

Bioleaching Of Spent Re Nery Processing Catalyst Using

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~~How To Use Bioleaching To Extract Copper (H) | GCSE Chemistry (9-1) | kayscience.com C1.3 Lesson3 Phytomining and Bioleaching~~ ~~What does bioleaching mean? URBAN MINING! Recovering gold, copper, precious metals from PCB's without chemicals~~ ~~Bioculture in Wastewater treatment || What is culture media || Biological treatment in STP Filamentous Bacteria Ore to More (The History of Copper)~~

~~Microorganisms in our Activated Sludge~~~~Phytoremediation Process~~ **Bioheap Leaching Process Poplar for Recycled Water Reuse and Phytoremediation Superplants - How to make money by saving the environment Documentary Trailer** ~~What is HEAP LEACHING? What does HEAP LEACHING mean? HEAP LEACHING meaning \u0026 explanation~~ ~~Bioleaching | m.sc final environment paper(special)|Unique life sciences |Akash sharma| csir net~~ **Microorganisms Used in Bioleaching Metals Converting Waste Foundry Sands into Soil Suitable Chile revolutionising mining with bacteria biotech Bioleaching Building Blocks** *Chemical Separation - Metal And Non-Metals | Class 10 Chemistry* ~~BaeTech Bioleach Process~~ *Dr. Horst Hejny - Bioleaching Process* ~~Bioleaching~~ ~~Bioleaching Of Spent Re Nery~~ ~~Bioleaching can be divided into the following groups: (1) direct bioleaching which occurs in the presence of microorganism and includes one-step bioleaching (the microorganism and the spent catalyst are introduced to the medium simultaneously), and two-step process (the microorganism is added first and the spent catalyst is added when biometabolite production commences); (2) indirect bioleaching or leaching by spent medium (produced biometabolites by the microorganism after a specified time ...~~

Bioleaching of spent refinery catalysts: A review ...

A spent refinery processing catalyst was physically and chemically characterized, and subjected to one-step and two-step bioleaching processes using *Aspergillus niger*. During bioleaching of the spent catalysts of various particle sizes (" as received ", 100-150 μm , <37 μm , and $x = 2.97$ (average) μm) and pulp densities, the biomass dry weight and pH were determined.

Bioleaching of spent refinery processing catalyst using ...

Spent hydrocracking catalyst (Albemarle KF-1015-LH Mo/Ni/Al 2×10^3 /SiO 2) was provided by National Iranian Oil Refining & Distribution Company (NIORDC) and this material was used to prepare all the samples. The as-received spent catalyst with a black covering was first pre-treated by heating in a furnace at 600 $^{\circ}\text{C}$ for 4 h.

Bioleaching kinetics of a spent refinery catalyst using ...

overall, the laboratory-scale bioleaching of the spent re nery catalyst using various adapted microorganism strains shows a promising rst step towards bioleaching of a used substance.

A Bioleaching Regeneration and Recovery of Spent Refinery ...

A Bioleaching Regeneration and Recovery of Spent Refinery Catalyst Using Adapted Microorganisms. August 2016; DOI: 10.13140/RG.2.2.16485.96485 ...

A Bioleaching Regeneration and Recovery of Spent Refinery ...

Overall, the laboratory-scale bioleaching of the spent refinery catalysts using adapted *A. niger* strains shows a promising first step towards a biological detoxification of the wastes. Apart from enabling a safe disposal of the bioleached waste, the possible recovery of metal such as molybdenum and nickel in the leached liquor (for example, as raw material for steel and foundry industries) presents an added incentive for this biohydrometallurgical approach to manage spent catalysts.

Acces PDF Bioleaching Of Spent Re Nery Processing Catalyst Using

Use of adapted *Aspergillus niger* in the bioleaching of ...

Bio-hydrometallurgical approaches are more economical and environmentally friendly than physicochemical metal-extraction processes. In this paper, the information available on the bioleaching fundamentals of spent catalyst wastes, as well as a focus on recent developments, is reviewed in detail.

Bioleaching of spent refinery catalysts: A review ...

The elemental mapping by FESEM confirmed the presence of Al, Ni, V and Mo along with sulfur in the spent catalyst. During bioleaching, Ni (92–97%) and V (81–91%) were leached in higher concentrations, whereas leaching yields of Al (23–38%) were found to be lowest in all particle sizes investigated.

Bioleaching of metals from spent refinery petroleum ...

The feasibility of column bioleaching in the recovery of valuable metals (Ni, V, Mo, and Al) from an uncrushed petroleum refinery spent hydroprocessing catalyst using *Acidithiobacillus thiooxidans* has been reported.

Column bioleaching of metals from refinery spent catalyst ...

Spent catalyst is listed as one of the hazardous wastes. Based on the toxicity characteristic shows that spent catalyst contains some heavy metals at concentration above the regulations limits. This situation becomes an important issue in nowadays. In this research, fungus *Aspergillus niger* was investigated to produce weak organic acid (citric acid).

Bioleaching of Valuable Metals from Spent Catalyst Using ...

The present investigation aimed to study the thermophilic bioleaching of spent catalyst with different size fractions in modified Kelly medium with and without iron supplement using *Sulfolobus metallicus*. The results obtained showed Ni and Al recovery ranging from 94 to 97% and 54 to 59% respectively, with a lower recovery of Mo and V.

Thermophilic bioleaching of spent petroleum refinery ...

Although these studies suggest the potential of bioleaching for metal recovery from petroleum refinery spent catalysts, the longer reaction time (up to 70 days) is still a major hindrance to apply the process on a large scale (Santhiya and Ting, 2005).

Sequential leaching of metals from spent refinery catalyst ...

The present work investigated the leaching potential of moderately thermophilic bacteria in the recovery of metals from spent petroleum catalyst of varying particle sizes. The batch bioleaching experiments were conducted by employing a mixed consortium of moderate thermophilic bacteria at 45°C and by using five different particle sizes (from 45 to >2000 µm) of acetone-washed spent catalyst.

Bioleaching of metals from spent refinery petroleum ...

This paper deals with bioleaching of metals from hazardous spent hydro-processing catalyst by means of iron/sulphur oxidizing bacteria. The exhaust catalyst was rich in nickel (45 mg/g), vanadium (44 mg/g) and molybdenum (94 mg/g).

Bioleaching of Nickel, Vanadium and Molybdenum from Spent ...

1 1 Bioleaching kinetics of a spent refinery catalyst using 2 *Aspergillus niger* at optimal condition 3 F. Amiri a,b, S.M. Mousavi c,* , S. Yaghmaei a,**, M. Barati b 4 a Department of Chemical and Petroleum Engineering, Center of Excellence, Development and 5 Strategic Plants for Bioprocess Technology, Sharif University of Technology, Tehran, Iran 6 b Department of Material Science and ...

Bioleaching kinetics of a spent refinery catalyst using ...

This paper deals with bioleaching of metals from hazardous spent hydro-processing catalyst by means of iron/sulphur oxidizing bacteria. The exhaust catalyst was rich in nickel (45 mg/g), vanadium...

Bioleaching of Nickel, Vanadium and Molybdenum from Spent ...

Abstract. This study evaluates the recovery of heavy metals employing a spent catalyst from the hydrodesulfurization (HDS) of diesel, with no chemical, thermal or physical pretreatment, using the bacterial strain *Acidithiobacillus thiooxidans* FG-01. Direct and indirect bioleaching tests were carried out in Erlenmeyer flasks (500 mL).

BIOLEACHING OF METALS FROM A SPENT DIESEL ...

After 168h of bioleaching with either *At. ferrooxidans* or *At. thiooxidans*, the remaining metals in the bioleached spent catalyst samples were present in stable forms (oxidizable and residual fractions). Bioleaching also led to increase in the reduced partition index of all the

Feasibility of Bioleaching in Removing Metals (Al, Ni, V ...

Bioleaching of spent refinery processing catalyst using *Aspergillus niger* with high-yield oxalic acid: Authors: Santhiya, D. Ting, Y.-P. Keywords: *Aspergillus niger* Bioleaching Buffer-stimulated culture Spent catalyst: Issue Date: 16-Mar-2005: Citation: Santhiya, D., Ting, Y.-P. (2005-03-16). Bioleaching of spent refinery processing catalyst ...

New discoveries of the properties of gold at a nanoscale, and its effective use in modern technologies, have been driving a virtual "gold rush". Depleting natural resources has meant that the recovery of gold continues to grow in importance and relevance. The Recovery of Gold from Secondary Sources analyses the most advanced technology in gold recovery and recycling from spent sources of mobile phones, unwanted electronic equipment and waste materials. State-of-the-art techniques of hydrometallurgical and bio-metallurgical processing, leaching, cementing, adsorbing and separation through bio-sorbents are all described in detail, providing a guide for students and researchers. Discussion of environmentally friendly methods of recovery are presented, in order to provide modern-day alternatives to previous techniques. For those interested in the study of gold recovery this book gives a comprehensive overview of current recovery, making it the ultimate source of information for students, researchers, chemists, metallurgists, environmental scientists and electronic waste recovery experts. Contents: Introduction (S Syed) Leaching of Gold from the Spent/End-of-Life Mobile Phone-PCBs using "Greener Reagents" (Jae-chun Lee and Rajiv R Srivastava) Electroless Displacement Deposition of Gold from Aqueous Source - Recovery from Waste Electrical and Electronic Equipment (WEEE) using Waste Silicon Powder (Kenji Fukuda and Shinji Yae) Adsorption of Gold on Granular Activated Carbons and New Sources of Renewable and Eco-Friendly Activated Carbons (Gerrard Eddy Jai Poinern, Shashi Sharma, and Derek Fawcett) Development of Novel Biosorbents for Gold and Their Application for the Recovery of Gold from Spent Mobile Phones (Katsutoshi Inoue, Manju Gurung, Hidetaka Kawakita, Keisuke Ohto, Durga Parajuli, Bimala Pangeni, and Shafiq Alam) Environmentally Friendly Processes for the Recovery of Gold from Waste Electrical and Electronic Equipment (WEEE): A Review (Isabella Lancellotti, Roberto Giovanardi, Elena Bursi, and Luisa Barbieri) Study on the Influence of Various Factors in the Hydrometallurgical Processing of Waste Electronic Materials for Gold Recovery (I Birloaga and F Vegliò) Readership: Students, researchers, chemists, metallurgists, environmental scientists and electronic waste recovery experts.

Better Understand the Connection between Microbiology and the Inorganic World Microbiology for Minerals, Metals, Materials and the Environment links chemical, metallurgical, and other metal inherent systems with microbes, and analyzes the interdependence between them. Specifically intended to underscore the importance of microbes in environmental re

This volume contains the papers that will be presented at 'EMC '91 '-the European Metals Conference-to be held in Brussels, Belgium, from 15 to 20 September 1991, and organized by Benelux Metallurgie, GDMB (Gesellschaft Deutscher Metallhütten und Bergleute) and IMM (the Institution of Mining and Metallurgy). 'EMC '91' is the first of an intended major series organized at the European level with the aim of bringing together all those who are involved with the extraction and processing of non-ferrous metals-European metallurgists and their international colleagues-to provide them with the opportunity to exchange views on the state and evolution of their industry. The programme covers all the different aspects of the metallurgy of non-ferrous metals from mining to fabricated products. Particular attention is being paid to the European non-ferrous industry with respect to changes in demand, the technology used, pressures on the environment and the competitive position of manufacturers. The contributions of the plenary lecturers (copies of which will appear in the IMM journal Minerals Industry International in 1991-92) and the many authors are gratefully acknowledged. Thanks are also due to the referees of the papers, the sponsors, the companies that have allowed registrants to visit their operations, the chairmen of the technical sessions and the staffs of the organizing bodies for their efficient administrative work. Jean Vereecken Chairman, Organizing Committee July 1991 v Contents Foreword. v .

Stresses the Potential Applications of Biosurfactants in Various Industries Environmental concerns and a demand for sustainable chemical production have become important issues in recent years. As a result, microbial biosurfactant-producing systems are gaining momentum as potential replacements for chemical surfactants. Biosurfactants: Production and Utilization-Processes, Technologies, and Economics explores the production, utilization, and industrial/economic use of biosurfactants in modern biotechnology. This book represents comprehensive material developed by contemporary experts in the field. Focusing on research and developments within the last 20 years, it highlights relevant changes in the industry. It provides a detailed account of

the current applications of biosurfactants, considers the potential for further environmental, biological, and industrial applications, and concentrates on surfactants and organisms with possibilities for future use. Emphasizes Process Scale-Up and Commercialization Factoring in the industrial application of biosurfactant production based on renewable resources, the book determines how biosurfactants can enhance or replace the properties of chemically synthesized surface-active agents. It discusses moving beyond the laboratory scale of research and development and on to the industrial scale of commercial interest. The book consists of 17 chapters and features expert authors discussing topics that include: Understanding the regulatory processes controlling the production of biosurfactants Strategies for feasible commercial biosurfactant production Examples of cost analysis based on published information The viability of industrial applications in food, cosmetics, and pharmaceuticals Patents for future trends Biosurfactants: Production and Utilization—Processes, Technologies, and Economics contains special sections devoted to the overview and evaluation of specific patents relating to biosurfactants, and methods for production of biosurfactants on a laboratory and industrial/commercial scale. It also presents novel and proven applications for biosurfactants from a number of biotechnology laboratories and research facilities around the world. In addition, it introduces the reader to a variety of real-world industry techniques readily applicable for practical use.

Microbial biosurfactants are green molecules with high application potential in environmental and industrial sectors. Chemical diversity of biosurfactants allows them versatility and broad range surfactants capability without compromising performance or economic viability. Biosurfactants are used as emulsifiers, dispersants, wetting agents, oil recovery agents, biopesticides, stabilizers, solubilizers, and bioremediation agents (pesticide, heavy metals and oil spill cleanup). This comprehensive book on biosurfactants and their environmental and industrial applications offers a broad spectrum of information on potential applications of biosurfactants in various fields and related technological developments.

Established in 1970, the PbZn symposium series is considered the leading international technical forum for the lead and zinc processing industries. The PbZn 2020 volume addresses all aspects of current processing technologies for primary and secondary lead and zinc, as well as emerging technologies for both metals.

This book describes the phases for innovative metallurgical process development, from concept to commercialization. Key features of the book include: • Need for process innovation • Selection and optimization of process steps • Determination of the commercial feasibility of a process including engineering and equipment selection • Determination of the environmental footprint of a process • Case-study examples of innovative process development

This collection offers new research findings, innovations, and industrial technological developments in extractive metallurgy, energy and environment, and materials processing. Technical topics included in the book are thermodynamics and kinetics of metallurgical reactions, electrochemical processing of materials, plasma processing of materials, composite materials, ionic liquids, thermal energy storage, energy efficient and environmental cleaner technologies and process modeling. These topics are of interest not only to traditional base ferrous and non-ferrous metal industrial processes but also to new and upcoming technologies, and they play important roles in industrial growth and economy worldwide.

Platform Chemical Biorefinery: Future Green Chemistry provides information on three different aspects of platform chemical biorefinery. The book first presents a basic introduction to the industry beneficial for university students, then provides engineering details of existing or potential platform chemical biorefinery processes helpful to technical staff of biorefineries. Finally, the book presents a critical review of the entire platform chemical biorefinery process, including extensive global biorefinery practices and their potential environmental and market-related consequences. Platform chemicals are building blocks of different valuable chemicals. The book evaluates the possibility of renewable feedstock-based platform chemical production and the fundamental challenges associated with this objective. Thus, the book is a useful reference for both academic readers and industry technical workers. The book guides the research community working in the field of platform chemical biorefinery to develop new pathways and technologies in combination with their market value and desirability. Offers comprehensive coverage of platform chemicals biorefineries, recent advances and technology developments, potential issues for preventing commercialization, and solutions Discusses existing technologies for platform chemicals production, highlighting benefits as well their possible adverse effects on the environment and food security Includes a global market analysis of platform chemicals and outlines industry opportunities Serves as a useful reference for both academic readers and industry technical workers