Biotechnology of Metals

Principles, Recovery Methods, and Environmental Concerns

K.A. Natarajan

NASI Senior Scientist, Platinum Jubilee Fellow, and Emeritus Professor,
Department of Materials Engineering, Indian Institute of Science, Bangalore, India

Comprehensive, interdisciplinary book featuring coverage of biogenesis and biomineralization, biobeneficiation, biohydrometallurgy, biocorrosion, and bio-environmental control

KEY FEATURES
- Offers comprehensive coverage of an interdisciplinary subject
- Outlines the role of microbiology and biotechnology in mining, metallurgy, waste disposal and environmental control
- Covers new topics, such as biogenesis, biomaterials processing, the role of micro-organisms in causing corrosion, and much more
- Presents scientifically illustrated experimental research methods in metals biotechnology

DESCRIPTION

Biotechnology of Metals: Principles, Recovery Methods and Environmental Concerns, deals with all aspects of metals biotechnology in different areas, such as biogenesis, biomaterials, biomimetic strategies, biohydrometallurgy, mineral biobeneficiation, electrobioleaching, biofoiling and microbial corrosion, concrete biocorrosion, microbiology of environment pollution, and bioremediation. As the technology of this interdisciplinary science has diversified over the last five years, this book provides a valuable source for scientists and students in a number of disciplines, including geology, chemistry, metallurgy, microbiology, chemical engineering, environment and civil engineering.

CONTENTS

1 Introduction-status and scope of metals biotechnology
2 Biotechnology-materials interface-Biogenesis and Biomineralization
3 Microbiological aspects of leaching microorganisms
4 Bioleaching mechanisms
5 Methods in biohydrometallurgy and developments
6 Bioleaching of copper and uranium
7 Bioleaching of zinc, nickel and cobalt
8 Biotechnology for gold mining, extraction and waste control
9 Electrochemical concepts in biohydrometallurgy
10 Microbially induced mineral beneficiation
11 Extended applications of metals biotechnology
12 Biofoiling and microbially influenced corrosion
13 Microbial aspects of Acid mine drainage- Mining pollution and control
14 Experimental and research methods in metals biotechnology

Please visit elsevier.com/books/isbn/9780128040225
Enter code CHEMENG318 for up to 30% off and free shipping

*Prices are subject to change without notice. All Rights Reserved.