Biohydrometallurgy

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Biohydrometallurgical Recycling of Metals from Industrial Wastes
Hong Hocheng 2017-09-11 Although many available metal recycling methods are simple and fast, they are also expensive and cause environmental pollution. Biohydrometallurgical processing of metals offers an alternative to overcome these issues, as the use of biological means not only helps to conserve dwindling ore resources but also fulfills the need for the unambiguous need to extract metals in nonpolluting, low-energy, and low-cost way. This book covers biohydrometallurgy and its application in the recovery of metals from secondary sources like wastes. It aims to provide readers with a comprehensive overview of different wastes for metal recovery and biological treatment methods that are both environmentally friendly and economically viable.

Biohydrometallurgy and the Environment Toward the Mining of the 21st Century 1999
Biohydrometallurgy of Chalcopyrite Hongbo Zhao 2021-07-29 Bioleaching of chalcopyrite is always a challenge and research hotspot. The low copper extraction and dissolution kinetics restricted the industrial application of chalcopyrite bioleaching. To solve this problem, the dissolution process and passivation mechanism of chalcopyrite in bioleaching should be first studied, then the rate-limiting steps should be analysed explicitly, and finally the intensifying method can be put forward. Many scholars have made efforts to investigate the dissolution mechanism of chalcopyrite in bioleaching. However, there is no congruence of opinion as yet. Biohydrometallurgy of Chalcopyrite summarizes and discusses the reported research findings. In addition, this book publishes the related results found by the authors‘ research. Then, the dissolution mechanism of chalcopyrite in bioleaching is interpreted. Finally, the process intensification techniques of chalcopyrite bioleaching are provided and discussed. Hence, this book provides useful reference and guidance in both laboratory research and industrial production. Interprets the dissolution mechanism of chalcopyrite in bioleaching Provides feasible technologies for intensifying chalcopyrite bioleaching Overviews the current situations of chalcopyrite bioleaching Helps the readers to deeply understand the bioleaching mechanisms of chalcopyrite Provides topics for future research and potential industrial applications

Biohydrometallurgy 2009 Edgardo R. Donati 2009 Volume is indexed by Thomson Reuters CPCi-S (WoS). The main focus of this collection of peer-reviewed articles is three different aspects of biohydrometallurgy: this is the field of microbial ecology which is the key to answering central questions concerning not only the diversity and behavior of micro-organisms in commercial operations, but also possible applications in biohydrometallurgy of extremophiles coming from very different environments. This covers metal recovery bioprocesses, including basic and applied studies of bioleaching and bio-oxidation; but also bioflocculation. A large part of the book is given over to interfacial studies which contribute to the understanding of the interaction between surfaces and micro-organisms during those processes. Also covered are the remediation of mining activities and environmental protection as related to mining and mining industries. The volume is organized around these principal topics. In addition, section III and an invited plenary are dedicated mainly to biological studies at the molecular level and to bioinformatics; whose contribution to the elucidation of microbial mechanisms grows every day. Physiological and biochemical studies of mining micro-organisms are also added to this section. Section V includes studies of new biomaterials; which seem to be the new frontier in this field; it also covers new technological applications of biomass, especially that related to extremophiles, and the conversion of waste into new materials for environmental applications. This work will enable scientists and engineers, from the first to the third world, to study biohydrometallurgical applications and learn how to implement them within their own particular society. Peer-reviewed papers from a September 2009 conference report on recent work in biohydrometallurgy, the field of microbial ecology which addresses questions concerning not only the diversity and behavior of micro-organisms in commercial operations, but also possible applications of extremophiles coming from very different environments. A large part of the book is given over to studies of the interaction between surfaces and micro-organisms during metal recovery bioprocesses. Also covered are the remediation and environmental protection related to mining. A section is dedicated to biological studies at the molecular level and physiological and biochemical studies of mining micro-organisms.

Another section contains studies of new biomaterials, and describes new technological applications of biomass. Some topics covered include the microbial ecology of a natural extreme acidic environment, microbial succession during a heap bioleaching cycle of low-grade copper sulphides, geomicrobiology of sulfidic mine dumps, and microbial diversity and genetic response to stress conditions of extremophilic bacteria isolated from the Escondida copper mine.

Biohydrometallurgy and the Environment Toward the Mining of the 21st Century 1992
Proceedings of the ... International Symposium on Biohydrometallurgy 1977*
Biohydrometallurgy and the Environment Toward the Mining of the 21st Century R. Amils 1999 The major theme of the International Biohydrometallurgy Symposium IBS-99 ‘Biohydrometallurgy and the Environment toward the mining of the 21st Century’, held in El Escorial (Spain) from 20-23 June 1999, is biohydrometallurgy and the environment since it is predicted that in the coming century biotechnology will make its greatest contribution in this area. From the papers in these volumes it is clear that environmental issues are already of great interest to the biohydrometallurgical community. Although all the classical biohydrometallurgical topics - e.g. bioleaching, microbiology, molecular biology, bioinoculation, bioremediation - are addressed, the continued emphasis is on the environmentally friendly aspects of the biotechnologies used. Given the interdisciplinary nature of the field, biologists, hydrometallurgists, geologists, chemists, physicists and engineers should be interested in this collection of papers which discuss the future trends in biohydrometallurgy.

Biohydrometallurgy 2009 Edgardo R. Donati 2009-05-19 Volume is indexed by Thomson Reuters CPCi-S (WoS). The main focus of this collection of peer-reviewed articles is three different aspects of biohydrometallurgy: this is the field of microbial ecology which is the key to answering central questions concerning not only the diversity and behavior of micro-organisms in commercial operations, but also possible applications in biohydrometallurgy of extremophiles coming from very different environments. This covers metal recovery bioprocesses, including basic and applied studies of bioleaching and bio-oxidation; but also bioflocculation. A large part of the book is given over to interfacial studies which contribute to the understanding of the interaction between surfaces and micro-organisms during those processes. Also covered are the remediation of mining activities and environmental protection as related to mining and mining industries.

Biohydrometallurgy 2013 Integration of Scientific and Industrial Knowledge on Biohydrometallurgy Nicolas Giuliani 2013-12-01 The main focus of this collection of peer-reviewed articles is biohydrometallurgy. This is the field of microbial ecology which is the key to answering central questions concerning not only the diversity and behavior of micro-organisms in commercial operations, but also possible applications in biohydrometallurgy of...
Biohydrometallurgy is an emerging technology. It is used industrially for the recovery of copper and uranium from low-grade resources, and the liberation of gold and other precious metals from refractory ores. Technologies are also being developed and applied to coal desulfurization, bioremediation of contaminated soils, and effluent solutions and bioenhanced tertiary oil recovery processes.

Biohydrometallurgy: The role that micro-organisms play in the treatment of minerals, metals, coal, oil, waste materials, and also in related environmental issues. Nowadays, as well as developing new technologies for the production of raw materials and useful products, major efforts have to be directed at the remediation of former mining sites and at environmental protection tasks associated with the various kinds of mining. Volume is indexed by Thomson Reuters CPCI-S (WoS).


20th International Biohydrometallurgy Symposium 2013 Recent Progress in Biohydrometallurgy Giovanni Rossi 1983 Biohydrometallurgy and the Environment Toward the Mining of the 21st Century 1999 Biohydrometallurgical Recycling of Metals from Industrial Wastes Hong Hocheng 2019-12-12 Although many available metal recycling methods are simple and fast, they are also expensive and cause environmental pollution. Biohydrometallurgical processing of metals offers an alternative to overcome these issues, as the use of biological means not only helps to conserve dwindling ore resources but also fulfills the need for the unambiguous need to extract metals in nonpolluting, low-energy, and low-cost way. This book covers biohydrometallurgy and its application in the recovery of metals from secondary sources like wastes. It aims to provide readers with a comprehensive overview of different wastes for metal recovery and biological treatment methods that are both environmentally friendly and economically viable.