

MINE-IMPACTED WATER CONFERENCE

IMPACTING THE CIRCULAR ECONOMY | 12-13 OCTOBER 2022
CLOSING THE WATER LOOP

Prelim Programme

Day 1 – 12 October 2022

07:30–09:00 **Registration Opens & Early Morning Refreshments/Zoom Platform Opens**

09:00–09:10 **Welcome and Opening Address**
S. Ndlovu *Conference Chairperson*

09:10–09:15 **Safety Briefing**
Venue Official

09:15–09:30 **SAIMM Presidential Address**
Z. Botha, *SAIMM President*

SESSION 1: AMD and the Circular Economy

09:30–10:00 **Keynote Address: Mining and Water: From mortal enemies to sustainable friends?**
G. Mudd, *RMIT University, Australia*

10:00–10:20 **From linear economy legacies to circular economy resources: Understanding the market**
J. Baloyi and A. Mafunda, *CSIR, South Africa*

10:20–10:40 **Applying circular economy principles in the valorisation of Acid Mine Drainage (AMD)**
E. Kasese, *Mintek, South Africa*

10:40–11:00 **Mid-Morning Refreshments and Network**

11:00–11:20 **Market analysis of rare earth elements recovered from acid mine drainage from circular economy perspectives**
A. Mafunda and J. Baloyi, *CSIR, South Africa*

11:20–11:40 **Waste to resource: remediation, reuse and resource recovery**
L. Ponto, M. Tadie, and M. Mwewa, *Stellenbosch University, South Africa*

11:40–12:00 **Progress towards a circular economy of acid mine drainage**
J. Baloyi, *CSIR, South Africa*

12:00–13:00 **Network Lunch**

SESSION 2: Treatment of AMD

13:00–13:30 **Keynote Address: Developing value through exploitation of mine waste**
C. Sheridan *University of the Witwatersrand, South Africa*

13:30–13:50 **Acid mine drainage neutralisation by aeration using jet reactor systems**
N. Chauke, K. du Preez, and M. Safari, *Mintek, South Africa*

13:50–14:10 ***Performance evaluation of freeze crystallization for removal of water and sodium sulphate from mine wastewater**
P.M. Ramothole, J.P. Maree, M.S. Onyango, and A. Adeniyi, *Tshwane University of Technology and University of Limpopo ROC Water Technologies, South Africa*

14:10–14:30 **Application of membrane distillation for desalting and valorisation of acid mine water – impact of process parameters**
R. Shingwenyana, *CSIR, South Africa*

14:30–14:50 **Treatment of Chromium (VI) using clay based adsorbents and acid mine drainage**
S. Mxinwa, *Mintek, South Africa*

14:50–15:10 **Afternoon Refreshments and Network**

SESSION 3: AMD prediction and management

15:10–15:30 ***Acid mine drainage prediction with the aid of accelerated humidity cell tests**
S. Ramatsoma, D. Chetty, O. Bazhko, and V. Govender, *University of the Witwatersrand Mintek, South Africa*

15:30–15:50 **Jwaneng mine water management tool**
O. Mabote and P. Dama-Fakir, *Debswana – Jwaneng Mine and WSP Golder, South Africa*

15:50–16:10 **Recent progress on acid mine drainage technological trends: Challenges and Opportunities**
J. Baloyi and N. Ramdhani, *CSIR, South Africa*

16:10–16:30 **Prediction of water quality impacts of mines during operation, closure and post closure**
A. Johnstone and H. Botha, *GCS, South Africa*

16:30 **Conference Close Day 1**

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Day 2 – 13 October 2022

07:30–09:00 **Registration Opens & Early Morning Refreshments/Zoom Platform Opens**

09:00–09:10 **Welcome and Opening Address**
S. Ndlovu *Conference Chairperson*

09:10–09:20 **Safety Briefing**
Venue Official

09:20–09:50 **Keynote Address: Understanding hydro-geochemistry of mine waste structures for sustainable recovery of critical elements**
M. Edraki, *The University of Queensland, Australia*

SESSION 4: Mine Impacted Water challenges and opportunities

09:50–10:10 ***Physico-chemical properties and treatment of scale formation in dust- scrubber discharge lines**
T. Fungene, S. Ndlovu, and E. Matinde, *University of Witwatersrand, Mintek, South Africa*

10:10–10:30 ***Investigation and development of a method for encapsulating arsenical ferrihydrite using silicate gels derived from sodium silicate**
E. Chiyangwa, S. Ndlovu, and M. Dworzanowski *University of Witwatersrand and DSI/NRF SARChI, South Africa*

10:30–11:00 **Mid-Morning Refreshments and Network**

11:00–11:20 ***An electrochemical investigation on the mechanisms of interfacial interactions of a xanthate collector on PGM mineral surfaces in the presence of electrolytes**
L. Dzinza, K. Corin, and M. Tadie, *University of Cape Town, South Africa*

11:20–11:40 **Treatment of antimony roaster wet gas system effluent stream to process water**
K.M. Mutshinyalo, *Multotec, South Africa*

11:40–12:40 **Network Lunch**

SESSION 5: Utilisation of Mine Impacted Water

12:40–13:10 **Keynote Address: Recovery of copper from dilute hydrometallurgical leachates of sulfidic tailings by ion flotation**
P. Xanthopoulos, *KU Leuven, Belgium*

13:10–13:30 ***Investigating the coagulation and dewatering of flotation concentrates**
M. Mabonda, *University of Cape Town, South Africa*

13:30–13:50 ***Correlating milling media and water chemistry to flotation recovery for selected base metal sulfides**
S.N. Nyoni, K.C. Corin, and C. T O'Connor, *University of Cape Town, South Africa*

13:50–14:10 **Mid-Morning Refreshments and Network**

14:10–14:30 ***Effect of water quality on flotation performance: Simulated water recirculation**
M. Ngau, M. Manono, and K. Corin, *University of Cape Town, South Africa*

14:30–14:50 ***A determination of the effect of changing collector chain length under varying water quality**
T. Sinjani, *University of Cape Town, South Africa*

14:50–15:10 **Break**

15:10–15:20 **Best Student Presentation Award Announcement**

15:20– 5:30 **Final Remarks and Conference Close**

**Student presentation*