

24th International Mining Congress and Exhibition of Turkey

(IMCET 2015)

**Antalya, Turkey
14-17 April 2015**

Volume 1 of 2

Editors:

**Mehtap Gulsun Kilic
Hakan Basarur
Elif Torun Bilgic**

**Oznur Onel
Mehmet Karadeniz**

ISBN: 978-1-5108-0323-7

Printed from e-media with permission by:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571



Some format issues inherent in the e-media version may also appear in this print version.

Copyright© (2015) by the Chamber of Mining Engineers of Turkey
All rights reserved.

Printed by Curran Associates, Inc. (2015)

For permission requests, please contact the Chamber of Mining Engineers of Turkey
at the address below.

Chamber of Mining Engineers of Turkey
Selanik Caddesi No: 19/4
Kizilay / Ankara / Turkey

Phone: (+90) 312 425 10 80
Fax: (+90) 312 417 52 90

maden@maden.org.tr

Additional copies of this publication are available from:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: 845-758-0400
Fax: 845-758-2634
Email: curran@proceedings.com
Web: www.proceedings.com

TABLE OF CONTENTS

HISTORY, EDUCATION, AND POLITICS OF MINING AND ENERGY

2012 effects in the South African Platinum Sector

B. Genc 2

Estimating the Energy Costs of Mine Equipment Using an Information System

A. R. Sayadi, J. Khademi, and M. A. Rahimi 9

Indonesian Low Rank Coal Regulation: Economic Approach

T. Winarno and C. Drebendstedt 19

A case study: Incongruity in Mining Laws in India

P. Kumar 24

Coal Cities: Characteristics, Change and Forms of Intervention

S. Işın 32

Rethinking Impact Assessment of Mining Projects in the Context of Ecosystem Services

D. Damigos, M. Menegaki, D. Kaliampakos and V. Kazakidis 53

Energy Spectrum in India

B. Prasad and R. Prasad 65

Forecasting of Turkey's Coal Consumption Using Grey Prediction Technique

I. Karakurt, G. Aydin, S. Kaya, and C. Hamzacebi 77

Modeling of Coal Consumption in Turkey: An Application of Trend Analysis

G. Aydin, S. Kaya, and I. Karakurt 83

Modeling of Energy Consumption Based on Population: The Case of Turkey

G. Aydin, S. Kaya, and I. Karakurt 88

Recent Developments in Australian Mining Education

M. S. Kizil 93

Is Landfill Mining a New Prospect for the Mining Sector?

M. Menegaki, A. Benardos, D. Kaliampakos, and K. Tsakalakis 101

OCCUPATIONAL HEALTH AND SAFETY

A Review of Preconditioning and Its Influence on Mining Conditions with Particular Emphasis on Health and Safety

S. Modisha and T. Zvarivadza 113

A Risk Assessment Approach to Achieving Mining Safety Goals

D. Kent 123

Analysis Factors Influence To Mining Accident Using HFACS-MI Frameworks (A Study at Underground Coal Mining of CV. ABC)

A. Yulianto, M. N. Haramaini, and S. M. Siregar 132

Investigation on Dust Generated during Rock Cutting by Ansys Software <i>V. Raghavan, Ch.S.N.Murthy, and V.R.Sastry</i>	142
Determination of ^{222}Rn , ^{220}Rn and Their Decay Products in Natural Ancient Mine Measured with Nuclear Track Detectors: Radiation Dose Assessment <i>L. Oufni and M. Amrane</i>	151
Physiological Effects of Dust on the Human Body <i>B. Plush</i>	157
Preparation of anti-explosive materials by hydrophobization technique <i>E. Vogt</i>	165
Systematical and Radical Precautions in the Prevention of Mine Accidents and Professional Diseases <i>T. Güyagüler</i>	174
Wireless Health Monitoring System For Miners <i>A. Anas</i>	177
RISK ASSESSMENT AND MANAGEMENT IN MINING	
A Comparison: Empirical Methods or Artificial Neural Network for Peak Particle Velocity Prediction in DOZ Underground Mine <i>S. Prahastudhi, E. Riyanto, and D. Napitupulu</i>	188
Environmental Effects and Importance of the Risk Assessments for Mining Wastewater <i>A. Celebi and S. Özdemir</i>	193
Firefighting a Hidden Fire at TTT's Amasra Coalmine with the Innovative One Seven System <i>M. T. Stöttner, B. Inan, E. Erbay, R. Karaaslan, and G. Beyer</i>	200
Early Detection of Spontaneous Combustion Using Laboratory Gas Evolution Tests <i>T. Levi, B. Beamish, R. Brown, J. Theiler, and J. Pope</i>	206
Providing a Risk Model for Iran's Mines Based on Extreme Value Theory <i>R.Noori and M. AhmadSherbaf</i>	212
Risk Analysis in Mining Projects using Fuzzy Synthetic Evaluation Technique <i>M. H. Basiri and A. Azad</i>	221
Risk Reduction of Minerals' Revenue in the Economy of Resource Rich Countries <i>N. Adibee and M. Ataee-pour</i>	226
EXPLORATION STUDIES, MINING GEOLOGY AND GEOSTATISTICS	
3D Ore Model and Resource Estimation of Garpenberg North, Garpenberg Mine, Sweden <i>N. Fjellstrom</i>	235

Advancing Exploration Projects to Production: Critical Inputs for Success

A. Ebrahimi and J. P. Siddorn

244

An Alternative Multivariate Kriging Technique: Covariance Matching Constrained CoKriging

G. Ertunç, A.E. Tercan, and F. Atalay

250

The Integration of Artificial Neural Networks and Geostatistical 3D Geological Block Modelling - a Case Study on a Mineral Sand Deposit

A. B. Jalloh, K. Sasaki, and Y. Jalloh

257

Application of Plurigaussian Simulation Technique to a Cement Raw Material Deposit

T.Y. Yunsel and A.Ersoy

264

Characterization and Monitoring of Underground Cavities and Associated Disorders by Electrical Tomography

K. Hebbache, D. Benmeddour, M. Mellas, and A. Mabrouki

271

Comparative Study of Systemic Methods in Geochemical Data Optimization, for Cu-Mo Prospecting in Gulan Area, E-Azerbaijan, Iran

A.Nasseri, M.J.Mohammadzadeh, and S.H.Tabatabaei

276

Digital Borehole Camera Technology and Its Applications in Mining Geology Exploration

H. Zengqiang, W. Chuanying, and H. Sheng

287

Estimating the Reserve of Chelkureh Copper Deposit Using Ordinary Kriging Method

A. A. Daya

291

Fuzzy Analytical Hierarchy Process for Mineral Exploration Potential Mapping: a Case Study in Kamoshgaran Region (NW, Iran)

A. A. Daya and H. Bejari

298

Geochemical Anomaly Separation by Number-Size (N-S) Fractal Model in Nakhilab Region, SE Iran

N. Mazraee, A. A. Daya, and M. Boomeri

309

Geophysical Contribution to the Geological Study of the North Numidian Mercurial Zone (North-east of Algeria)

D.Boubaya, K.Allek, M.Hamoudi, and C.Fehdi

316

Geostatistics As a Tool to Estimate Undiscovered Deposits of Coal

F. Atalay, A. E. Tercan, and G. Ertunç

322

Identification of Geochemical Anomalies by Using of Concentration-Area (C-A) Fractal Model in Nakhilab Region, SE Iran

N. Mazraee, A. A. Daya, and M. Boomeri

327

Improving Mineral Resource Estimation Using Domaining: A Case Study

S. Al-Hassan and W. A. Anandorah

335

Interpretation of Environmental Data from an Exploration Perspective at the Adenac Molybdenum Corporation, Ruby Creek Molybdenum Project, BC, Canada and its Implications for Geochemical Exploration in Turkey

D.R. Gladwell, S. Caner, and E. Duran

343

Mapping Curie Point Depth of the West African Craton from Satellite Magnetic Data and its Implication for Diamond Exploration

A. Bouguern, K. Allek, M. Khalifa, F. Bendiab, and D. Boubaya

351

Optimization of Geochemical Patterns Based on Multivariate Methods in the Duzdusan Area, E-Azerbaijan

F. Javid, MJ. Mohammadzadeh, and A. Nasser

360

Providing Zinc and Lead Anomaly Maps Using U Statistic, Khooni District (Esfahan Province)

N. Mahvash Mohammadi and A. Hezarkhani

370

Separation of Anomaly from Background Using Concentration-Perimeter (C-P)

Method in Nakhilab Region, Northwestern Of Zahedan

N. Mazraee, A. A. Daya, and M. Boomeri

377

Spatial Association Analysis Between Hydrocarbon Fields and Sedimentary Résidual Magnetic Anomalies: A Case Study from the Algerian Triassic Province

K. Allek, A. Bouguern, D. Boubaya, and M. Hamoudi

385

Structural Controls of Gold Deposit Mineralization in Zarshouran Mine, Takab, Iran

H. Hassani and V. Farahani

396

ROCK MECHANICS AND GEOTECHNICAL APPLICATIONS

A Numerical Study on Deformation Measurement of Rock Materials using Electrical Resistance Strain Gauges

E. Komurlu, F. Cihangir, A. Kesimal, and S. Demir

407

A Review of the Properties of Foam Mine Fill

M. Hefni and F. Hassani

413

Advanced Data Processing of Ground-Based Synthetic Aperture Radar for Slope Monitoring in Open Pit Mines

A. Michelini, N. Coli, F. Coppi, P. Farina, L. Leoni, F. Costa, T. A. Costa, T. Costa , and G. Funaioli 420

Analysis of the Effects of Stoping Overbreak/Underbreak on the Effectiveness of Support Systems for Hard Rock Mining

B. S. Lukhele and T. Zvarivadza

428

Behavior of FPZ and Pre-existing Cracks in an Intact Rock Specimen Subjected to Uniaxial Loading

F. Küçüköztaş and N. Erarslan

438

Comparison of Mechanical Behaviour of G Class Cements for different Curing Time <i>D. Güner and H. Öztürk</i>	445
Correlation of Linear and Volumetric Fracture Densities in Jointed Rock Mass <i>H. Mirzaei</i>	452
EarthZyme – Paving a New Way for Haul Road Construction <i>T. Burns</i>	459
Effect of Placement Configurations on Strength Behaviour of Cemented Paste Backfill <i>E. Yilmaz</i>	469
Effect of Poisson's Ratio on Stress/Strain Concentration at Circular Holes in Elastic Plates Subjected to Biaxial Loading- Three Dimensional Finite Element Analysis <i>A. A. Abd-Elhady and M. N. N. H. AL-Maghribi</i>	481
Estimating of Hoek-Brown m_i Using Internal Friction Angle <i>S. Mehrishal, M. Sharifzadeh, and K. Shahryar</i>	488
Estimating Mechanical Properties from In-Situ Rebound Values of Some Nigerian Rocks <i>B. Adebayo</i>	494
Haulage Drift Stability Analysis- A Sensitivity Approach <i>W. Abdellah</i>	499
Geodynamic Zoning for Isolation of Radioactive Waste <i>V. Tatarinov, V. Morozov, I. Kolesnikov, and A. Kagan, and T. Tatarinova</i>	508
Improving Utilization of Face Rigs in Bord and Pillar Mining: A Zimbabwean Case Study <i>J. Kwiri and T. Zvarivadza</i>	514
In-situ Stress Measurements From Oriented Sub-cores Using Kaiser Effect <i>M. Karakus, S. Perez, and D. Goodchild</i>	524
Assessment of In-Situ Behaviour and Properties of Cemented Paste Backfill: Influence of Stope Height <i>E. Yilmaz</i>	530
Investigation of Strength Properties of a Sandstone Rock <i>A. Boutrid, S. Bensehamdi, M. Chettibi, and K. Talhi</i>	544
Determination of Slake Durability Index on Spherical Samples with Lime-Water Treatment <i>H. Ankara, G. Bayar, and M. Aksoy</i>	550
Micro-Mechanical and Micro-Structural Aspects of Strength Variation in Rocks under Various Loading Conditions <i>N. Erarslan, M. Ghamgoshar, and D.J. Williams</i>	554

Numerical Study of the Undrained Bearing Capacity of a Strip Footing Near a Slope <i>M. Baazouzi, M. Mellas A. Mabrouki, and D. Benmeddour</i>	561
Numerical Study of the Effect of Increasing Strength with Depth on the Undrained Bearing Capacity of Strip Footings <i>M. Ouahab, A. Mabrouki, M. Mellas, and D. Benmeddour</i>	566
Open Pit Mine Waste Dump Area Design based on Stability Principles <i>CA. Öztürk, S. Erçelebi, İE. Önsel, M. Özkan, M. Zengin, D. Arslan, Y. Tuncel, and Z. Baz</i>	570
Performance Evaluation of Paste Backfill in Imiter Silver Mine, Ouarzazate Region, Morocco <i>K. Abdelhadi, O. Latifa, and B. Khadija</i>	579
Pit Slope Optimization Based on Hydrogeologic Inputs <i>G. Evin, , F. Henriquez, and V. Ugorets</i>	588
Prediction of Open Pit Mine Slope Variation Based on Geo-Mechanical Uncertainty using Artificial Neural Network (ANN) <i>A. R. Kamrani, M. Osanloo, and M.Minaei Mottaker</i>	598
Stability Analysis and Optimized Slope Angle for the Iron Ore Open-Pit Mine <i>S. Akdag, H. Basarir, C. Karpuz, and M. Ozyurt</i>	606
Study of The Bench Slope Stability By Numerical Method, Case of Ouenza Mine Algeria <i>R. Adil, M. L. Boukelloul, and K. Talh</i>	612
Assessment of Engineering Behavior of Foliated Rocks Using Some Index Tests <i>D. Fereidooni, G. R. Khanlari, M. Heidari, and A. A. Sepahigero</i>	617
The Relation between Uniaxial Compressive Strength and Block Punch Index for Pyroclastic Rocks <i>S. Kahraman and M. Saribiyik</i>	630
Thermo-Mechanical Behaviour of Rocks from the South African Platinum Mines <i>G. O. Oniyide and H. Yilmaz</i>	637
MINE DESIGN, MODELLING, AND OPTIMIZATION	
A Prototype of Real Options Valuation Framework for Open Pit Mines Planning: A Road to Build a Dynamics Decision Making Tools <i>I. Inthavongsa, P. Sontamino, and C. Drebendstedt</i>	646
Determining Refuge Chamber Location in Underground Tunnel Using 3D Computer Modelling <i>C. Dogruöz and M. Özdemir</i>	655
Long Term Planning In Open Pit Mines In Presence Of Commodity Price Uncertainty <i>M. Rahmampour and M. Osanloo</i>	660

Measuring Mine Planning Software Utilisation for Decision-Making Strategies in the South African Iron Ore Mining Sector <i>B. Genc and C. Musingwini</i>	668
Mine Design for Silopi Üçkardeşler Asphaltite Vein <i>S.G. Erçelebi, C.A. Öztürk, İ.E. Önsel, and M. Özkan</i>	683
The Future of Mega Data in Virtual Reality Environments in Mining Practice <i>F.T. Suorineni</i>	691
The Issue of Abandoned Mining Exploitations in Albania <i>G. Muka, V. Jorggi, T. Korini, and R. Balla</i>	700
The Practicable Combination of Open Pit with Underground Mining Methods- a Decade's Experience <i>E. Bakhtavar</i>	704
A Contemporary Approach in Geotechnical Slope Stability Analysis: Lithological Implicit Modelling <i>A.G. Yardimci and H. Basarir</i>	710
Analysis of Sulphur Contents in Coal by Means of Henry's Beneficiation Curve Approximation <i>T. Niedoba and A. Surowiak</i>	717
Development of New Correlations to Predict Acid Fracture Conductivity Based on Rock Strength <i>M.R. Akbari, M.J. Ameri, S. Kharazmi, and H.A. Zafarian</i>	722
Forecasting Crude Oil Price with an Artificial Neural Network Model based on a Regular Pattern for Selecting of the Training and Testing Sets using Dynamic Command-Line Functions <i>M.H. Basiri, F. Javadnejad, and A. Saeedi</i>	732
Impact the Parameter Effect of Vibration on Collision Efficiency in Flotation <i>Kr. Dedelyanova and J. Dimitrov</i>	742
Solvent Extraction of Palladium from Chloride Media by TBP <i>N. Sadeghi and E. K. Alamdari</i>	747
Kinetics of Hematite Decomposition Reaction at Different Heating Rates in Air <i>M. Salmani, E. K. Alamdari, S. Firoozi, and M. Azizkarimi</i>	752
Modeling and Analysis of Residence Time Distribution in Industrial Mechanical Flotation Cells <i>A. Hassanzadeh, E. Farhadi, and A. Azizi</i>	757
Optimal Mine Extraction Sequencing Using Meta-heuristics <i>Y. A. Sari and M. Kumral</i>	764

Physical And Numerical Modeling Behavior Of Two Piles Under Horizontal Loading Cyclic

M. Akchiche, A Rouag, and K Djedjig

768

Pratical Considerations for Real-time Recovery Calculation Using an On-Stream Analyzer

J. Timperi and J. Loimi

776

Prediction of Final Concentrate Grade Using Artificial Neural Networks from Gol-E-Gohar Iron Ore Plant

S. H. Hosseini and M. Samanipour

783

Production Scheduling using Augmented Lagrangian Relaxation and Genetic Algorithm Optimization

E. Moosavi, J. Gholamnejad, M. Ataee-pour, and E. Khorram

788

Simulation of Thermal Profile in a Single Pellet during Drying Process with CFD Method

A. Gitiara, A. Namehi, H. Vali, H. R. Shahrokhshahi, H. Soltani, E. K. Alamdari, and A. Cheraghi

797

GIS AND TOPOGRAPHY APPLICATIONS

Comparative Analysis of Coordinates of Mine Traverse Points Determined on the Basis of Polygon and Tachymetric Traverse

A. Ganić and A. Milutinović

805

Diffusion of Geographic Information System at Municipalities in Istanbul

M. Çavur, M. Özturan, C. Karaduman, and A.B. İçli

810

Rockfall Hazard Zonation based on Weights of Evidence Modeling of the Doroud – Andimeshk Railway Track, NW Iran

H. Hassani and M. Gholinezhad

821

Surface Displacement Monitoring - Using Satellite InSAR for Mining Operations

D. Colombo

829

The Application of Weight of Evidence Method for Zn Mapping in Takhte-Soleiman, Iran

M.M. Oskouei, M. Bicharanio, and A.R. Jafari Rad

839

The Porosity Estimation of Porous Basalts by Using Image Processing Methods

O. Akkoyun, S. N. Ergene, K. Çiftci, and S. Yalvac

845

DRILLING AND BLASTING, DRILLING TECHNOLOGY, AND MECHANIZATION

Air Quality During Excavation Of Tunnels In The Rijeka Motorway Bypass

M. Klanfar and D. Vrkljan

851

Assessment of Safe Ground Vibration Level in Sensitive Hilly Slopes Ensuing Human Response <i>C. Sawmliana, R. K. Singh, and P. P. Roy</i>	860
Blastability Characteristics of Ewekoro Limestone Using Rock Mass Classification <i>B. A. Adebayo, P.R. Adeniyi, and S.A. Agbalajobi</i>	867
Charge Distribution Pattern For Different Zones In Tunnel Blasting Operations: Case Study Of The Alborz Tunnel <i>M. Mohammadi, M F. Hossaini, SA. Taleghan, R. Bolghonabadi, and N. Hajiantilakil</i>	874
Improving Drilling And Blasting Programs At Al-Jazi Limestone Quarry-Lafarge-Jordan <i>M. Amaireh</i>	880
Numerical Study Of The Behaviour Of Jointed Tunnel Lining <i>M. Barzegar, S. Gharehdash, and M. Sharifzadeh</i>	886
Evaluation of Blast Induced Ground Vibrations at Ozarslan Quarry <i>M.C. Ozyurt, U. Kalayci, A. Karadogan, and U. Ozer</i>	894
Plaster Stemming Application at a Basalt Quarry: a Case Study <i>H. Cevizci, H. Yavuz, S. Caran, and Y. Tosun</i>	901
Analysis of Impacts of Ground Condition on Performance of a Hard Rock TBM in Alborz Service Tunnel Project <i>M. Hedayatzadeh, C. Dogruoz, J. Rostami, and J. K. Hamidi</i>	907
Availability Analysis of Drum Shearer Machine; A Case Study <i>S. H. Hoseinie, B. Ghodrati, and A. Hosseini</i>	913
Determination of Optimum Drum Shearer for Tabas Mine Using Decision Making Process <i>E. Bakhtavar</i>	919
Review of Graphical Methods Utilized in System Reliability Assessment <i>D. Tuncay and N. Demirel</i>	925
Review of Trend Tests for Detection of Wear-Out Period for Mining Machineries <i>O. Gölbaşı and N. Demirel</i>	933
Tool Wear Estimation in Erath Pressure Balance (EPB) Machine Tunneling <i>M. Hedayatzadeh and D. Peila</i>	940
Sensitivity Analysis of the Underground Mining Machines Based on Power Generating System <i>C. Dogruoz, R. Schatz, A. Nieto, and S. Lvov</i>	949
Role of geophysical technique to validate the subsurface strata conditions due to blasting in underground coalmines <i>K.K.K. Singh, P.K. Singh, M.P. Roy</i>	956

MINE VENTILATION, METHANE, AND SHALE GAS

An Initial Investigation of Room and Pillar Ventilation Using CFD to Investigate the Effects of Last Through Road Velocity

T. Feroze and H.R. Philips

970

Underground Environment Management System

M. B. Massanés, L. S. Pera, and J. O. Moncunill

978

Numerical Study on the Fire Protection System in The Galaje Tunnel

B. Niknam, K. Shahriar, and H. Madani

984

Possibilities to Priorly Establish the Structure of Ventilation Networks Affected by Underground Explosions

D. Cioclea, G.A. Găman, I. Gherghe, F. Rădoi, C. Boană, and V.M. Păsculescu

991

Provenance of Organic Matter Preserved in the Chattanooga Shale at Hurricane Bridge, Tennessee, as Indicated by Organic Carbon Isotope

M. Musa, A. Swadan, and J. Puckette

998

Estimation of Coal Gas Content Using Geostatistical Methods in GIS Environment: a Case Study From Tabas Coal Mine

V. Vaziri, J. Khademi Hamidi, and A.R. Sayadi

1007

Uncertainty and Variability in Gas Desorption Measurements from Coal

J. Pope, A. Dutton, and C. Nelson

1016

Study of Porosity and Permeability of Coal and Coal Measure Rocks from Raniganj Coalfield of India

B. K. Prusty, S. K. Pal, and J. H. Kumar

1024

Gas Content and Spontaneous Combustion Investigations for Uckardesler Asphaltite Vein

A. Fisne, S.C. Özer, O. Esen, C.A. Öztürk, and S. Erçelebi

1034

COAL AND COAL TECHNOLOGY

Geology and Mineralogy Investigation of Pb-Zn Mineralization in El Abed Deposit, Algeria

H. Chaa and A. Boutaleb

1043

Chemical Inhibitors – Scope for Using Control and Combating Surface Mine Fire as Clean Coal Technology

R. V. K. Singh

1047

Effective Approaches for the Fast Liquidation of Locked up Coal in Standing Pillars in Indian Underground Coal Mines

A. Kushwaha, R. Bhattacharjee, S. Tewari, and A. Sinha

1055

R&D in Coal Sector in India*A. K. Debnath, V. K. Sinha, and B. Prasad*

1064

Selection of Recovery Sieve Size in Oil Agglomeration of Coal*E. Sahinoglu and T. Uslu*

1073

An Assessment of Turkish Lignite Fields for Underground Coal Gasification*K.Het, S.Yürek, D. W. Camp, J. L. Wagoner*

1078

INDUSTRIAL RAW MATERIALS AND PRECIOUS METALS**Gravity Concentration and Sensor-based Sorting to Value Recycled Aggregates***R.S. Paranhos, R.O. Neto, B.G. Cazacliu, F. Huchet, C.H. Sampaio, and C.O. Petter*

1088

Influence of Cutting Wire Tension on Travertine Cutting Rate*S.N. Almasi, R. Bagherpour, R. Mikaeil, and A. Khademian*

1096

Optimum Distance Between Cutting Machine And Working Face In Travertine Exploitation With Diamond Wire Cutting Method*A. Khademian, R. Bagherpour, S.N. Almasi, and M. Aalaei*

1103

Numerical Modelling of the Influence of Coefficient of Utilization on the Exploitation Profitability of Dimension Stone Deposit*I. Galić, D. Vidić, and B. Farkaš*

1111

DESIGN OF MINERAL PROCESSING PLANTS AND BENEFICIATION METHODS**A Technology for Force Field Separation in Vibrofluidized Layers of Granular Materials***L.A. Vaisberg, K.S. Ivanov, S.V. Dmitriev, A.O. Mezenin*

1120

Comminution: Technology, Energy Efficiency and Innovation*B. Klein, N. E. Altun, and M. J. Scoble*

1125

Comparative Study of Mineral Processing Applied To The Local Feldspar's Assessment*R. Akkal and M. Ouldhamou*

1135

Effect of Calcination on the Grindability of Concentrated Phosphate of Djebel Onk Algeria*A. Bouzenzana*

1144

Predicting Size Distribution of Jaw Crusher Product by Using Discrete Element Modelling (DEM)*H. Es-haghi, B. Rezai, and A. Refahi*

1153

Examination of Albanian Chromite Ores In Terms of Liberation Size and Ratio Problem*H. Bastürkcü, B. Aydin, M. Özer, and A.E. Yüce*

1160

Beneficiation of Dry Magnetic Separator Tailings Using Dense Medium Cyclones: A Simulation Study <i>A. Aghlmandi Harzanagh and S. L. Ergün</i>	1169
Flotation Circuit Efficiency Enhancement Regarding Increase of Rougher Cells Throughput <i>A. Hassanzadeh and A. Azizi</i>	1175
Granulometric Separation in Laminar Flow <i>I. Grigorova and I. Nishkov</i>	1180
Evaluation of Spiral Chromite Tailings of South Africa <i>S. B. Aydin, M. Özer, and A.E. Yiuce</i>	1189
Recovery of Silver From an Arsenical Silver Ore by Knelson Concentrator and Cyanide Leaching <i>O. Celep, P. Altinkaya, E.Y. Yazici, and H. Deveci</i>	1194
Effect of Hot Water Absorption on the Flexural Properties of Jute Mat Fiber Reinforced Polymer Matrix Composite <i>E. A. Elbadry</i>	1199
Influence of the Impurities on the Quality of Kaolin Collected From the Field of DjebelDebbagh, Algeria <i>M. Laraba and A. Roula</i>	1205
Microstructural Evolution of Consolidated and Unconsolidated Cemented Paste Backfills by SEM-EDS Analysis <i>E. Yilmaz</i>	1211
Evaluation of Grout Curtain Efficiency of Kalu-Ganga Dam <i>A. Aalianvari</i>	1224
Selection of Chromite Processing Plant Site Using The Fuzzy TOPSIS Approach <i>H. Bejari and A.A. Daya</i>	1229
Effect of Different Depressants on Galena Flotation <i>Ü. Yenial, A. Gül, ve Ü. Yilmaz</i>	1236
Matematical Modeling of Elementary Act of Flotation in Vibratory Column Machine <i>J. Dimitrov and Kr. Dedelyanova</i>	1241
Optimization of Physico-Chemical Parameters of Pyrite Flotation <i>M. Chettibi, A. Boutrid and A.A. Abramov</i>	1246
Selection of Flotation Reagents in Order to Improve Metal Recovery from Ores via Computer-Aided Approach <i>P.M. Solozhenkin and O.I. Ibragimova</i>	1255
Mechanical Properties of Feldspars and Their Influence on the Choice of Method of Comminution <i>R. Akkal, M. Ouldhamou, and S. A. Hadj-Sadok</i>	1264

HYDROMETALLURGY AND BIOHYDROMETALLURGY

Extraction of Gold and Silver from Bolkar Gold Plant Tailings

H. Bastürkçü, F. Burat, M. Özer, A. Güл, and A. A. Sirkeci

1272

Determination of Leaching Cutoff Grade Using Economical Evaluation in Sarcheshmeh Copper Mine

S. N. Almasi, R. Bagherpour, A. Khademian, and R. Yarahmadi

1277

Evaluation of Phase Transformation During Mechanochemical Leaching of Zinc from Zinc Plants Residues in Alkaline Medium

P. Ashtari and P. Pourghahramani

1286

Galvanic Leaching of Chalcopyrite Using Manganese Oxides in Spent Carbon-Zinc Batteries

H. Nakazawa and W. Hareyama

1292

Improvements the Performance of the Sungon Secondary Flotation Circuit

P. Pourghahramani and A. Bagherian

1299

Microstructural Characterization of Pyrite during Mechanical Activation by Using Rietveld and XRD Line Profile Analysis

B.N. Akhgar and P. Pourghahramani

1306

Preparation of Nano Zero-Valent Iron (NZVI) From Mechanochemically Treated Pyrite

B.N. Akhgar and P. Pourghahramani

1311

Recovery of Indium From Zinc Oxide Flue Dust

W. Liu, H. Luo, W. Qin, Y. Zheng, K. Yang, and J. Han

1317

Recovery of Valuable Metals from E-Waste, Part (I): Use of Central Composite Design for Evaluation of Copper Recovery from Electronic Waste Leaching

Y. Nosratzad, M. Kavousi, A. Sattari, E. K. Alamdar, D. Haghshenas, D. Darvishi, A. K. Alamdar, and A. B. K. Rafsanjani

1326

Recovery of Valuable Metals from E-Waste, Part (II): Selective Solvent Extraction of Copper

M. Kavousi, A. Sattari, E. K. Alamdar, S. Firooz, D. Darvishi, A. K. Alamdar, and A. B. K. Rafsanjani

1330

Selective Zinc Recovery From a Valuable Iranian Zinc Plants Residue Using a Facile Selective Alkaline Leaching Method

P. Ashtari and P. Pourghahramani

1333

Simulation of Fluid Flow in the Settler of Copper Solvent Extraction

D. Mansourian, S. Parvizi, O. Kazemi, and E. K. Alamdar

1339

Solvent Extraction of Selenium in Hydrochloric Acid Media by Using Triisobutyl Phosphate/Dodecaol Mixture

A. Sattari, M. Kavousi, E. K. Alamdar, D. Darvishi, A. K. Alamdar, and A. B. K. Rafsanjani

1346

Study of the Zircon Processing Aiming the Recovery of Zirconium and Silica*C. A. Ferreira, C. A. Morais, and T. S. Formiga*

1351

Sulfation Roasting and Water Leaching of Lepidolite*TT. Hien-Dinh, VT Luong, T. Tran, and R. Giere*

1357

RECYCLING**Comparison of Two Consolidation Methods of Waste Fill in Longhole Open Stoping***S.B. Avci and İ. Erdem*

1364

Optimization of Copper Recovery from Copper Converted Slag. Part I:**Pyrometallurgical Aspects***B. Aghelnejad, R. Golmohammazadeh, E. K. Alamdari, S. Firozi, D. Haghshenas, D. Darvishi, A. K. Alamdari, and A. B. K. Rafsanjani*

1371

Optimization of Copper Recovery from Copper Converted Slag. Part II:**Hydrometallurgical Aspects***R. Golmohammazadeh, B. Aghelnejad, E. K. Alamdari, S. Firozi, D. Haghshenas, D. Darvishi, A. K. Alamdari, and A. B. K. Rafsanjani*

1375

Recovery of Nanoparticles from Flue Gas Using Dielectrophoresis*A. Neculae, A. Lungu, N. Strambeanu, and M. Lungu*

1382

Recycling Mixed Plastic Waste and its Blend with Sawdust as Reductant in Ironmaking*J. R. Dankwah, E. Baawuah, J. Dankwah, and P. Koshy*

1389

The Dissolution of Vanadium in Silica Sand with Organic and Inorganic Acids*H. Hacıfazlıoğlu, İ. Kurşun, T.D. Tombal, and M. Terzi*

1395

MINING AND ENVIRONMENT**Forestry Biological Reclamation of Damaged Mining Terrains***I. Grigorova and I. Nishkov*

1403

Effect of Crack Width, Length, and Depth on Surface Disposal of Sulphidic Paste**Tailings***E. Yilmaz*

1410

Possibilities for Reclamation by Using Suitable Geological and Waste Materials*P. Pavlov, M. Banov, and P. Ivanov*

1420

Restoration of Land Damaged in Mining Activities*M. Banov, P. Pavlov, and M. Blagiev*

1425

A Review of Acid Mine Drainage in Turkey*S.Y. Kandemir and H. Ankara*

1432

Gas Monitoring in the Environment, Following a Fire in an Underground Touristic Facility

M. Kovacs, G.A. Găman, A. Calamar, L. Toth, and S. Simion

1436

Impacts of Mechanical Preparation and Agglomeration of Iron Ore on Environment. Case: Arcelormittal Annaba (Algeria)

Z. Mekti, A. Boutemdjed, M. Bouounouala, M. Boukeloul, and A. Idres

1443

Investigation of Environmental Pollution Caused by Waste Dump of Takab Gold Mine in West-Azharbaijan of Iran

E. Moosavi, A. Vameghi, and R. Javani

1449

Studies on Gravity Backfilling Method for Blind Backfilling of Abandoned Coal Mines

S.K. Pal, S. Panda, and A.K. Tripathi

1453

Mathematical Analysis of Spontaneous Fire in Coal Mines for Designing More Efficient Fire Control Techniques

D.D. Tripathi, A. Sinha

1466

Modeling of Turkey's CO₂ Emissions Using Economic and Demographic Variables

I. Karakurt, G. Aydin, and S. Kaya

1474

Opportunities for Environmental Impact Assessment of the Geothermal Area Beiuș

R. Călburean, V.A. Codrea, and O. Barbu

1480

Overview of Zone Monitoring of Flotation Tailing Dump "Veliki Krivelj", Serbia

M. Mikić, M. Ljubojev, D. Kržanović, I. Jovanović, and D. Urošević

1486

Predicting the Levels of Noise from Quarry Operations

K. J. Bansah, E. Assan, and C. Bosompem

1492

Protection of Cultural Heritage from the Area of Future Open Cast Mine Radljevo

N. Drljevic and G. Tomic

1497

The Life of Tires on Wheeled Heavy Duty Mining Vehicles from Point View of the Environmental Apprehension

I. Celik and C. Sensogut

1504

The Study of Risk Movements of Land Related to Underground Mining Work and Environmental Impact Of Soil and Basement (Case of Boukhadra Iron Ore Mine-Algeria).

M.L. Boukelloul, K. Talhi, R.Adil, M. Bouounouala, A.Idres, and A. Boutrid

1513

Valorization and Recycling of Quarries Waste as an Addition in Cement

S.Berdoudi, H.Heboub, M.Belachia, and R.Djebien

1521