

1. Record Nr.	UNINA9910139249903321
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Titolo	Extractive Metallurgy 2 : Metallurgical reaction processes [[electronic resource] /] / Alain Vignes
Pubbl/distr/stampa	London, : ISTE Hoboken, N.J., : Wiley, 2011
ISBN	1-118-61693-6 1-118-61697-9 1-299-31523-2 1-118-61684-7
Descrizione fisica	1 online resource (373 p.)
Collana	Extractive metallurgy ; ; 2
Classificazione	TEC021000
Disciplina	669.028
Soggetti	Metallurgy Electronic books.
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Cover; Title Page; Copyright Page; Table of Contents; Preface; Chapter 1. Hydrometallurgical Extraction Processes; 1.1. Overview of hydrometallurgical processes; 1.2. Leaching processes; 1.2.1. Basic features; 1.2.2. Leaching of oxides with acid-base reactions; 1.2.3. Leaching of sulfides; 1.2.4. Leaching of metals; 1.3. Precipitation processes; 1.3.1. Precipitation of hydroxides and oxides; 1.3.2. Precipitation of sulfides; 1.3.3. Production of Cu, Ni and Co metallic powders from salt solutions by reduction with hydrogen; 1.3.4. Cementation; 1.4. Solvent extraction; 1.4.1. Extractants 1.4.2. Extraction and stripping isotherms and extractant selectivity1. 4.3. Solvent extraction operations in copper hydrometallurgic treatments; 1.4.4. Cobalt-nickel separation from various leach liquors by solvent extraction; 1.4.5. Iron extraction from a sulfuric Fe-Zn solution; 1.4.6. Extraction of gold from hydrochloric solutions; 1.4.7. Extraction of gallium from Bayer process leach solutions; 1.5. Hydrometallurgical processing routes of ores, concentrates and residue (flowsheets); 1.5.1. The Bayer process: bauxite processing 1.5.2. Hydrometallurgical processing routes of zinc ores and electric

arc furnace dusts; 1.5.3. Hydrometallurgical processing routes of copper ores and mattes; 1.5.4. Processing of nickel laterites, sulfide concentrates and mattes; 1.6. Bibliography; Chapter 2.

Electrometallurgical Extraction Processes; 2.1. Overview of electrometallurgical processes; 2.2. Electrolysis - bases; 2.2.1. The electrolytic cell; 2.2.2. Faraday's law; 2.2.3. The electromotive force (EMF); 2.2.4. Electrical energy consumption; 2.2.5. Decomposition potential of a salt; 2.2.6. Electrorefining

2.2.7. Configurations of industrial cells and cell lines

2.3. Aqueous electrolysis: bases; 2.3.1. Electrolytic water decomposition; 2.3.2. Aqueous salt electrolysis; 2.3.3. Metal deposit and hydrogen production; 2.3.4. Electrodeposition of metals - deposit morphologies;

2.4. Electrowinning of copper; 2.4.1. Copper chloride electrolysis; 2.4.2. Copper sulfate electrolysis; 2.4.3. Electrolytic copper and blister copper electrorefining; 2.4.4. Electrorefining of copper matte; 2.5. Electrowinning of nickel; 2.5.1. Nickel chloride electrolysis; 2.5.2. Electrorefining of nickel

2.5.3. Electrorefining of nickel matte

2.6. Electrowinning of zinc; 2.6.1. Zinc sulfate electrolysis; 2.6.2. Ammonium chloride zinc electrolysis; 2.6.3. Sodium zincate electrolysis; 2.7. Electrorefining of lead; 2.8. Electrorefining of tin; 2.9. Cobalt electrowinning; 2.10. Bibliography; Chapter 3. Halide Extraction Processes; 3.1. Overview of the halide extraction processes; 3.2. Chlorination processes; 3.2.1. Thermodynamic data; 3.2.2. Mechanisms and kinetics; 3.2.3. Carbochlorination of ores; 3.3. Reduction of halides; 3.3.1. Hydrogen reduction; 3.3.2. Metallocermic reduction

3.4. Bibliography

Sommario/riassunto

The Extractive Metallurgy series is devoted to the extraction of metals from ores and other sources, their refining to the state of either liquid or solid metal, and the various processes needed to carry out these operations. Using the methodology of chemical reaction engineering, this second volume in the series examines on the metallurgical reaction processes used in the extraction and refining operations, covering pyrometallurgical, hydrometallurgical, halide, and electro-metallurgical processes. It provides valuable information on the technologies and processes engineers encounter in industry.

2. Record Nr.	UNINA9910960123303321
Titolo	Seismic signals from mining operations and the Comprehensive Test Ban Treaty : comments on a draft report by a Department of Energy working group // Committee on Seismic Signals from Mining Activities, Board on Earth Sciences and Resources, Commission on Geosciences, Environment, and Resources, National Research Council
Pubbl/distr/stampa	Washington, D.C., : National Academy Press, 1998
ISBN	9786610246571 9781280246579 128024657X 9780309592192 0309592194 9780585146720 0585146721
Edizione	[1st ed.]
Descrizione fisica	1 online resource (68 p.)
Collana	The compass series
Disciplina	327.1/747
Soggetti	Blasting Rock bursts Induced seismicity Underground nuclear explosions - Detection Nuclear weapons - Testing - Detection
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Bibliographic Level Mode of Issuance: Monograph
Nota di bibliografia	Includes bibliographical references.
Nota di contenuto	Seismic Signals from Mining Operations and the Comprehensive Test Ban Treaty -- Copyright -- Preface -- Contents -- Executive Summary -- 1 Introduction -- CTBT GOALS -- CTBT MONITORING METHODS -- MINING ACTIVITIES THAT GENERATE SEISMIC SIGNALS -- AMBIGUITY AND ON-SITE INSPECTIONS -- GOALS OF DOE WORKING GROUP REPORT -- 2 General Comments on the Draft Report of the DOE Working Group -- 3 Restatement of the Problem -- 4 An Alternative Approach -- BACKGROUND -- COOPERATIVE MEASURES -- Passive Cooperation -- Active Cooperation -- HOW COOPERATION COULD

WORK -- ADDITIONAL BENEFITS -- 5 Communications -- TRADE ASSOCIATIONS -- PROFESSIONAL SOCIETIES -- GOVERNMENT AGENCIES -- 6 Additional Research -- SYMPATHETIC DETONATIONS -- PROGRAMMABLE DETONATORS -- GROUND FAILURES -- INSTRUMENTATION AND ANALYSIS OF GROUND MOTION WAVEFORM CHARACTERISTICS -- DISCRIMINATION OF SEISMIC SIGNALS -- 7 Conclusions -- Appendix A Specific Comments on the Draft Report of the DOE Working Group -- BLASTING -- Problem Statement -- Representativeness of the Study Site -- Blasting Recommendations -- Reduction of Charge Weights -- Amount of Explosive per Delay -- Smaller Borehole Diameters and Smaller Bench Heights -- Decoupled and Decked Charges -- More Stemming and Less Subgrade Drilling -- Delay Period -- Use of Programmable Detonators -- Close-in Seismic Warning Stations -- GROUND FAILURES -- CALIBRATION OF MINING SIGNALS -- PRESENTATION OF DATA -- Appendix B Executive Summary -- Appendix C Committee on Seismic Signals from Mining Activities.
