

Papers to be presented at Copper Cobalt Africa Conference 2018

Plenary Addresses

Zambian mining's polymetallic futures

S. Chilemba, *Minerals Council of Zambia, Zambia*

Cobalt and rise of the lithium-ion battery megafactories

C. Rawles, *Benchmark Mineral Intelligence, United Kingdom*

The challenges of mining, particularly in Africa

M. Pascal, *First Quantum Minerals Ltd., Zambia*

Overview and outlook for the cobalt market

L. Smith, *Core Consultants, United Kingdom*

The Giant Kamao-Kakula Project in the Democratic Republic of Congo

S. Amos, V. Nkuna, and B. Matsetela, *Kamao Copper SA and Ivanhoe Mines, South Africa*

Urban mining and the pivotal role of hydrometallurgical approaches for recycling secondary source feeds

B. Currie, *Ausenco, Australia*

General and Economics

Production output of primary copper in South Africa:

Predicting future trends using the intensity of use theory

M.J. Nong, P.J.K. Leeuw, and N.M. Cudjoe, *University of the Witwatersrand, South Africa*

Disruptive effect of battery recycling on the near future cobalt market

N. Steenkamp, *Consulting Geologist and Geotechnical Engineer, South Africa*

The state of occupational safety in the South African mining industry: progress, successes and challenges

S. Phakathi and K. Letsoalo, *Minerals Council of South Africa*

Outotec service portfolio and recent development in managing asset performance

J. Lempainen and M. Lindeman, *Outotec, Finland*

Training of engineering graduates in Zambia to meet mining industry needs

J. Kapobe, C. Mazala, and S. Simukanga, *Mopani Copper Mines and Zambian Higher Education Authority, Zambia*

'Training for life'

J. Kapobe, M. Milupi, A. Lemmer, C. Mazala, and R. Phiri, *Mopani Copper Mines, Zambia*

Polymetallic processing within a circular economy

P. van Staden, M. Gericke, V. Conic, and D. Milanovic, *Mintek, South Africa and Mining and Metallurgy Institute, Serbia*

Geology, Mineralogy and Geometallurgy

An African Copperbelt-style district in Colombia: Insights from long-wave infrared satellite imaging

D. Forest and N. Pendock, *N-Side Mining Technology, Singapore*

Relationship between Kansanshi ore mineralogy applied and copper recovery across different processing circuits

L. Little, A. Prinsloo, Q. McLennan, B. Kaputula, and C. Siame, *Kansanshi Mining, Zambia*

Copper ore variability: benefits of advanced simulation

M. Talikka, A. Remes, M. Hicks, J. Liipo, V.-P. Takalo, S. Khizanishvili, and M. Natsvlshvili, *Outotec, Finland and JSC RMG Copper, Georgia*

Mining

Satellite synthetic aperture radar for mine and tailings dam monitoring

N. Pendock, *DIRT Exploration, South Africa*

A ranking methodology to prioritise artisanal and small-scale mining projects

S. Rupprecht, *University of Johannesburg, South Africa*

Review of radar technologies for slope stability in open-pit mines

J. Oosthuizen, *VBKOM Consulting, South Africa*

Determination of an effective slope monitoring regime for mining a failed zone on the north wall of Nchanga Open Pit-Cut2

C. Silwamba, S. Syamusana, and B. Siwakwi, *Konkola Copper Mines, Zambia*

Comminution

Assessing the benefits of automatic grinding control using particle size tracking technology for true on-line particle size measurement

R. Maron, C. O'Keefe, and J. Sepulveda, *CiDRA Minerals Processing, USA and J-Consultants, Chile*

Converting of Lubambe Copper Mine ball mill from grate discharge type to an overflow

A. Mhone, *Lubambe Copper Mines, Zambia*

Beneficiation of a complex low-grade chalcopyrite ore

L. Mweene and S. Subramanian, *Indian Institute of Science, India*

Influence of water balance and classifier choice on energy efficiency of milling circuits

A. Hinde, E. Ford, J. Makola and, A. Jan, *Independent consultant, Mintek, Derrick Solutions International, South Africa and Derrick Corporation, USA*

Merits of optimized milling configuration on process performance: a case study of the mixed ore at Kasanshi

C. Chongo, K. Ngoisa, P.A. Bepswa, and A.N. Mainza, *Kansanshi Mine, Zambia and University of Cape Town, South Africa*

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Flotation

Empirical model of recovery response of copper sulphide circuit at Kansanshi Mine

M. Lusambo and F.K. Mulenga, *Kansanshi Mine, Zambia and University of South Africa, South Africa*

Continuous improvement of a copper concentrator by advanced flotation control

P.D. Knoblauch, *Mintek, South Africa*

Copper recovery from carbonaceous sulphide ore by flotation

R.S. Magwaneng, K. Haga, A. Batnasan, A. Shibayama, M. Kosugi, R. Kawarabuki, K. Mitsuhashi, and M. Kawata, *Akita University and Nittestu Mining, Japan*

Development of flotation reagent automated system

C. Ngulube, W. Munalula, and I. Mkandawire, *Kansanshi Mining, Zambia*

Flotation process metering of concentrate, slurry, air and water flows using non-intrusive fibre-optic sensing

D. Finfer, *Silixa Ltd, United Kingdom*

Frothing and froth control in copper leach washing and purification circuits

N. Mautsa, M. Bower, B. Nel, and J. Miller, *Kemira, South Africa and United Kingdom*

Pyrometallurgy

Sonic injection in sulfide smelting: an update

J. Kapusta, *BBA Inc., Canada*

Operational experiences of Mufulira Isasmelt technology since inception

J. Kapobe, J. Sasikumar, K. Chitundu, C. Mazala, and R. Phiri, *Mopani Copper Mines, Zambia*

Hydrometallurgy

Advances in cobalt recovery and purification

C. Pawlik, *Mintek, South Africa*

Milling in acidic raffinate solution in copper-cobalt hydrometallurgical circuits: the next step towards reducing operating costs

E. Mkhize and S. Kumwenda, *Senet, South Africa*

Innovative process design for oxide ores in the Democratic Republic of Congo

D. Alexander, C. van der Merwe, R. Lumbule, and J. Kgomo, *Eurasian Resources Group, South Africa and Boss Mining, DR Congo*

Advances in design of copper-cobalt hydrometallurgical circuits: copper circuits

G. Miller, *Miller Metallurgical International, Australia*

Leaching

Acid bake-leach process for recovering copper and cobalt from complex sulphide-oxide concentrates

P. Mwamba, J.H. Masinja, J. Manchisi, and Y.R.S. Hara, *University of Zambia and Copperbelt University, Zambia*

Laboratory column heap leaching of cobalt using raffinate and sodium metabisulphite

P. Bwando, *BASF, DR Congo*

MesoTherm™ bio-oxidation technology: a simple process for the treatment of base metal sulphide ores

C. van Buuren, M. Nicolle, and J. van Niekerk, *Outotec, South Africa (Pty) Limited, South Africa*

Solvent Extraction

On-line analysis in solvent extraction process

R. Abod, L. Koresaar, D. Moreno, and T. Balbin, *Outotec, Finland and Cobre las Cruces, Spain*

Techno-economic evaluation of BASF's new high-temperature solvent-extraction reagent

J.J. Taute and S. Archer, *BASF and Senet, South Africa*

Management of mixing continuity in a solvent-extraction plant with a leach solution of high silica at Ruashi Mining

A. Kashala, G. Mitshabu, Y. Cheng, L. Bradford, A. Modi, and P. Tshisand, *Ruashi Mining SAS and BASF, DR Congo*

Silica mitigation in copper solvent-extraction circuits

F. Crundwell, K. Sole, O. Dlamini, and G. Kruger, *CM Solutions, University of Pretoria and Market to Africa, South Africa*

Loaded organic washing for impurities removal from electrolyte

D. Nel, J. Kyabu, T. Ngoy, P. Koji, and P. Bwando, *Mutanda Mining and BASF, DR Congo*

Additive to mitigate crud formation in solvent extraction operations

B. Mbao, L. Cohen, A. Fischmann, L. Moya, M. Moser, and O. Tinkler, *Solvay EMEA, Zambia and Solvay, USA*

Ion Exchange and Membranes

Solvent-impregnated resins for niche applications in metal processing

V. Yahorava, V. Bazhko, and R. Leso, *Mintek, South Africa*

Metal removal from synthetic mine tailing leachates using fixed-bed ion-exchange columns

A.L. Riley, S.E. Pepper, E.L. Sexton, and M.D. Ogden, *University of Sheffield, UK*

Recovery of cobalt and nickel from acidic waste streams: effect of chloride, sulfate and column studies using phosphonic acid functionalised silica

J.T.M. Amphlett, S.E. Pepper, W. Peng, and M.D. Ogden, *University of Sheffield, UK*

Cobalt-nickel pertraction refinery to process pregnant leach solution from recycled spent catalysts. Part 1: cobalt extraction from a binary system

N. Mans, D. van der Westhuizen, D. Bruinsma, P. Cole, J. du Toit, E. Munnik, A. Coates, V. Coetzee, and H. Krieg, *North-West University, Bruinsma Solutions, Peter Cole Metallurgical Services, DRA Global and Minemet, South Africa*

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Electrorefining and Electrowinning

Copper refinery modernisation, Mopani Copper Mines plc, Mufulira, Zambia

M. Chooye, R. Patel, A. Pranowo, and B. O'Rourke, *Mopani Copper Mines plc, Mufulira, Zambia and Glencore Technology, Australia*

Advances in permanent cathode maintenance solutions

L. Nordlund and H. van der Walt, *Outotec, Finland*

Lead contamination of copper cathodes, direct electrowinning compared with leach/solvent extraction/ electrowinning

G. Mitshabu, C. Tshula, P. Tshisand, B. Faqing, and A. Feather, *BASF, Gécamines Luilu Refinery and Ruashi Mining, DR Congo and BASF, South Africa*

Electrochemical characterisation of cobalt electrowinning from dilute sulphate solutions

R. Wildenboer, *University of Pretoria, South Africa*

Design of a selection guide for copper electrowinning sizing: cell arrangement as a function of rectifier size for varying throughputs

E. Forner, G. Miller, J. Scheepers, and A.J. du Toit, *DRA, South Africa and Miller Metallurgical International, Australia*

Determination of MCM2 copper cathode sampling regime

O. Mahenga, D. Muma, B. Muleya, E. Musenge, and G. Bwalya, *Mopani Copper Mines, and Zambia Revenue Authority Mineral Beneficiation Laboratory, Zambia*

Tailings

Dewatering tailings for dry stacking: Rapid water recovery by means of centrifuges

R. Klug, A. Rivadeneira, and N. Schwarz, *Flottweg, Germany, Buenavertura, Peru and Schwartz Global Consulting, South Africa*

Tailings thicker improvements at Sentinel Copper Mine

M. Bower and M. Kynkaanniemi, *Kemira Chemicals, United Kingdom and Minera Panama, Panama*

Projects

Processing of Copperbelt historical copper smelter slag through the Chibuluma concentrator and future prospects for maximizing value recovery

B. Kalumba, A. Mwanza, and J. Sikamo, *Chibuluma Mines, Zambia*

BOSS 50: A fast-track projects in the Democratic Republic of Congo

A. Lathwood, *BOSS Mining, DR Congo*

The historic Kipushi zinc project in the Democratic Republic of Congo

B. Matsetela, V. Nkuna, and S. Amos, *Ivanhoe Mines and Kamao Copper SA, South Africa*

The Mutoshi Project - Part I: Metallurgical testwork, process design and project delivery

P. Ilunga, D. Samal, M. Nicolle, M. Lampi, K. Valkama, J. Edwards, and N. Tatalias, *Consulting Metallurgist and Chemicals of Africa SARL (CHEMAF), DR Congo, Outotec and METC, South Africa and Outotec, Finland*

Project evaluation: The drivers behind a mineral project's value

B. Botha, *VBKOM Consulting, South Africa*

Operational readiness: from project to operating asset

R. Taute and P.M.J.G. Thomson, *SENOPS, South Africa*