

9TH INTERNATIONAL PGM CONFERENCE

27 - 28 OCTOBER 2025 - CONFERENCE
29 OCTOBER 2025 - TECHNICAL VISIT
VENUE - SUN CITY, RUSTENBURG, SOUTH AFRICA



PGMs - Enabling a cleaner world

ECSA Validated CPD Activity, Credits = 0.1 points per hour attended.

Abstracts Received

Optimizing reverts addition in PGM Smelting: Strategies for enhanced furnace stability and efficiency

C. Sikiotis, G. Mulder, J. Bezuidenhout, G. Janse Van Vuuren, D. Wright, S. Matutu, T. Sisy, *Hatch and Sellous Metallurgical Complex (SMC) Zimbabwe Platinum, South Africa*

Reimagining community development as a strategic lever in the PGM value chain

L.N. Ntanzu, *Gerson Lehrman Group, South Africa*

Innovative solutions for SO₂ Abatement: The role of the WSA process in the PGM industry

C. Frandsen, *TOPSOE A/S, Denmark*

Factors influencing campaign life of PGM furnace hearths

M. Nagorski, M. vd Merwe, G. Mulder, M. DeGorter, T. Kingsley, *Hatch, Canada*

Quantification and mineral association of rhodium in low concentration ores using inductively coupled plasma optical emission spectrometry (ICP-OES)

M.R. Letsoalo, A. Mkhohlakali, J. Sehata, N. Ntsasa, J. Tshilongo, *Mintek, South Africa*

Overview of furnace start-up with a case study from the Zimplats Smelter expansion project

M. Mutshaeni¹, M. Sitefane¹, P. Lu¹, T. Isaacs¹, F. Stober², M. Mosnier², G. Mulder¹, T. Kingsley¹, T. Sisy³, S. Matutu³, *South Africa*

So How Long is Your Processing Pipeline?

S. Mavimbela, P. Lessing, *Hatch, South Africa*

Cooling innovation in practice: A case study on composite copper-graphite cooler performance before and after a PGM furnace partial sidewall rebuild

P. Bezuidenhout¹, G. de Villiers¹, H. Joubert¹, E. Mokgwamme², P. Nkosi², T. Goff², P. Stratt², M. Mvalelwa², ¹Tenova, ²Sibanye-Stillwater, *South Africa*

Platinum group metal-based fuel cell technology in the development of a supercapacitor-based independently-powered electric multiple unit

N. Xavier¹, A.F. Mulaba-Bafubandi^{1,2}, ¹University of Johannesburg, *South Africa*, ²Universite de Mbuji-Mayi, *DRC*

Enhanced recovery of PGM and associated base metal sulphides using various thiol co-collectors

D.K. Ramalepe, W. Nheta, *University of Johannesburg South Africa*

Zimplats SO₂ abatement plant design

S. Matutu, J. Bezuidenhout, G. Erasmus, *Hatch, South Africa*

Powder production of pre alloyed PGMs for jewellery applications

K.D. Ukabhai, D. Mkhonto, L. Mampuru, R. Diale, M.J. Phasha, S.J. Moema, *Mintek, South Africa*

Trace Impurity removal from a Rh-Rich stream by ion-exchange

M.D.B.J. Strobos, I. Smith; D.J. van der Westhuizen, *North West University, South Africa*

Elevating safety and efficiency in mining with vision AI: From object detection to LLM-driven decision intelligence

Y. Zhang, Z. Mohammed, T. Moodley, *Hatch, South Africa*

The Implats Group's decarbonisation strategy

T. Mthombeni, *Implats, South Africa*

Data Driven anomaly detection as a process and integrity monitoring application for a furnace

T. Moodley, W. Smith, J. Yelland, *Hatch, South Africa*

Cooling innovation in practice: A Case study on composite copper-graphite cooler performance before and after a PGM furnace partial sidewall rebuild

P. Bezuidenhout¹, G. de Villiers¹, H. Joubert¹, E. Mokgwamme², P. Nkosi², T. Goff², P. Stratt², M. Mvalelwa², ¹Tenova Pyromet, ²Sibanye-Stillwater, *South Africa*

Decarbonising the platinum group metals value chain to lower the carbon footprint of energy transition technologies

D. van Wyk, *Hatch, South Africa*

Understanding the nature of challenges posed in the reprocessing of PGM tailings

B. McFadzean, M. Becker, S. Geldenhuys, N. Patterson, *University of Cape Town, South Africa*

Plasma arc behaviour in DC arc furnace smelting of PGM-bearing materials: a modelling study on the effect of reductant choice

Q.G. Reynolds^{1,2}, B.S. Xakalashe¹, S.P. Tsebe¹, M.W. Erwee³, I.J. Geldenhuys⁴, R.T. Jones⁴, ¹Mintek, ²Stellenbosch University, ³Samancor Chrome Ltd, ⁴Independent consultant, *South Africa*

In-stope water handling strategies to achieve a dry mine

J.F. van Rensburg, J.C. Vosloo, S.M. Sithole, K.P. Petja, D.N. Morare, L.N. Senda, A. Heydenrych, *North-West University, ETA Operations, Marula Platinum Mine, Marula Platinum Mine, South Africa*

Simulation-driven support for compressed air operations in deep-level mines

H.J. Groenewald^{1,3}, J.F. van Rensburg^{1,3}, K. Mabe², ¹ETA Operations (Pty) Ltd, ²Impala Platinum, ³North-West University, *South Africa*

The impact of data quality on budget development and reporting in mining operations

Z. Mqoqi¹, H.P.R. Joubert², J.H. Marais², A.E. Labuschagne³, ¹ETA Operations (Pty) Ltd, ²North-West University and ETA Operations, ³Sibanye Stillwater PGM, *South Africa*

Improving compressed air system efficiency using Life of Mine planning

Q.A. Bekeur, J.H. Marais, S. van der Walt, P. Burger, A. Labuschagne, *ETA Operations and North-West University, South Africa*

Automating energy baseline development for energy-intensive mining systems in South Africa

N.T. Tshitenge, J.A. Swanepoel, H.P.R. Joubert, J.H. Marais, E.A. Labuschagne, *Tshwane University of Technology, ETA Operations (Pty) Ltd, South Africa*

The Impact of condensate on mine compressed air systems powered by clustered standalone screw compressors

K.P. Petja, J.C. Vosloo, J.F. van Rensburg, M. Sithole, C. Martin, H. Modau, *ETA Operations, Marula Platinum Mine, South Africa*



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Commissioning the Zimplats Smelter Expansion

M. Crafford, M. Monobe, G. Erasmus, S. Matutu, *South Africa*

Benefits of utilising digital twin technology for strategic planning in mining

H.P.R. Joubert, J.H. Marais, A. Labuschagne

Visualising multi-source data for enhanced operational insight and reporting at PGM mines

N.Q. Gamede, H.P.R. Joubert, J.H. Marais, M.C. Furumele, E.A. Labuschagne, *ETA Operations (Pty) Ltd, South Africa*

A method to reduce compressed air usage through half-level control and usage scheduling

A. Labuschagne, W. Bekker, J.H. Marais, S. van der Walt, *Siphumelele, South Africa*

Evaluating the economic impact of power factor improvement on Platinum Group Metal concentrators

W.H. Sterrenberg, H. Janse van Vuuren, J.H. Marais, P. du Toit, *ETA Operations, North-West University, South Africa*

Optimal control of electric arc furnaces in platinum smelting operations

J. Siecker, J. van Rensburg, L. Mathevula, N. Kotze, L. Mukengeshayi, N. Wanblad, *ETA Operations and North-West University, South Africa*

Energy savings achieved through compressed air control valves

W. Biermann, T. Deysel, L. Mukengeshayi, M. Barlow, *ETA Operations, North-West University and Valterra Platinum, South Africa*

Refining of a PGM-containing iron alloy through converting at crucible and pilot scale

M.S. Moholwa, S.P. Tsebe, *Mintek, South Africa*

Implementation of a neural network driven flotation digital twin for closed loop flotation optimisation and control

T. Moodley, W. Smith, J. Yelland, Y. Zhang, T. Soliman, *Hatch, South Africa*

Evaluate water performance on platinum mine shafts by applying benchmarking techniques

J. Korkie, C.S.L. Schutte, J.H. Marais, J. van Laar, A.G.S. Gous, A. Labuschagne, *ETA Operations (Pty) Ltd, Stellenbosch University, South Africa*

Optimizing PGM value chains through integrated lean mining and processing strategies

T.M. Chagwedera, *Hatch, South Africa*

Quantification of improvements on utility budgets of platinum mines in South Africa

S. Conradie, A.G.S. Gous, H.D. Groenewald, *ETA Operations, Stellenbosch University, South Africa*

Improving compressed air network efficiency in South African PGM mines through continual monitoring and reporting

C.M. van der Walt, H.J. Groenewald, J.F. van Rensburg, *ETA Operations and North-West University, South Africa*

A techno-economic model for compressed air billing in PGM mines: Integrating dynamic tariffs and AI enhanced digital twins

C.M. van der Walt, H.J. Groenewald, J.C. Vosloo, *ETA Operations, North-West University, South Africa*

Assessing refractory degradation in a base-metal furnace Hearth: A post-mortem study

K.C. Maluleke, H. Joubert, G. de Villiers, E. Mokgwamme, P. Nkosi, T. Goff, *Tenova Pyromet, South Africa*

The influence of impellor geometry on stirred media mill performance

C. Lekgoro, S. Nkwanyana, N. Lameck, I. Govender, M. Ramakokovhu, *Mintek, South Africa*

The journey towards dry slag handling

G. Mulder¹, A. Mulder², M. vd Merwe², H. Wepener², ¹Hatch, ²Northam Platinum Zondereinde Smelter, *South Africa*

Flotation of MG chromite tailing from the Western Limb of the bushveld complex

T.E. Nyaka, M. Safari, *Mintek, South Africa*

A case study of multi-criteria prioritisation of spare parts in the PGM industry

M. von Delft, F. Hannemann, D. Vermooten, D. Naidoo, B. Ferrer, *Hatch, South Africa*

Evaluation of an alternative furnace cooling medium for enhanced operational safety

K.C. Maluleke, H. Joubert, G. de Villiers, E. Mokgwamme, P. Nkosi, T. Goff, *Tenova Pyromet, South Africa*

The use of ultrasonic atomisation methods to produce PGM and alloy powder for 3D printing at Mintek

D. Mkhonto, K.D. Ukabhai, L. Mampuru, R. Diale, M.J. Phasha, S.J. Moema, *Mintek, South Africa*

Material selection and campaign life optimisation of electrode sleeve seal components in PGM furnaces: A case study from Anglo American Waterval

N. Sujee, F. Hanneman, S. Haley, *Hatch Africa (Pty) Ltd., South Africa*

Platinum's strategic positioning and economic importance in South Africa

A.A. Mkonde, I.P. Dikgwatlhe, *University of South Africa, South Africa*

Froth stability a key indicator for shallow platreef ores flotation performance

M. Chauchau, R. Moeletsi, M. Safari, *Mintek, South Africa*

Assessing the performance of a PGM smelting furnace

W.A. Roos¹, M. Rajh¹, A.E.J. Bogaers^{1,2}, J.H. Zietsman^{1,2}, ¹Ex Mente Technologies, ²University of Pretoria, *South Africa*

Beyond recovery rethinking reagent strategies for sustainable middle group ore processing

P.C. Siwela, M.M. Ramakokovhu, *Tshwane University of technology, South Africa*



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Comminution behaviour of the middle group ores

P.C. Siwela, M.M. Ramakokovhu, *Tshwane University of Technology, South Africa*

Particle size-driven flotation of pgms: comparative performance of fine vs. coarse fractions

M. Safari, *Mintek, South Africa*

The flocculation and coagulation of PGM ore flotation tailings under degrading water qualities

T.I. Koadibane^{1,2}, M.F. Moya^{1,2}, M. Safari^{1,3}, M.S. Manono², J. Taguta⁴, K.C. Corin², ¹*Mintek*, ²*University of Cape Town*, ³*University of the Witwatersrand, South Africa*, ⁴*University of Minnesota, United States of America*

Investigation of the effect of microbial community in flotation of Platinum Group Metals (PGMs)

B. Raswiswi, *Mintek, South Africa*

Comparative mineralogical and geochemical assessment of ug-2 and merensky reefs at two rivers platinum mine: implications for beneficiation and tailings management

S. Motha, *University of the Witwatersrand, South Africa*

Implementation of high frequency power supplies and dual flue gas conditioning in particulate matter abatement in the PGM industry

B.P. Havenga, E. Eichler, H. Heller, *South Africa*

The mine of the future - how five global trends are driving integrated and intelligent mining operations

C. Bleazard, M. Dwyer, *South Africa*

PGM Ore flotation using simulated long water cycles

M. Safari, M.F. Moya, *Mintek, South Africa*

People, the critical link in realising value from a digital solution implementation

G.R. Lane, *Vuuma, South Africa*

PGM ore flotation under degrading water qualities

M.F. Moya, T. Koadibane, M. Safari, M. Manono, K.C. Corin, L. October, *Mintek, South Africa*

Compressor automation control using trends and compressor specifications to reduce energy consumption

N. Holland-Ramsay, *ETA Operations, South Africa*

An overview of Mintek's pyrometallurgical research in PGM processing: from conceptualisation to demonstration

X.C. Goso, *Mintek, South Africa*

Revisiting the role of ph and process water ions in cu-ni-pgm ore flotation with a keen interest on effects at the solid-water interface: Does the Choice Of Ph Modifier Matter?

M.S. Manono, *University of Cape Town, South Africa*

Fundamental characterisation of sperrylite leaching behaviour in cyanide systems using XPS

K. Shaik¹, H. Kolev², Z. Cherkezova-Zheleva², J. Petersen¹, ¹*University of Cape Town, South Africa*, ²*Bulgarian Academy of Sciences, Bulgaria*

Au-imprinted magnetic carboxylated cellulose nanocrystals-PEI crosslinked adsorbent for efficient adsorptive removal and recovery of Au from e-waste materials

A.T. Ngemaa, V.E. Pakadea, M. Sihlahlaa, N. Mketoo, *University of South Africa, South Africa*

Optimising blend ratios and reagent schemes to recover PGMs from LG reef spiral tailings

T.L. Moodley^{1,2}, I. Govender^{1,2,3}, S. Pikinini¹, J. Sehata¹, J. Tshilongo¹, M. Raedani⁴, ¹*Mintek*, ²*University of Kwazulu-Natal*, ³*University of Cape Town*, ⁴*Dwarsrivier Chrome Mine, South Africa*

The impact of microbes on the flotation efficiency of Platinum Group Metals

M.B. Chabalala, B. Raswiswi, D.N. Makaula, M. Safari, *Mintek, South Africa*

Optimisation of proportional influence of mining and processing costs on the production of an open pit mine

R.G. Thage, F.K. Mulenga, *University of South Africa, South Africa*

Development of an integrated simulation model for the processing of UG2 concentrates to recover PGMs and base metals

U. Hall¹, I.J. Geldenhuys², B. Boucher¹, ¹*Metix (SMS Group)*, ²*Isabel Geldenhuys Consulting, South Africa*

Quantifying pressurisation and gas composition in refuge Bays: A multivariable modelling approach

K.D. Silent, H.J. Groenewald, J.H. Marais, J.J. van Rensburg, *ETA Operations (Pty) Ltd, North-West University, South Africa*

Comparative study into the interaction of alumina-chrome refractories with PGM smelter slag

N. Fotoyi, Y. Thakurdin, X.C. Goso, D. Chetty, *Mintek, South Africa*

Determination of rhodium (Rh) from fire assay using lead collection with the addition of co-collector, followed by acid dissolution to enhance recovery and analytical accuracy

R. Tshilidzi^{1,2}, A. Mkhohlakali¹, J. Sehat¹, N. Ntsasa^{1,2}, J. Tshilongo^{1,2}, ¹*Mintek*, ²*University of the Witwatersrand, South Africa*

Comminution behaviour of the middle group ores

P.C. Siwela¹, M.M. Ramakokovhu², *Tshwane University of Technology, South Africa*

Reductive matte smelting of UG2 concentrate using Al, FeSi, and SiC reductants

S.B. Nkosi, X.C. Goso, *Mintek, South Africa*

Status of the PGM Industry in South Africa

T.K. Bungane, *Mintek, South Africa*

Quantitative spectroscopic analysis of co-existing Platinum Group Metals (PGMs) and iron

T. Ncedo, A. Mkhohlakali, R. Letsoalo, J. Sehata, H. Mabowa, N. Ntsasa, J. Tshilongo, *Mintek, South Africa*

State of the PGM Industry in South Africa

T.K. Bungane *Mintek, South Africa*

Case Study: Unlocking maintenance efficiency and supply chain resilience in mining through digital integration and spare parts optimisation

W. du Plessis, M. Joubert, *HybridFuzion, South Africa*