Sustainable Minerals ‘16

Wednesday June 22nd
16.30-18.00 Registration, wine and cheese reception. Accompanying partners welcome

Thursday June 23rd
08.00 Registration opens. Coffee and light breakfast
08.50 Welcoming Remarks
B.A. Wills (MEI, UK)
09.10 Technical Session 1
Chairmen: I. Demers (Université du Québec en Abitibi-Témiscamingue, Canada) and C. Brough (Petrolab Limited, UK)
09.10 Keynote Lecture: The mine of the future – even more sustainable
R.J. Batterham, University of Melbourne, Australia
09.40 Applications of hyperspectral mineralogy for geoenvironmental characterisation
N. Fox, J. Moltzen, A. Parbhakar-Fox and L. Jackson (University of Tasmania, Australia)
10.00 Automated environmental mineralogy; the use of liberation analysis in humidity cell testwork
C. Brough, J. Strongman, J. Fletcher (Petrolab Limited, UK), R. Bowell, R. Warrender (SRK Consulting, UK) and A. Barnes (Geochemic Ltd, UK)
10.20 Coffee
11.00 Evaluating resource efficiency at major copper mines
S. Spuerk, M. Drobe and B.G. Lottermoser (RWTH Aachen University, Germany)
11.20 Sustainable extraction of raw materials
T. Henckens, P. Driessen and E. Worrell (Utrecht University, The Netherlands)
11.40 Sustainable practices in the management of mining waste: a focus on prevention
E. Lebre, G. Corder and A. Golev (Sustainable Minerals Institute- University of Queensland, Australia)
12.00 An environmental performance assessment of froth flotation for coal recovery and sulfur removal from fine coal waste
B.M. Fundikwa, S.T.L. Harrison and J.L. Broadhurst (University of Cape Town, South Africa)
12.20 Assessing the potential risks with elemental deportment from gold waste rock
A.K.B. Opitz, S.T.L. Harrison, J.L. Broadhurst and M. Becker (University of Cape Town, South Africa)
12.40  **Recycling indices for a circular economy**  
A. van Schaik (MARAS, The Netherlands) and M.A. Reuter (Helmholtz Institute for Resource Technology, Germany)

13.00  **Lunch**

14.00  **Technical Session 2**  
Chairmen: Y. Shen (University of New South Wales, Australia)

14.00  **Opportunities for soil-related applications of fine coal processing wastes in South Africa**  
H.-M. Stander, J.L. Broadhurst, S.T.L. Harrison (University of Cape Town), J.R. Amaral Filho and B.A. Firpo (Federal University of Rio Grande do Sul, Brazil)

14.20  **Comparing the environmental performance of rare earth deposits using GaBi software to perform a cradle-to-gate Life CyCle Assessment**  
R. Pell and F. Wall (University of Exeter, UK)

14.40  **Sustainability contributions of minerals and mining – a focus on the Sustainable Development Goals**  
B.C. McLellan (Kyoto University, Japan)

15.00  **Membrane use to recover metals and reuse wastewater**  
S.P. Chesters, M.W. Armstrong, J. Hamp (Genesys International Ltd, UK) and F. del Vigo (Genesys Membrane Products, Spain)

15.20  **Recovery of metals from spent lithium ion batteries using electrochemically produced acidic anolyte**  

15.40  **Valorisation of acid mine drainage treatment sludge by combination with a natural soil as an oxygen barrier cover for mine waste reclamation**  
I. Demers, M. Mbonimpa, M. Benzaazoua, M. Bouda, S. Awoh, S. Lortie and M. Gagnon (Université du Québec en Abitibi-Témiscamingue, Canada)

16.00  **Coffee**

17.00  Optional Guided Coast Path Walk, ending with a beer at the Chain Locker Pub, Old Falmouth. Accompanying partners welcome

**Friday June 24th**

08.15  Coffee and light breakfast

08.50  **Technical Session 3**  
Chairmen: C. Young (Montana Tech, USA) and M. Benzaazoua (Université du Québec en Abitibi-Témiscamingue, Canada)

08.50  **Keynote Lecture: Best practice in efficient mineral processing – comminution energy curves**  
M. Battersby (Maelgwyn Mineral Services Ltd, UK)

09.20  **Quantifying metal values in e-waste in Australia**  
A. Golev, D.S. Lopez and G. Corder (Sustainable Minerals Institute, University of Queensland, Australia)
09.40 Metal speciation of historic and new copper mine tailings from Repparfjorden, Northern Norway, before and after acid, base and electrodialytic extraction
K.B. Pedersen, A. Evenset, M. Frantzen (Akvaplan-niva AS, Norway), P.E. Jensen and L.M. Ottosen (Technical University of Denmark, Denmark)

10.00 Kinetic principles based geochemical evaluation of acid mine drainage: a case study in Artvin, Turkey
G. Kalyoncu Erguler (MTA, Turkey), Z.A. Erguler, H. Akcakoca and A. Ucar (Dumlupinar University, Turkey)

10.20 Coffee

11.00 Reducing the self-heating of sulphides by chemical treatments
F. Rosenblum, S. Moon, J.A. Finch, K.E. Waters (McGill University, Canada) and J.E. Nesset, NesseTech Consulting Services Inc, Canada

11.20 Comparative study on the effect of fragmentation type on components liberation during recycling of printed wiring boards
R. Martino, S. Gaydardzhiev (University of Liege, Belgium), C. Iseli, M. Streicher-Porte (University of Applied Sciences and Arts, Switzerland) and A. Weh (Selfrag AG, Switzerland)

11.40 An example for sustainable technology diffusion in mining: achieving belt conveyor systems in the German hard-rock quarrying industry
T. Braun, A. Hennig and B.G. Lottermoser (RWTH Aachen University, Germany)

12.00 Carbothermal reduction of copper smelter slags for recycling into pig iron and glass
P. Sarfo, G. Wyss, A. Das, C. Young (Montana Tech, USA) and G. Ma (Wuhan University of Science & Technology, China)

12.20 Integrated management of pyrrhotite tailings at Raglan mine: Part 1: challenges of desulphurization process and reactivity prediction
M. Benzaazoua, M., Bouzahzah, F. Lessard, B. Bussière, I. Demers, M. Kongolo (Université du Québec en Abitibi-Témiscamingue, Canada) and L. Kormos (XPS Consulting & Testwork Services, Canada)

12.40 Lunch

14.00 Technical Session 4
Chairmen: M.A. Reuter (Helmholtz Institute for Resource Technology, Germany)

14.00 Recycling of mine wastes in clay bricks: scientific, technical and environmental approach
Y. Taha, M. Benzaazoua (Université du Québec en Abitibi-Témiscamingue, Canada), R. Hakkou and M. Mansori (Université Cadi Ayyad, Morocco)

14.20 The use of the emulsion liquid membrane technique to remove copper ions from aqueous systems
H. Ma, O. Kökkiliç and K.E. Waters (McGill University, Canada)

14.40 Biosorption equilibrium and kinetic modelling of Fe (II) on immobilised Desmodesmus sp.
P.P. Diale (University of the Witwatersrand, South Africa), T.S. Matambo, D. Hildebrandt and D. Glasser (University of South Africa, South Africa)

15.00 Analysis of microbial communities involved in biological sulphate reduction for ARD bioremediation
R.J. Huddy and S.T.L. Harrison (University of Cape Town, South Africa)

15.20 A bio-assisted process for the ferric leaching of electronic waste
E. Govender-Opitz, B. Pieters, F. Zimmermann, M. Gituma, A. Kotsiopoulos and S.T.L. Harrison (University of Cape Town, South Africa)

15.40 Conference Summary
M.A. Reuter (Helmholtz Institute for Resource Technology, Germany)
POSTERS

Integrated management of pyrrhotite tailings at the Raglan mine: Part 2: assessment of desulphurized tailings as cover materials to control AMD
F. Lessard, B. Bussière, M. Benzaazoua (Université du Québec en Abitibi-Témiscamingue, Canada), J. Côté (Université Laval, Canada) and L. Marcoux (Glencore, Canada)

Leaching behavior of heavy metals from fired bricks containing different mine wastes
Y. Taha, M. Benzaazoua (Université du Québec en Abitibi-Témiscamingue, Canada), R. Hakkou and M. Mansori (Université Cadi Ayyad, Morocco)

Environment issues on industrial processing of raw agate
F. Vilasbôas, C.R. Santos, I.A.H. Schneider (Universidade Federal do Rio Grande do Sul, Brazil), J.C.S.S. Menezes (Universidade do Oeste de Santa Catarina, Brazil) and R.A. Silva (IMED, Brazil)

Experimental and numerical modelling of solid particle erosion
C.Y. Wong, J. Wu, L. Graham, G. Short, J. Boulanger and C. Solnordal (CSIRO, Australia)

A pre-concentration application for high voltage selective fragmentation
D. Parvaz, A. Mosaddeghi and A. Weh (SELFRAF AG, Switzerland)

Model study of the combustion of biomass in an ironmaking blast furnace
Y. Shen, A. Yu (Monash University, Australia), T. Shiozawa (University of New South Wales, Australia) and P. Austin (BlueScope, Australia)

Evaluating environmental risks of historic slag: upgrading value through microanalytical characterisation
A. Parbhakar-Fox, N. Fox (University of Tasmania, Australia) and B. Lottermoser (RWTH Aachen University, Germany)

Including mineralogical attributes and sustainability indicators into a modelling framework of a magnetic separator
E. Charikinya, J. Robertson, A. Platts, M. Becker, D. Bradshaw (University of Cape Town, South Africa) and P. Lamberg (Luleå Technical University, Sweden)

Breakage characteristics of incinerator bottom ash in the HV pulse power process
A. Weh and A. Mosaddeghi (SELFRAF AG, Switzerland)

Investigating various ammonium salts as lixivants in the extraction of calcium from iron making slag
I.C. Kohithitse, M.S. Manono and C.K. Thubakgale (Vaal University of Technology, South Africa)

Evaluating the recovery of Cu from a copper converter slag using froth flotation
M.S. Manono, C.K. Thubakgale, D. Selowa (Vaal University of Technology, South Africa) and M.M. Ramakokovhu (Tshwane University of Technology, South Africa)

Adsorption kinetics of salicyl hydroxamic acid on the oxides of various rare earth elements
G. Galt, A. Das, R. James and C. Young (Montana Tech, USA)

ST Equipment & technology; opportunities in triboelectrostatic separation
L. Baker (ST Equipment & Technology LLC, USA)