages. 18th Edition 1992.
2. Isenberg, H.D. Clinical Microbiology Procedures Handbook 2<sup>nd</sup> Edition.
3. Jorgensen, J.H., Pfaller, M.A., Carroll, K.C., Funke, G., Landry, M.L., Richter, S.S and Warnock., D.W. (2015) Manual of Clinical Microbiology, 11th Edition. Vol. 1.
4. Leduc, L.G., Ferroni, G.D.(1994) The chemolithotrophic bacterium Thiobacillus ferrooxidans. FEMS Microbiol. Lett.108, 103-120
5. Rohwerder, T., Gehrke, T., Kinzler, K., Sand, W. (2003) Bioleaching review part A: Progress in bioleaching- Fundamentals and mechanism of bacterial metal sulfide oxidation. Appl. Microbiol. Biotechnol 63, 239-248.

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### Disclaimer :

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