



SAG Conference 2023 - Technical Program



Monday, September 25, 2023				Tuesday, September 26, 2023				Wednesday, September 27, 2023				Thursday, September 28, 2023																			
Session 1				AG Milling (5)				Keynote: Agnico Eagle				Keynote: Teck Resources				Keynote: Ausenco															
8:00	8:30	Chairperson - Welcome and Opening Remarks		8:00	8:30	Keynote	Implementation of HPGRs as the Tertiary Crusher at the Meadowbank Process Plant (F. Robichaud)	8:00	8:30	Keynote	The Quebrada Blanca 2 Project: Multi-Line SABC Circuit Design from Concept Through to Operation (B. Rairdan)	8:00	8:30	Keynote	The Impact of GHG Emission Costs on the "True Economics" in Comminution Trade-Off Studies (G. Ballantyne)																
8:30	8:45	Paper 2	Will AG Milling Make a Comeback? (M. Powell)	8:30	8:45	Paper 2	Operational Debottlenecking of the Cadia 40ft SAG Mill Through Constraint Mapping Analysis (C. Geoghegan)	8:30	8:45	Paper 2	Is the Capital Cost of Your Grinding Circuit Too High? (M. Pyle)	8:30	8:45	Paper 2	SAG Mill Design and Benchmarking Using Trends in the JKtech Database (T. Vizcarra)																
8:45	9:00	Paper 3	AG Mill Design for Low Competence Ores (T. Beyl)	8:45	9:00	Paper 3	Low-Cost SAG Milling Opportunities (M. Powell)	8:45	9:00	Paper 3	Grinding Circuit Layout and Design - Considerations from the Past, Present and for the Future (D. Meadows)	8:45	9:00	Paper 3	Evaluating the Integration of Sensor-Based Pebble Sorting at the Pulang Copper Mine SABC Circuit (G. Li)																
9:00	9:15	Paper 4	Pilot Study of Rock Transport Rates in AG Milling (G. Chiasson)	9:00	9:15	Paper 4	Optimization and Continuous Improvement of Oyu Tolgoi Comminution Circuit (G. Malkhuuz)	9:00	9:15	Paper 4	Commissioning of Single-Stage SAG Mill at the Meliadine Process Plant (F. Robichaud)	9:00	9:15	Paper 4	Is Coarse Particle Liberation the Elixir for the New Mineral Processor? (R. Bearman)																
9:15	9:30	Paper 5	Enhancing AG Milling Circuit Performance Through Advanced Liner Design (M. Hazell)	9:15	9:30	Paper 5	Throughput Increase at Doña Inés de Collahuasi Mining Company in SAG Mill (S. Olmedo)	9:15	9:30	Paper 5	Ahafo Mill Expansion Commissioning (E. ASAKPO)	9:15	9:30	Paper 5	Trusted Automation, The Pathway Toward Process Automation of SABC Circuits (M. Yahyaei)																
9:30	10:00	Session 1 Question Period		9:30	10:00	Session 5 Question Period		9:30	10:00	Session 9 Question Period		9:30	10:00	Session 13 Question Period																	
10:00	10:15	Session 1 Break		10:00	10:15	Session 5 Break		10:00	10:15	Session 9 Break		10:00	10:15	Session 13 Break																	
Session 2				Operations Optimization and Design (6)				Session 6				Practical Modelling and Control (6)				Session 10				HPGR Energy Efficient and More Sustainable Comminution (6)				Session 14				Process Control (6)			
10:15	10:30	Paper 6	Secondary Crushing Synergy with the Mount Milligan BAG Mill (A. Doll)	10:15	10:30	Paper 6	The Influence of Steel Addition in SAG Mills Operated with High Steel Ball Loads (A. Mainza)	10:15	10:30	Paper 6	Improvements in Asset Efficiency Through Tyre Wear Life Optimisation at Cerro Verde (J. Hofmann)	10:15	10:30	Paper 6	Optimisation of the Leinster Nickel Mine Comminution Circuit (B. Putland)																
10:30	10:45	Paper 7	Successful Conversion of Autogenous to Semi-Autogenous Milling at Unki Platinum Mine (J. Kalala)	10:30	10:45	Paper 7	Online Particle-Size P80 By Acoustic and APC at Minera San Cristobal (W. Churata)	10:30	10:45	Paper 7	Trade-Off Realities in HPGR vs SAG Milling: Comparison of Tropicana and Gruyere Comminution Circuits (I. Lovatt)	10:30	10:45	Paper 7	Optimization of the Damang Comminution Circuit (C. Kuupol Kuutor)																
10:45	11:00	Paper 8	Review and Optimization of the Hudbay Constancia Comminution Circuit (R. Valle)	10:45	11:00	Paper 8	Rio Tinto Kennecott's SAG Optimization Since 2020 (J. Mortensen)	10:45	11:00	Paper 8	Kamoa-Kakula Copper Mine Complex Phase I & II: Review of Commissioned Plant Performance (D. Frost)	10:45	11:00	Paper 8	Improvements in the Operation and Control of SAG Mills in Batu Hijau Using Mill Load Soft Sensor (P. Condiri)																
11:00	11:15	Paper 9	Campaign Processing of Ores from Santa Elena and Ermitaño Mines Using the Same Comminution Circuit (F. Wang)	11:00	11:15	Paper 9	Identification of Semi-Autogenous Grinding Mill Operating States Using Clustering (N. Adhikari)	11:00	11:15	Paper 9	Trial Results of the Novel Smartcone Control System at FMI Morenci Canyon Crushing Circuit (D. Jacobson)	11:00	11:15	Paper 9	Leveraging Digital Tools for Improving SAG Operation for Stable Charge and Grind Prediction (M. Hazell)																
11:15	11:30	Paper 10	Improvements in Grinding Circuit Performance at the Fekola Gold Mill, Mali West Africa (D. Rodabough)	11:15	11:30	Paper 10	Molycop Digital Engine: Machine Learning-Accelerated SAG Mill Optimization (Y. Mohammadi)	11:15	11:30	Paper 10	Remote Mill Monitoring: A Solution for Higher Efficiency and Asset Optimization (D. Gallego Lobato)	11:15	11:30	Paper 10	Rapid Diagnostics and Observations of the Internal Operation of a SAG Mill (R. Pax)																
11:30	11:45	Paper 11	Processing Stockpiled Scats at Glencore Kamoto Copper Company (P. Madrid)	11:30	11:45	Paper 11	SAG Mill Advanced Process Control and Optimization Using Brainwave MPC (A. Kheradmand)	11:30	11:45	Paper 11	Optimizing Energy and Throughput for HPGR: A Case Study for Copper Mountain Mine (G. Pamparana)	11:30	11:45	Paper 11	Mine to Mill the Next Phase - Incorporating Soft Sensors and Data Analytics (P. Madrid)																
11:45	12:15	Session 2 Question Period		11:45	12:15	Session 6 Question Period		11:45	12:15	Session 10 Question Period		11:45	12:15	Session 14 Question Period																	
12:15	13:00	Session 2 Break		12:15	13:00	Session 6 Break		12:15	13:00	Session 10 Break		12:15	13:00	Session 14 Break																	
Session 3				Ball Mill Comminution Circuit Design (5)				Session 7				Test Work & Characterization (5)				Session 11				Safer Operation & Maintenance Practice (5)				Session 15				Geometallurgy & Mine to Mill (5)			
13:00	13:15	Paper 12	The Fundamentals of Tumbling Mill Design (A. Giblett)	13:00	13:15	Paper 12	A Review of SAG Milling - History of Mill Selection and Testwork Analysis (R. Chandramohan)	13:00	13:15	Paper 12	Mill Liner Separation Method That Enables Recycling of Worn Rubber and Poly-Met Mill Liners (L. Furtenbach)	13:00	13:15	Paper 12	Improving Orebody Knowledge with High-Resolution Rock Strength Characterization Using the Minpraxis (S. Nadolski)																
13:15	13:30	Paper 13	Application of the Natural Selection Function to Grate Discharge Mills (A. Vien)	13:15	13:30	Paper 13	Insights Into Rock Breakage Experience for Over 30 Years (M. Weier)	13:15	13:30	Paper 13	New Technology for Safer and Faster Mill 3D Scans (A. Araya)	13:15	13:30	Paper 13	Applied Geometallurgy at Agnico Eagle's Kittila Operation Using the Geopyora Breakage Test (M. de Paiva Bueno)																
13:30	13:45	Paper 14	Tumbling Mill Modelling: A 3-Way Comparison of Real-Time Predictions from a New Granular Flow Model (I. Govender)	13:30	13:45	Paper 14	Assessing Comminution Circuit Performance Using Precision Measurement of Size Specific Energy (S. Ali)	13:30	13:45	Paper 14	Indoor Versus Outdoor Materials Handling at Mount Milligan (S. Piffner)	13:30	13:45	Paper 14	Ore Hardness Mapping of Batu Hijau Ore Deposit Using the HIT (Hardness Index Tester) Device (T. Kojovic)																
13:45	14:00	Paper 15	Comminution Efficiency Comparison: Cadia's HPGR-Ball Mill vs HPGR-SAB Circuits (C. Haines)	13:45	14:00	Paper 15	Engineering and Early Operation of the Las Chispas Project (B. Foggia)	13:45	14:00	Paper 15	Latest Developments in Mechanised Grinding Mill Relining: Site Trials and Simulation Results (S. Gwynn-Jones)	13:45	14:00	Paper 15	Integrated Mine-To-Mill Optimization of the Toromocho Operation at Minera Chinalco, Perú (R. Valle)																
14:00	14:15	Paper 16	Developing An Advanced Throughput Forecast Model for Minera Los Pelambres (R. Valle)	14:00	14:15	Paper 16	Comparison of Pilot and Industrial Scale AG/SAG Mill Performance - Case Studies On 3 Ore Types (S. Nkwanyana)	14:00	14:15	Paper 16	PTFI & RME Collaboration: Technology Makes Mill Relines Safer and More Efficient (J. Wilmot)	14:00	14:15	Paper 16	Mine-To-Mill Optimization and Continuous Improvement of Lundin Mining's Chapada Operation in Brazil (G. Evangelista)																
14:15	14:45	Session 3 Question Period		14:15	14:45	Session 7 Question Period		14:15	14:45	Session 11 Question Period		14:15	14:45	Session 15 Question Period																	
14:45	15:00	Session 3 Break		14:45	15:00	Session 7 Break		14:45	15:00	Session 11 Break		14:45	15:00	Session 15 Break																	
Session 4				HPGR Comminution Circuit Design (6)				Session 8				Energy Efficient and More Sustainable Comminution (6)				Session 12				Advances in Mill & Liner Design (6)				Session 16				Future Design (6)			
15:00	15:15	Paper 17	Energy Effects of Dry Grinding with HPGR (F. Heinicke)	15:00	15:15	Paper 17	The Flowsheet of the Future: HPGR, Vertical Stirred Mill, CPF, Vertical Stirred Re grind Mill (M. Sherman)	15:00	15:15	Paper 17	Revolutions in SAG Mill Liner Design Through DEM Modelling (R. Stephens)	15:00	15:15	Paper 17	Extending STM's Large Vertical Stirred Mill Portfolio to 12.5 MW (E. Zhmarin)																
15:15	15:30	Paper 18	Implications of Recent HPGR Design Developments (H. Lieberwirth)	15:15	15:30	Paper 18	The Versatility of Stirred Milling in Innovative Comminution Flowsheets (B. Foggia)	15:15	15:30	Paper 18	Evaluating the Throughput Benefits and Safety Aspects of Mill Liner Design for Performance (C. Ndimande)	15:15	15:30	Paper 18	Pebble Crushing Circuits: The SAG Mill's Unappreciated Saviour (K. Erwin)																
15:30	15:45	Paper 19	Experiences and Results from Applying Rotating Side Plates to HPGRs in Minerals Applications (T. Mackert)	15:30	15:45	Paper 19	Circuit Energy Savings of Microwave-Assisted Comminution and Ore Sorting (x. tian)	15:30	15:45	Paper 19	Liner Optimization of Ahafo Mine Ball Mill (J. Delgadillo)	15:30	15:45	Paper 19	Evaluating the Operating Performance of 40-Foot SAG Mill Circuit Designs (B. Cornish)																
15:45	16:00	Paper 20	Upgrading a 2.4-Meter HPGR with Advanced Mechanical Skew Control and Flanged Roll Design (B. Knorr)	15:45	16:00	Paper 20	Rock Pulverization and Mineral Liberation with Transcritical Carbon Dioxide Cycling (M. Hesse)	15:45	16:00	Paper 20	SAG Digital Twin-Hybrid Models Implementation at Los Pelambres Mine (A. Medina)	15:45	16:00	Paper 20	Challenges of Operating Large Grinding Mill Drives in Renewable Energy Dominated Grids (J. Riedlberger)																
16:00	16:15	Paper 21	Development of Fine High-Pressure Grinding for Mineral Processing Plants (R. Mclvor)	16:00	16:15	Paper 21	The Conjugate Anvil Hammer Mill - A New, Highly Efficient Grinding Machine (S. Wilson)	16:00	16:15	Paper 21	Using SAG Mill Vibration for Advanced Process Control Strategies and Monitoring Liner Improvements (C. Pedersen)	16:00	16:15	Paper 21	Adding HIGmill Technology to the Ero Copper Caraba Concentrator (W. Pretorius)																
16:15	16:30	Paper 22	Evaluating the Impact of HPGRs on Concentration Process Metallurgical Performance (S. Makni)	16:15	16:30	Paper 22	Gravity-Induced Stirred Mill (TowerMill) in Coarse Grinding Applications (S. Palaniandy)	16:15	16:30	Paper 22	A Novel Framework for Studying Loads on SAG Mill Liners Using the Impactfinder System (K. Kluge)	16:15	16:30	Paper 22	The Next Generation of Very Large Grinding Mills (D. Bordin)																
16:30	17:00	Session 4 Question Period		16:30	17:00	Session 8 Question Period		16:30	17:00	Session 12 Question Period		16:30	17:00	Session 16 Question Period																	
17:00	18:00	Cocktail Reception and Sundowner—In Memory of Ken Major with McGill University		17:00	18:00	Cocktail Reception and Sundowner—Student Social		17:00	18:30	Chairperson's Reception		17:00	18:00	Cocktail Reception																	
18:00	20:00	Master Class 1 Measuring and Reducing Carbon Footprints in Comminution		18:00	20:00	Master Class 2 Extended Reality for Comminution Circuits		19:00	22:30	Gala																					

Notes:
1) Effective date as of September 15, 2023
2) Indicated author is the corresponding author, presenting author may be different at the conference
3) This is a preliminary technical program; the SAG Conference Technical Committee reserves the right to modify this program as necessary