# Table of contents

Foreword XV

1 *Comminution, liberation, sizing, and material transport*

Microwave assisted comminution and liberation of minerals
*Y.Wang, E.Forssberg & M.Svensson*

Material transport in mineral processing systems
*A.-Z.M.Abouzeid*

Vibration grinding – An approach for secondary use of refuse metallic aluminum
*L.V.Kuzev & N.Hristov*

The eccentric vibratory mill – Innovation of finest grinding
*E.Gock & K.-E.Kurrer*

Energy optimization in the comminution processes
*M.Grujic & D.Salatic*

The influence of the degree of the fragmentation of the blasted rock on the costs
*T.Chrzan*

A comparison of wet and dry autogenous grinding
*J.Chmelar & K.L.Sandvik*

New primary crushing system for processing of borate ores
*T.S.Griffin & T.L.Downing*

The influence of different types of grinding stress on the production of chromium chemicals
*H.Dincer, G.Önal & E.Gock*

Optimization of grinding time in a ball mill-attrition bead mill process
*R.Tuunila*

Investigations on the alternatives to obtain finer flotation feed at Küre grinding circuit by simulation
*Ş.L.Ergin, Z.Ekmekçi, Ö.Y.Gülsöy, N.M.Can, E.C.Örhan, S.Dikmen & A.Obut*

Modelling and simulation of grinding circuit at Çayeli Bakır İşletmeleri A.Ş., (ÇBİ) flotation plant
*Ş.L.Ergin, S.Ersayın, Ö.Y.Gülsöy, Z.Ekmekçi, N.M.Can & A.Aslan*
The effects of various surface-active agents on the breakage of calcite in a laboratory porcelain mill
A.Özkan & M.Yekeler

Effect of sampling on precision of particle size analysis
G.B.Başım, B.M.Moudgil, M.A.Khalili & W.Rohricht

2 Physical enrichment processing

Improvement of Bulqiza chromium ore treatment
G.Demi, S.Boci & S.Cico

Applicability of multi-gravity separation to KOP chromite concentration plant
T.Çiçek, I.Cöcen & M.Birlik

Enrichment of fine specular hematite tailings by Mozley multi-gravity separator for use in the paint industry
Y.Cilingir, Ş.Sen, A.Seyrankaya & E.Güler

A new approach to the evaluation of the Hasançelebi iron ore deposit

Calculation of unstationary trajectories of particles from the mechanical parameters of an air pulsated jig
M.Polat & M.Kemal

A laboratory density analysis developed using non-toxic heavy liquid
B.Eroğlu & H.Stallknecht

Investigations on high gradient magnetic separation processes in rheological media
M.Sarkaya, T.Abbasov & M.Erdemoğlu

Red mud minimization by iron removal – Iron reduction
Q.Xiang, M.E.Schlesinger & J.L.Watson

Hematite thermomagnetization in open air
M.L.Khairakhan, S.M.Kreymin & O.N.Generolov

Effect of thermal treatment on the removal of clay from colemanite
S.Girgin, S.Yiğit, N.Acarkan & A.A.Sirkeci

3 Fine particle processing

Aggregation of fine particles in mineral processing circuits
J.S.Laskowski

Prospects of high-velocity waterjet in mineral processing
P.Carbini, R.Ciccu, M.Ghianì, A.Serri, C.Tilocca, A.Bortolussi & F.Satta

Oil agglomeration of Zonguldak bituminous coal
İ.Ünal & Z.Aktas

Concentration of celestite by oil agglomeration
Y.Cebeci, UUlusoy & M.Eriten
On the influence of the disturbed conditions in the centrifugal concentration of heavy fine particles
B.Patcjejeff, S.Gaydardjie & S.Stoev

Effect of some physical and chemical variables on flocculation and sediment behaviour
H.Polat, M.Polat & Ü.İpekölü

Influences of soda-water glass binder and pelletization conditions on the quality of fluorite pellets
V.Jovanovic, D.Radulovic, S.Martinovic & S.Popov

Behavior of oversize particles in pelletizing
A.Başdağ & A.I.Arol

4 Flotation fundamentals
Physico-chemical fundamentals of nonsulphide minerals flotation
A.A.Abramov

Physico-chemical models for activation, flotation and depression of pyrite in copper flotation
A.A.Abramov & G.Önal & Z. Doğan

Flotation properties of a particular type of sphalerite
G.Bulut, İ.Kavak & S.Atak

Effect of electrochemical environment on collectorless flotation of some sulphide minerals
M.K.Matabishi, R.Handfield-Jones & G.Akdoğan

Electrochemical potential in single and mixture of mineral slurries
F.Göktepe & K.P.Williams

An electrochemical investigation of sulphide ore flotation in the presence of Fe₂(SO₄)₃
F.Göktepe & K.P.Williams

The effects of metal ions on the selectivity of feldspar-quartz separation
F.S.Kilavuz & Ö.Y.Gülsoy

Electrokinetic behavior of borax in saturated solutions and its role in flotation
M.Müdüroğlu, M.S.Chelik, M.Hançer & J.D.Miller

The use of metallic electrodes in order to increase the selectivity of adsorption-desorption phenomena at the processing of a complex ore
M.Podariu, P.Ilie, I.Straut & V.S.Babineti

New collectors for Co(II) and Ni(II) removal from aqueous systems by flotation (DAF)
L.Stoica, C.Constantin, O.Micu & A.Meghea

The changing of superficial properties of some non-ferrous minerals as a result of ionic-molecular composition of flotation pulp
G.Filip, P.Ilie & S.Danciu

Selective flotation of ilmenite from ilmenite-rutile mixtures
M.Köse, Ç.Hoştan, Y.Topkaya & M.Akser

Role of some physical variables on gangue and water recovery in froth
Ü.Akdemir & T.Güler
5 Flotation technology

Iron ore beneficiation in the USA: Past and future
I. Iwasaki

Interactive effects of pulp potential and oxygen content on copper-zinc separation at Çayeli Bakır İşletmeleri A.Ş. (ÇBİ) flotation plant
Z. Ekmekçi, A. Aslan, S. L. Ergün, Ö. Y. Gülsoy & N. M. Can

Effects of reagent scheme changes on flotation performance in ÇBİ Mill
B. Aksan & M. N. Mian

Cell-by-cell approach for performance evaluation in flotation circuits
Ö. Y. Gülsoy, Z. Ekmekçi, S. L. Ergün, F. Kilavuz, N. Karapınar & H. Hasso

Control of modified flotation columns by computer
B. Öteyaka, O. Parlaktuna & A. Pirinç

Application of a new beneficiation method to ultrafine-size chromite
A. Güney & G. Önal

Beneficiation of gold sulphide ores from South Sardinia, Italy
M. Ghiani, A. Serci, R. Peretti & A. Zucca

6 Industrial minerals processing

Beneficiation of nepheline syenite ore for glass and ceramics industry
A.-Z. M. Abouzeid, A. A. Negem, T. R. Boulos & H. A. Ahmed

Removal of heavy minerals from albite of Muğla-Milas district by froth flotation
G. Akar, A. Seyrankaya, E. Güler & A. Akar

Recovery of feldspar from altered granites
B. Öteyaka, K. Bilir, H. Gürsoy, Y. Uçbaş, R. Bozkurt & M. Çiftçi

Concentration of feldspar from trachyte
V. Bozkurt & Y. Uçbaş

Beneficiation of Simav-Dağardı feldspar by flotation
C. Karagüzel, A. Yamuk & İ. Bentli

Beneficiation of bentonite from kaolin deposit in aqueous media by changing pH
S. E. El-Mofy

Obtaining of natural iron-oxide pigments
D. Skendzic, D. Milic, S. Mrdakovic & M. Vranic

Processing of iron oxide minerals as pigment raw material
F. Gökgöz & H. Demirel
7 Coal processing

Preparation of coal blends for coke-making
H.Z.Kuyumcu 353

Effect of coal cleaning and SO$_2$ allowance on cost of compliance coal
H.Sevim, A.Patwardhan, B.Huang & R.Q.Honaker 367

Enhanced gravity beneficiation using a dense-medium for fine particle gravity separations
R.Q.Honaker, N.Singh & D.P.Patil 373

Effect of dispersant addition on separation of sulphur from coal by magnetic separation
F.Boylu, G.Ateşok & M.Z.Doğan 379

Computer-based monitoring and control systems in coal preparation plants
S.Cierpisz 385

Effect of collector emulsification on coal flotation kinetics and on recovery of different particle sizes
A.M.Saleh 391

Efficiency improvement of fine coal flotation using the modifying effect of sodium sulphide
S.Krausz, V.Ciocan & G.Cristea 397

The investigation of the effect of coking time and temperature on metallurgical coke production by using a mixture of coking and non-coking coal
Ü.Özden 403

Effect of replacement of coke breeze by petroleum coke on the parameters of sintering process
M.E.H.Shalabi, A.M.Barka, M.A.Abdalla & S.S.Abdel Moment 409

Environmentally friendly production of smokeless fuel from high volatile coals
D.Kelter, C.Wirtgen & J.Heil 415

Effect of demineralization and activation conditions on properties of active carbon from waste coals
M.A.Rabah & S.Moawad 421

Recovering of fine coal particles from tailing ponds of TKİ Alpagut-Dodurga coal washing plant
H.Koca, S.Koca & M.Karaoğlu 427

The industrial system for the gravity separation of the coal tailing
M.R.Ignjatovic, Z.Sekulic, Z.Bartulovic & N.Canic 433

Separation of coal refuse from Maxim dump by means of hydrocycloning
L.V.Kuzev, Chr.Hr.Zvetkov & Hr.Cr.Zvetkov 437

Focusing on the combustion properties of binder added coal
C.Hicyilmaz & N.Emre Altun 441

The influence of moisture on particles and gas emission regularities in the combustion of lignite of Turkey
G.Önal, M.Özer, F.Boylu, Y.E.Benkli & I.Mustafaev 447
Preparation and selection of coal for blast furnace coal injection

A. Turan

8 Hydrometallurgy and bioprocessing

Extraction of alumina from low grade, highly siliceous bauxite ore from Khushab, Pakistan, using sulfuric acid process

S.A. Hussain & M. M. Iqbal

Experimental simulation of oxidative leaching of Co-Ni tailings

E.P. Bortnikova, O.L. Gaskova, S.B. Bortnikova & D.I. Bessonov

A new alternative in tungsten production: Chelate-added acidic leaching

S. Gurmen, S. Timur, C. Arslan & I. Duman

Kinetics of rhenium extraction with triocyclic ammonium hydrosulfate from sulfuric acid media


Radiogenic osmium recovery during rhenium extraction from sulfate solutions

Z.S. Abisheva, A.N. Zagorodnyaya, E.G. Bochevskaya & T.N. Bukurov

Electrodeposition of tungsten-rhenium alloys from solutions after processing rhenium-tungsten-bearing wastes


Process analysis of MnO₂ leaching by industrial waste: STR and column tests


Comparative study for the solvent extraction of uranium from wet process phosphoric acid using two convenient organic solvents

S. Girgin, N. Acarkan, M. Sevinç, N. B. Yüksek & S. Acarkan

Experimental evidences on the iron removal from a kaolin by acid leaching

M. Trifoni, F. Pagnanelli, B. Passariello, M.A. Esposito, G. Scoccia, L. Mosca & F. Vegliò

The prospects for an alternative gold leach reagent: Thiourea

S. Örgülü & Ü. Atalay

Thiosulphate: An alternative lixiviant for gold ore

M. Tanriverdi, H. Mordoğan, Ü. İpekoğlu & S. Şen

Ammoniacal thiosulphate leaching of Ovacık gold ore

F. Arslan & B. Sayuner

Leaching pretreatment for gold-bearing refractory stibnite

S. Ubaldini, C. Abbruzzese, F. Vegliò & M. Trifoni

Processing of Hafik-Madentepe copper slags using conventional and leaching methods

S. Aydoğan, M. Canbazoğlu, Ü. Akademir & V. Gürkan

The leaching of celestite in sodium sulfide solution to produce strontium carbonate

M. Erdemoğlu, M. Canbazoğlu & M. Sarıkaya

Beneficiation of Denizli – Acigöl sodium sulphate ore by exploiting its structural properties

U. Malayoğlu & A. Akar
Investigation of solubility parameters prior to processing of Kestelek colemanite
S.G. Özkın

Kinetics of formation of sodium chromate from El-Baramiya chromite ore concentrate with soda ash pellets
M.E.H. Shalabi, N.A. El-Hussiny, S.Y. El-Affiy, N.N. El-Ebiary & F.M.S. Zaher

Effect of bacterial treatment on silver recovery from Artvin-Kafkasör ore
Z. Özdemir, G. Özbayoğlu, Ü. Atalay, G. Özcengiz & G. Alaeddinoğlu

Biologically assisted ferric ion leaching of a refractory copper sulphide ore
A.A.S. Seifelnassr & F.D. Pooley

Biosorption of toxic metals: Effect of pH, reversibility and comparison with a kaolin as adsorbent material

Biological removal of heavy metals from acid wastewaters
C. Solisio, A. Del Borghi, A. Esposito, A. Lodi, A. Reverberi & F. Vegliò

Biomodification of mineral surfaces in mineral processing and hydrometallurgy
P.M. Soložhenkin, V.P. Nebera, N.N. Lyalikova-Medvedeva & V.K. Larin

9 Solid-liquid separation

An introduction to Deep Cone™ thickening technology and its application
J.L. Shelley, L. MacNamara & S. Slottee

Filtration behavior of fine grained calcite, dolomite, kaolin and quartz minerals in the presence and absence of surfactants
B.B. Gönül, Ö. Özcan & N. Bulutçu

Improvement of filtration kinetics by adding an electric field on pressure filtration
K. Weber & W. Stahl

Scale-up of steam pressure filtration of mineral products
U.A. Peuker & W. Stahl

Vibrational dewatering improvement by superposed capillary suction
A. Ettmayr & W. Stahl

Modeling of filter cake washing performance from lab experiments on belt and drum filters
J. Heuser & W. Stahl

Prediction of centrifugal deliquoring for changing particle composition in mineral slurries
M. Stiborsky & H. Anlauf

Particle destruction in centrifuges
M. Bentz & W. Stahl

10 Waste treatment and utilization

Processing of municipal household waste material
Th. Pretz
Design and operation of pilot scale anaerobic compost wetland for the treatment of acidic drainage from the Stratoni mixed sulphide mines, Chalkidiki, Northern Greece
A. Kourtis, B. Gazea & K. Adam

Flocculation conditions of marble from industrial wastewater and environmental consideration
A. Seyrankaya, U. Malayoglu & A. Akar

Reclamation of flotation tailings from copper mine in the mining and smelting complex Bor
R. Lekovski, Z. Stojanovic & V. Cvetkovski

Copper and lead adsorption on dry tailings – The effect of buffering capacity
R. A. Kleiv, K. L. Sandvik & L. Shao

Comparison of lime and electrochemical technology for effluents purification
V. T. Panayotov, M. Panayotova, E. Mast & E. Cohen

A new method for purifying washing acids from copper smelting plants
V. T. Panayotov, M. Panayotova, E. Mast & E. Cohen

Adsorption mechanism of toxic metal ions by attapulgite
H. Saglam, O. Ozdemir, M. S. Celik & H. El-Shall

Fractional uranium extraction from tailings and various soil types
M. Stojanovic, D. Potpara, D. Iles & L. Tesmanovic

Characterisation and beneficiation studies for Balya lead-zinc mine wastes
F. Goktepe, F. D. Pooley & K. P. Williams

Utilization of Aladag – Adana chromite tailings in the manufacturing of building bricks
O. Bayat & H. Vapur

Investigation of the processing of colemanite tailings by ultrasonic sound waves
L. Alp & H. Ozdag

Waste treatment of El-Maghara coal washing plant by flotation for beneficial reuse of its constituents in industry
A. M. Ramadan, A. M. Saleh & M. R. Moharam

Coal, ash and environment protection
M. Grbovic, D. Salatic, V. Salatic & B. Grbovic

Increasing the clear-up efficiency of the waste waters from coal preparation plants by treatment in an electric field
R. I. Sarbu, E. Traista & R. M. Sarbu

Waste waters remediation by 226Ra removal
E. Panturu, D. P. Georgescu, S. Petrescu, N. Serban & D. Filip

Possible reaction mechanisms for ozone oxidation of cyanide from waste waters resulted from gold and silver bearing ores’ cyanidation
P. Ilie, D. Baciu, S. Danciu & V. S. Babineti

Influence of the polluting agents on the environment within Rosia Poieni Mining area, Romania
G. Chindris, G. Fodor, A. Pescaru & N. Onet
The metal ions recovery from waste water by non-conventional methods
A. Filcenco, D. Georgescu, F. Aurelian & N. Serban

Efficiency enhancement of electroflotational purification of waste waters by means of low-frequency sonic field
V. K. Kovatcheva-Ninova

Utilization of natural clay minerals in the removal of ammonia from waste waters
H. Çiçek, F. Arslan, M. Çelik & M. Turan

11 Miscellaneous
Advertisements
Author index