Biohydrometallurgy '18

Outotec Media Partner: International Mining

#Biohydromet18

Provisional Timetable- changes will be highlighted and alerted on the conference website

Monday June 11th

17.00-18.30 Registration and wine reception, with canapés (accompanying persons welcome)

Tuesday June 12th

08.00 Registration desk opens. Coffee and light breakfast

09.00 Opening remarks
B.A. Wills (MEI, UK) and T. Tjivikua (Vice-Chancellor, Namibian University of Science & Technology)

09.10 *Technical Sessions 1*
Chairmen: TBA

09.10 **Keynote Lecture: Towards sustainable development of mineral resources – the role of biohydrometallurgy**
S.T.L. Harrison (University of Cape Town, South Africa)

09.40 **Development of Outotec's Mesotherm™ technology: a novel BIOX® approach targeting reduction of cyanide consumption of BIOX® residues**
C. van Buuren and Z. Mbadlanyana (Outotec Biomin (Pty) Ltd, South Africa)

10.00 **Development of integrated bioleaching processes for the treatment of low-grade complex ores**
M. Gericke and P. van Staden (Mintek, South Africa)

10.20 Coffee and poster viewing

11.20 **Effect of adding surfactant in the leaching solution on the bacterial ferrous iron oxidation and chalcopyrite bioleaching**
M. Ghadiri, S.T.L. Harrison and M.A. Fagan-Endres (University of Cape Town, South Africa)

11.40 **Sphalerite bioleaching comparison in shake flasks and percolators**
A. Schippers, C. Tanne, J. Stummeyer and T. Graupner (Federal Institute for Geosciences and Natural Resources, Germany)

12.00 **Hybrid tank bioleaching of polymetallic sulfide concentrates**
C.G. Bryan, R. Bransgrove (Camborne School of Mines, UK) and J.C.O. Andersen (University of Exeter, UK)

12.20 **Influence of CO_2 supplementation on bioleaching kinetics in stirred tank reactor**
A.-G. Guezennec, C. Joulian, J. Jacob, F. Bodenan and P. d'Hugues (BRGM, France)

12.40 Lunch

14.00 *Technical Session 2*
Chairmen: TBA

14.00 **A novel understanding of chalcopyrite and bornite bioleaching mechanism: redox potential, synergistic or catalytic effect and electrochemical dissolution**
Jun Wang, Hongbo Zhao, Yansheng Zhang,Weimin Zeng, Jianping Xie, Huanqun Yin, Hongbo Zhou, Xinxing Liu, Guohua Gu, Xueduan Liu,Wenqing Qin and Guanzhou Qiu (Key Lab of Biohydrometallurgy of Ministry of Education, and Central South University, China)

14.20 **Effect of sodium chloride on bioleaching of sulfidic ores by mesophilic acidophilic iron-oxidizing bacteria and moderately thermophilic iron/sulfur-oxidizing bacteria**
D. Huynh, M. Kaszuba, S. Kaschabek, W. Sand and M. Schlömann (TU Bergakademie Freiberg, Germany)

14.40 **New approaches for bioleaching of nickel laterite ore**
E.C. Giese, H.L. Carpen, L.C. Bertolino and C.L. Schneider (CETEM, Brazil)

15.00 Coffee

15.40 **Fine grinding and mesophile bioleaching of a Ni/Cu polymetallic concentrate: an integrated approach**
J.R. Carr, D.E. Coulton, N.J.G.Wilshaw (Grinding Solutions Ltd, UK), D.W. Dew (Dewality Consultants Ltd, Truro), and C.G. Bryan (Camborne School of Mines, UK)

16.00 **Bioprocessing options for platinum group element (PGE) ores**
S. Hedrich, A. Schippers (Federal Institute for Geosciences and Natural Resources, Germany), M. Smart, S. Biswas, E. Ngoma and S.T.L. Harrison (University of Cape Town, South Africa)

16.20 **Biooxidation of a low-grade gold ore at elevated pressures**
S. Ahoranta, A.-M. Lakaniemi, J.A. Puhakka (Tampere University of Technology, Finland) and Gang Zou (Zijin Mining Group Co. Ltd, China)

16.40-17.40 Sundowner in hotel gardens
Accompanying guests welcome

Wednesday June 13th

08.00 Registration desk opens. Coffee and light breakfast

08.40 Technical Session 3
Chairmen: TBA

08.40 **Bioleaching of REE from bauxites**
M. Barnett, B. Palumbo-Roe, E. Deady and S. Gregory (British Geological Survey, UK)

09.00 **New biodegradable leaching agents for recovery of rare earth elements (REE) from ion adsorption clay deposit (IAC) in north west Madagascar**
S. Kutschke, R. Möckel, S. Bachman and K. Pollmann (Helmholtz Institute Freiberg for Resource Technology, Germany)

09.20 **Archaeal dominated BIOX® cultures show increased flexibility to operational changes**
M. Smart, C.J. Edward, S.T.L. Harrison (University of Cape Town, South Africa), C. Fourie, T. Shumba and J. Iron (Barberton Mines, South Africa)

09.40 **Heavy metal binding peptides – biosorbents with economic and ecological potential**
R. Braun, S. Matys, R. Jain, K. Pollmann (Helmholtz Institute Freiberg for Resource Technology, Germany) and N. Schoenberger (TU Bergakademie Freiberg, Germany)

10.00 **Biosorption of indium(III) from aqueous solutions by microalgal biomass: study of various process parameters**
N.R. Nicomel, L. Otero-Gonzalez, T. Hennebel, G. Du Laing (Ghent University, Belgium), L. Arashiro, M. Garfi and I. Ferrer (Universitat Politècnica de Catalunya-BarcelonaTech, Spain)

10.20 Coffee

11.00 **The fate and impact of contaminants in a biological iron oxidation and jarosite precipitation process operated at room temperature**
A.H Kaksonen, C. Morris, J. Wylie, K. Usher (CSIRO Land and Water, Australia), J. Li (CSIRO Mineral Resources, Australia), F. Hilario (Vale, Brazil) and C. du Plessis (Lhoist Business Innovation Centre, Belgium)

11.20 **Bioleaching for tailings valorization**
P. Kinnunen, J. Mäkinen, M. Salo, E. Yli-Rantala and M. Bomberg (VTT Technical Research Centre of Finland, Finland)

11.40 **Cadmium and arsenic removal from Panasqueira mine tailings by a microbial consortium**
M.C. Vila, D. Madureira, O. Nunes, R. Lopes, S. Santos, A. Futuro, M.L. Dinis and A. Fiúza (University of Porto, Portugal)

12.00 **Beyond biorecovery: environmental win-win by biorefining of metallic wastes into new functional materials**
A.J Murray, I. Mikheenko, S.A Archer and L.E. Macaskie (University of Birmingham, UK)

12.20 **A means to an end: Applying heap leach protocols to the biodesulfurisation of mine wastes**
O. Tambwe, A. Kotsiopoulos and S.T.L. Harrison (University of Cape Town, South Africa)

12.40 **Effect of biological pretreatment on metal extraction from flotation tailings for chloride leaching**
P. Altinkaya, E. Kolehmainen, M. Haapalainen (Outotec Research Center, Finland), J. Mäkinen, P. Kinnunen (VTT, Finland) and M. Lundström (Aalto University, Finland)

13.00 Lunch

14.00 *Technical Session 4*
Chairmen: TBA

14.00 **Enhancement of gold recovery from a South African gold tailings through bio-oxidation using iron-sulfur oxidizing bacterial strains**
L.B. Mukumbi, S.K. Behera and S. Ndlovu (University of the Witwatersrand, South Africa)

14.20 **Establishing the flow through biokinetic system as a viable test for the characterisation of sulfidic waste rock mineral for ARD potential**
D.X. Makaula, R.J. Huddy, M.A. Fagan-Endres and S.T.L. Harrison (University of Cape Town, South Africa)

14.40 **Effects of operational parameters on the bio-assisted leaching of metals from pyrolyzed printed circuit boards**
M.A. Arinanda, F. Lambert, S. Gaydardzhiev (University of Liege, Belgium), Q. Van Haute and P.-F. Bareel (Comet Traitements S.A., Belgium)

15.00 **Determination of ferrous oxidation kinetics in the presence of metals associated with printed circuit boards to determine the potential for bioleaching of eWaste**
C.J. Edward, T. Pather, R. Govender, E. Ngoma, E. Govender-Opitz, A. Kotsiopoulos and S.T.L. Harrison (University of Cape Town, South Africa)

15.20 **Double-stage continuous bioreactor for the bioleaching of printed circuit boards to recover metals with acidophilic micro-organisms**
A. Hubau, M. Minier (IRCP, France), A. Chagnes (Georessources, France) and A.G. Guezennec (BRGM, France)

15.40 Conference summary
C.G. Bryan (Camborne School of Mines, University of Exeter, UK)

15.55 Invitation to Biohydrometallurgy '20
A.J. Wills (MEI, UK)

16.00 Coffee

18.15 Coaches leave for Xwama Cultural Village for informal conference dinner for Biohydromet '18 and Sustainable Minerals '18 delegates

POSTERS

Optimization of hematite and quartz bioflotation by an artificial neural network
A.G. Merma, M.L. Torem and B.F. dos Santos (Pontifical Catholic University of Rio de Janeiro, Brazil)

Ferric iron reduction coupled to sulfur oxidation at elevated pressure by acidophilic microorganisms
R. Zhang and A. Schippers (Federal Institute for Geosciences and Natural Resources, Germany)

Performance of a sulfidogenic bioreactor inoculated with indigenous communities for treating acidic mine water
S. Hedrich (Federal Institute for Geosciences and Natural Resources, Germany), P.A. Galleguillos (CICITEM, Chile), D. Gonzaléz, C. Colipai and I. Nancucheo (Universidad San Sebastián, Chile)

Complexation of gallium and indium by desferrioxamine in competitive environment
R. Jain and K. Pollmann (Helmholtz Institute Freiberg for Resource Technology, Germany)

Quantitative and qualitative analysis of the detachment of mineral associated microorganisms from particulate mineral coated onto glass beads for flow-through leaching tests
D.X. Makaula, R.J. Huddy, M. A. Fagan-Endres and S.T.L. Harrison (University of Cape Town, South Africa)

Flotation of hematite using a crude biosurfactant and mathematical modelling of its electrophoretic behaviour
J.G.S. Puelles, C.A.C. Olivera, A.G. Merma and M.L. Torem (Pontifical Catholic University of Rio de Janeiro, Brazil)

Screening halophilic bacteria for their potential as pyrite bio-depressants in Cu-Mo bioflotation
G.L. Consuegra, S. Kutschke, K. Pollmann (Helmholtz-Zentrum-Dresden-Rossendorf. Germany) and M. Rudolph (Helmholtz Institute Freiberg for Resource Technology, Germany)

Production of amphiphilic siderophores for bioflotation process
S. Schrader, S. Kutschke, M. Rudolph and K. Pollmann (Helmholtz Institute Freiberg for Resource Technology, Germany)

CEReS- co-processing of coal mine and electronic wastes: novel resources for a sustainable future
C.G. Bryan, V. Fonti, S. Setiawati (Camborne School of Mines, UK), J. Calus-Moszko (Central Mining Institute, Poland), Q. van Haute (Comet Traitements SA, Belgium), A.-G. Guezennec (BRGM, France), S. Gaydardzhiev (University of Liège, Belgium), P. Wavrer (CASPEO, France) and R. Frączek (TAURON Wydobycie SA, Poland)

Analysis of sulfidic coal production wastes using biokinetic tests combined with QEMSCAN
R. Bransgrove, G.R. Rollinson, B.J. Williamson and C.G. Bryan (Camborne School of Mines, UK)

Cross bioleaching of low grade copper ores: a well explanation for the interaction between microorganisms and minerals
Shuang Zhou (Changsha Medical University, China), Xingjie Wang (Wuhan University of Science and Technology, China), Liyuan Ma (China University of Geosciences, China) and Xueduan Liu (Central South University, China)

Reaction between ferric and fluoride ions and its applied implications for the bioleaching of fluoride containing ore
Xingjie Wang (Wuhan University of Science & Technology, China), Liyuan Ma (China University of Geosciences, China), Xueduan Liu, Guanzhou Qiu and Wenqing Qin (Central South University, China)

A biokinetic study on BIOX® iron-oxidizing isolates, *L. ferriphilum* and *Ac. cupricumulans*, as a function of pH and temperature
L. Maritz and S.T.L. Harrison (University of Cape Town, South Africa)

Bio-catalytic upgrading of heavy and pyrolysis oils: optioneering of fossil, biorefined, and renewable resources
S.A. Archer, J. Wood, L.E. Macaskie (University of Birmingham, UK) and B.K. Sharma (University of Illinois, USA)

Effect of ascorbic acid on enhancing bioleaching of chalcopyrite under visible light
Baojun Yang, Min Gan, Qian Li, Jianyu Zhu, Xueduan Liu (Central South University, China), Wen Luo (Shaoyang University, China), Qi Liao, Liyuan Chai (Chinese National Engineering Research Centre for Control and Treatment of Heavy Metal Pollution, China) and W. Sand (Universität Duisburg-Essen, Germany)

Decreasing sulphate content using sulphate reducing bacteria
F.D.L. Uahengo (Namibian University of Science and Technology, Namibia)

Microbial Pb(II) precipitation: the influence of oxygen
H.G. Brink, J. Peens, M. Lategan and K. Naudé (University of Pretoria, South Africa)

Defining variability during Biox® project development
W. Olivier and C. van den Heuvel (Outotec BIOX® (Pty) Ltd, South Africa)

Commented [b1]: Accepted 10th April

Commented [BW2]: Accepted 20th April