

HMC 2025

THIRTEENTH INTERNATIONAL
HEAVY MINERALS CONFERENCE

18-19 AUGUST 2025 - CONFERENCE
SUN CITY RESORT, RUSTENBURG,
SOUTH AFRICA

The Value Chain of Heavy Minerals for the
Future – From Mine to Market

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

FINAL PROGRAMME



Sunday, 17 August 2025

17:00-19:00 **Welcome Networking Cocktail and Early Registrations**
Venue: Exhibition Hall - Mogolodi, Dress Code: Smart Casual

Conference Day 1 – Monday, 18 August 2025

08:30-09:00 **Registration Opens and Early Morning Refreshments**

09:00-09:05 **Welcome and Opening Address**
B. Malan, Multotec, Conference Chairperson

09:05-09:10 **Safety Briefing**
Venue Official

09:10-09:25 **SAIMM Presidential Address**
G.R. Lane, SAIMM President

09:25-10:00 **Keynote Address: OreKinetics Invention and Innovation for 25 years. Our rapid and universal adoption of new technology has proven the fallacy in the saying, 'You don't get fired for buying IBM' but that is merely the start of it**
P.Gates, OreKinetics Pty Ltd, Australia

Session 1: Processing

Session Chair: G. Mkhabela, Richards Bay Minerals, South Africa

10:00-10:20 **Ilmenite recovery from a low grade sulphide containing ore**
G. Marape¹, E. Ncongwane¹, R. Mariba¹, M. Kevin²,
¹Mintek, South Africa, ²Dextrait Engineering, Western Australia

10:20-10:40 **The effect of retention time in mineral sands recovery**
F. Bornman, Multotec, South Africa

10:40-11:00 **Exploring the recovery of magnetite from the copper and magnetite tailings by magnetic separation at Palabora Mining Company**
K. Mlambo^{1,2}, N. Mulaudzi¹, F. Mulenga²,¹Palabora Mining Company, ²University of South Africa, South Africa

11:00-11:30 **Mid-morning Refreshments**

Session 2: Poster Presentations

Session Chair: W. Erasmus, Derrick Corporation, South Africa


11:30-11:35 **Optimizing first stage gravity concentration in heavy mineral sand processing: performance of the mg12 spiral concentrator (enhancing zircon grade in concentrate stream)**
T. Nkatlo, Light Deep Earth, South Africa

11:35-11:40 **Impact of particle size distribution in electrostatic circuits**
C. Maifo, Light Deep Earth, South Africa

11:40-11:45 **Process Development for a Fine Complex Heavy Mineral Deposit**
M. Mudila, Light Deep Earth, South Africa

11:45-11:50 **Beyond expectations: Conditions under which Spirals outperform shaking table**
E. Tjatji, Light Deep Earth, South Africa

11:50-11:55 **Optimization of attrition scrubbing energy input in a metso cell to enhance downstream separation efficiency in heavy mineral concentrate**
G. Sekgobela, LightDeepEarth, South Africa

11:55-12:05 **Sponsor Presentation:** 
Multotec, South Africa


Session 3: Processing/Technology

Session Chair: J. Beukes, Tronox, South Africa

12:05-12:25 **Recovery of fine (-0.1 mm) beach sand minerals using spiral separators**
E. Raffailac¹, S. Patra², J. Agenbag³,¹Mineral Technologies Pty Ltd, Australia, ²Mineral Technologies, India, ³Mineral Technologies, South Africa

12:25-12:45 **High-tension roll technology comparison using Factorial design as evaluation tool**
R. Musewe, Mineral Technologies (Pty) Ltd, South Africa

12:45-13:05 **Optimization and comparative evaluation of high-tension roll electrostatic separators using statistical and boolean modelling on heavy mineral sands from South Africa's West Coast**
B.K. Mmotla, Mineral Technologies (Pty) Ltd, South Africa

13:05-13:15 **Sponsor Presentation:** 
Mineral Technologies

13:15-14:15 **Lunch**

14:15-14:35 **Reduction and smelting of roasted and unroasted ilmenite using Palm Karnal Nutshell biochar as reductant**
H. Nkhuna¹, M. Kalenga¹, X.C. Goso²,¹University of Johannesburg, ²Mintek, South Africa

Session 4: Technology/Rare Earths

Session Chair: B. Malan, Multotec, South Africa

14:35-14:55 **Evaluating the performance of the multi gravity separator in the beneficiation of monazite at different size fractions**
J.O. Mogalanyane, J.A. Venter, CoreMet, Mineral Processing, South Africa

14:55-15:55 **Think tank session: Driving the retention of Kknowledge and experience, Chaired by F. Bornman, Multotec, South Africa**

15:55-16:25 **Ice Breaker Quiz**

16:25-16:40 **End of Conference Day 1 and Afternoon Refreshments**

16:40-18:00 **Time at Leisure**

18:00-21:00 **Conference Dinner:** Brew Monkey, Valley of the Waves, Dress Code: Smart Casual

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Conference Day 2– Tuesday, 19 August 2025

08:30-09:00 **Registration and Welcome Refreshments**

09:00-09:05 **Welcome and Opening Address**
B. Malan, Multotec, Conference Chairperson

09:05-09:10 **Safety Briefing**
Venue Official

09:10-09:40 **Keynote Address: Reimagining heavy minerals recovery: Smarter, leaner, greener**
T. Kale, Gravitas Minerals, South Africa

Session 5: Analysis

Session Chair: F. Bornman, Multotec, South Africa

09:40-10:00 **The characterisation of heavy mineral sands with the tescan timax**
F.M. Letswalo, SGS SA, South Africa

10:00-10:20 **Ore hardness challenges for hydraulic mining of heavy mineral sands: quantification and mitigation**
J. Beukes, D. Sibiyi, C. Magwaza, Tronox, South Africa

10:20-10:40 **The necessity of accurate mineral particle characterisation for process technology identification and optimisation during flowsheet design and improvement project**
M. Gerber, Light Deep Earth, South Africa

10:40-11:00 **Mid-morning Refreshments**

11:00-11:10 **Sponsor Presentation:** Tronox

Session 6: Transport/Technology

Session Chair: J. Beukes, Tronox, South Africa

11:10-11:30 **Advancing slurry transport in mineral processing**
M. Xulu, Multotec, South Africa

11:30-11:50 **The Optima Concentrator as a bulk materials handling technology in mineral sands and chromite**
M. Ramudzwagi, R.B. Mmola, F.F. van de Venter, T. Kale Gravitas Minerals Pty Ltd, South Africa

11:50-12:00 **Sponsor Presentation:** Richards Bay Minerals

Session 7: Decarbonization

Session Chair: G. Mkhabela, Richards Bay Minerals, South Africa

12:00-12:20 **Solid-state reduction of ilmenite using hydrogen-enriched syngas**
N.E. Magida, X.C. Goso, Mintek, South Africa

12:20-13:20 **End of Conference Programme and Lunch**