

TABLE OF CONTENTS

Foreward	iv
Acknowledgements	v
Canadian Mineral Processors Board of Directors (2022-2023)	vi
Developing the Next Generation of North American Mining Projects for the Battery Market	1
Recovering Graphite from Spent Lithium-Ion Battery Black Mass via Flotation without Pre-treatment	2
Regrinding: Its Impact on Pulp Chemistry and Flotation Behaviour	3
Predicting the Metallurgical Response of Ore Blends	12
Sulphide Mineral Flotation Using an Environmentally Friendly Collector	22
Technical And Economic Impacts of Split Flotation vs Conventional Bulk Flotation in Potash Processing.....	23
Investigations Into Spodumene and Lepidolite Flotation.....	29
Benchmarking the Metallurgical Performance of the Concorde Cell [™] at Lab, Pilot, and Industrial Scales	44
The Future of SO ₂ /Air Cyanide Destruction Process	55
Real-Time Monitoring and Control of Gold Processing Plants	68
Metallurgical Accounting of Mineral Processing Plants, Case Study of Gold Processing Plants	79
Decarbonizing Mineral Processing Through Made-In-Canada Cooling Technology.....	92
ISO 13909 Compliant Contractual Payment Station Coal Sampling Plant: Process Design and Equipment Selection for Chemical, Physical and Moisture Sampling	93
Modeling of Grinding Circuit Control Using Data-Driven Approach for an Industrial Case Study.....	102
Implementation of Novel Advanced Process Control Strategy to Reduce Power Consumption	108
Assessment of the Turn-By-Turn Mass Balance in a Gravimetric Separation Spiral.....	120
Process to Reuse Nitrogen Compounds for Dissolution of Precious Metals	130
The Three Root Causes of Poor Material Discharge and Bin Hang-Ups.....	141
Lithium Rush Creates Need to Re-Evaluate Old Tailings from Spodumene Plant Reject.....	142
Production of Chemical-Grade Spodumene Concentrate by Dense Media Separation from the CV5 Pegmatite.....	155
When Material Handling Drives the Business Case of a Mining Project	156
Cross Belt Sampler: Mechanical Design of The World’s Largest Hammer Sampler for Bauxite Export Contractual Requirements.....	157
Machine Learning Analysis of the Canadian Royalties Crushing and Grinding Circuits.....	176

The Effects of Discharge Design On Wet Ball Milling Performance	189
Coarse Grinding on a ISAmill?	199
The Conjugate Anvil Hammer Mill (CAHM) - A New High-Efficiency Coarse Grinding Machine	212
Nickel Ores - New tools for sustainable and efficient process monitoring	220
Accomplishing Modular Mill Design Using Ore Sorters	226
Advancing Concepts for Multi-Channel Laser Sorting	236
Ore Heterogeneity and Sortability Assessment: In Search of Universal Metrics	237
Grade Dependent Sample Time for Prompt Gamma Neutron Activation Analysis (PGNAA): A Study by ABH Engineering Inc.	247