



ATCC 2039 Broth (Twin Pack)

M1963

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

Composition**

Ingredients	Gms / Litre
Part A	-
Diammonium Sulphate	0.800
Magnesium Sulphate.7H ₂ O	2.015
Dipotassium hydrogen phosphate	0.400
Nitrilotriacetic acid	0.0075
Manganese Sulphate.7H ₂ O	0.0025
Sodium Chloride	0.005
Ferrous Sulphate.7H ₂ O	0.0005
Cobalt Chloride.6H ₂ O	0.0005
Calcium Chloride	0.0005
Zinc Sulphate.7H ₂ O	0.0005
Copper Sulphate.5H ₂ O	0.00005
Aluminium Potassium Sulphate.12H ₂ O	0.00005
Boric Acid	0.00005
Sodium Molybdate.2H ₂ O	0.00005
Part B	-
Ferrous Sulphate.7H ₂ 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 distilled water. Adjust the pH of the solution to 2.3 with H₂SO₄. Filter sterilize the solution. Suspend 20.0 grams of Part B in 200ml 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.(1,2)

This medium is recommended by ATCC for the maintenance and cultivation of *Acidithiobacillus ferrooxidans*. (3)

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.

Cultural Response

Organism	Inoculum (CFU)	Growth
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Cultural Response

Acidithiobacillus 50-100 good
ferrooxidans ATCC 23270

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

- 1.Leduc, L.G., Ferroni, G.D.(1994) The chemolithotrophic bacterium Thiobacillus ferrooxidans. FEMS Microbiol. Lett.108, 103-120
- 2.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.
- 3.American Type Culture Collection. Catalogue of Bacteria and phages. 18th Edition 1992.

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