

TECHNICAL AND SOCIAL PROGRAMME

22 – 24 October, Sheraton Hotel & Convention Center, Santiago, Chile

WEDNESDAY, 22 OCTOBER

16:00-19:00 **Registration.** Foyer, Lobby Level.

17:30-18:15 **Authors and Session Chairs Coordination Meeting.** San Cristóbal Ballroom A.

19:00-20:15 **Inauguration Ceremony.** San Cristóbal Ballroom B & C.

Opening Address. *Romke Kuyvenhoven*, Technical Coordinator, PROCEMIN 2008.

Words of Welcome. *Aldo Casali*, Director Department of Mining Engineering, University of Chile.

Keynote Address: *Bert Huls*, PROCEMIN 2008 Chairman, Concentrator Engineering Manager - Ore Processing, BHP Billiton, Australia. "**Status of the Mining Industry and Introduction of New Technology**".

20:15-22:00 **Welcome Reception, courtesy of FLSmidth.** San Cristóbal Foyer.

THURSDAY, 23 OCTOBER

SAN CRISTÓBAL BALLROOMS B & C

08:20-08:30 **Day 2 Programme Presentation and News Update.** *Romke Kuyvenhoven*, PROCEMIN 2008 Technical Coordinator, Gecamin Ltd.

Plenary Session 1

Chair: *Gerhard Von Borries*, Antofagasta Minerals, Chile

08:30-09:10 **Comminution Equipment Manufacturing Capacity, have we Reached the Limits?**

Jeff Leonard, Metso Minerals, USA

09:10-09:50 **Copper Market: Supercycle or Coming Back to Reality?**

Enrique Silva, CODELCO Chile

09:50-10:40 **Poster Session and Coffee Break, courtesy of Minera Esperanza.** San Cristóbal Ballroom A and Foyer.



SAN CRISTÓBAL BALLROOM B - 23 October

Session 1: PROJECT MANAGEMENT

Chair: Bert Huls, BHP Billiton, Australia.

10:40-11:00 **Project Execution and Escalation in a Heated Metals Market.**

Kenneth Thomas, Hatch, Canada

11:00-11:20 **How to Beat Scarcity in Human Resources.**

Hans de Ruyter and Wijnand Dalmijn, Delft University of Technology, The Netherlands

11:20-11:40 **Engineering Design of Concentrators in Australia, Asia and Africa – What Drives the Capital Cost?**

Greg Lane, Paul Staples, Mal Dickie and John Fleay, Ausenco Ltd. Australia

11:40-11:45 **Closure Session N° 1**

Session 3: PROCESS DEVELOPMENT & DESIGN

Chair: John Wells, JAWMETC, Canada.

11:50-12:10 **The Recovery of Metals from the Stora Sahavaara and Hannukainen Iron Oxide Copper Gold (IOCG) Resources.**

Dominique Lascelles, André McKen and Guillaume Chiasson, SGS Minerals Services, Lakefield, Canada. Paul Marsden and Lawrence Hooey, Northland Resources Inc, Canada. Alan Dixon and Karl Houseley, Corus Consulting, UK

SAN CRISTÓBAL BALLROOM C – 23 October

Session 2: GRINDING TESTWORK & MODELLING

Chair: Andre McKen, SGS Minerals, Canada.

10:40-11:00 **Predicting the Overall Specific Energy Requirements of AG/SAG, Ball Mill and HPGR Circuits on the Basis of Small-Scale Laboratory Ore Characterisation Tests.**

Stephen Morrell, SMCC Pty Ltd., Australia

11:00-11:20 **Comminution Testwork Programs that Deliver Multiple data sets of Comminution Parameters and Selection for Input to Project Engineering analysis, Geometallurgical Modelling, and Mine Production Plan Studies.**

Derek Barratt, DJB Consultants Inc. and Alex Doll, Alex G Doll Consulting Ltd. Canada

11:20-11:40 **Design, Simulation and Optimisation of SAG Mill circuit using the JKSimMet simulator.**

Sebastián Urrejola, Cristian Rodríguez and Thomas BoBo, Split Engineering, Chile and USA

11:40-11:45 **Closure Session N° 2**

Session 4: SAG MILL OPERATIONAL IMPROVEMENTS

Chair: Fernando Cartes, División El Teniente, Codelco Chile.

11:50-12:10 **Wear and Design Improvements in Discharge Cones for Large SAG/AG Mills.**

Craig Faulkner, Bradken. Mark Weidenbach, Newcrest Mining Limited. Australia



SAN CRISTÓBAL BALLROOM B - 23 October

12:10-12:30 **Flash Flotation – from Pilot to full size Installation at Esperanza**

Pertti Lambert, Outotec Research Oy, Finland and *Luis Bernal*, Antofagasta Minerals, Chile

12:30-12:50 **Process Plant Design & Layout – Art or Technology?**
David Harron and Jorge Rosas, Hatch, Chile

12:50-13:00 **Closure Session N° 3**

SAN CRISTÓBAL BALLROOM C – 23 October

12:10-12:30 **The use of DEM Modelling for the Development of the SAG Mill Liners at Minera Los Pelambres.**

Alexander Ortiz, Los Pelambres Mining Company, Chile and Jens Lichter, Metso Minerals, USA. *Presented by Luis Ibañez.*

12:30-12:50 **Advanced Control Implementation in the SAG Grinding Plant, Anglo American Chile, Los Bronces Division.**

Mauricio Moglia and *Víctor Grunwald*, Anglo American Chile, División Los Bronces, Chile

12:50-13:00 **Closure Session N° 4**

13:00-14:30 **Lunch.** Bohio Park (Pool Area).

SAN CRISTÓBAL BALLROOM B – 23 October

Session 5: PLANT OPERATION & OPTIMIZATION

Chair: *Jaime Morales*, Codelco Chile.

14:30-14:50 **Best Operational Practices at Sossego Processing Plant: Reducing, Reusing and Recycling.**

Bruno Ferraz, Antonio Queiroz, Mauricio Bergemann and Fabiano Malta, Cía. Vale Do Rio Doce, Brazil

14:50-15:10 **Process Integration and Optimisation at Freeport - McMoRan Candelaria Mine, Copiapó, Chile.**

Alfonso Muñoz and *Luis Alvarez*, Freeport-Candelaria Operation, Chile. Walter Valery and Juliana Colacioppo, Metso Minerals, Asia Pacific and South America

SAN CRISTÓBAL BALLROOM C – 23 October

Session 6: FLOTATION EQUIPMENT

Chair: *César Gómez*, McGill University, Canada

14:30-14:50 **Grinding Chemistry – The Application of Grinding media to improve Metallurgical response of Copper Ores.**

Christopher Greet and Jessica Kinal, Magotteaux International, Australia

14:50-15:10 **On-Site use of Hydrodynamic Sensors to Improve Metallurgical Performance of Flotation Machines.**

Gianni Bartolacci, Mohamed Ourriban and Ahmed Bouajila, COREM. César Gomez and James Finch, McGill University. Ghislain Goyette, Inmet Mining Corporation Troilus Division. Canada



SAN CRISTÓBAL BALLROOM B – 23 October

15:10-15:30 **Energy Efficiencies from Isamilling in a Concentrate Re grind Duty.**
Leonardo Soto and *Cecilia Arrué*, Anglo American, Chile

15:30-15:50 **San Cristobal Project Start up and Operational Statistics Analysis.**
Juan Collao, Aker Solutions, Chile

15:50-16:00 **Closure Session N° 5**

16:00-16:50 **Poster Session and Coffee Break, courtesy of SGS Lakefield.** San Cristóbal Ballroom A and Foyer.

SAN CRISTÓBAL BALLROOM C – 23 October

15:10-15:30 **Calibration Methodology and Calibration Maintenance in Courier Analyzers for Copper-Molibdene Flotation Process.**
César Garrido, Minera Los Pelambres. Héctor Toledo and *Pablo San Martín*, Hecker Electroquímica Industrial S.A. Adrián Villanueva, Codelco Chile División El Teniente. Chile

15:30-15:50 **G Cell Pneumatic Flotation Technology: Imhoflot Technology Fine Particles Application**
Samuel Sánchez and *Alejandro Sánchez*, Ingeniería de Minerales, Chile. Rainer Imhof, Maelgwyn Mineral Services Ltd.

15:50-16:00 **Closure Session N° 6**

SAN CRISTÓBAL BALLROOM B – 23 October

Session 7: BALL MILL & SAG GRINDING

Chair: *Luis Bernal*, Antofagasta Minerals, Chile

16:50-17:10 **Purchase and Renovation of a used Ball Mill.**
Michael Nelson, University of UTAH. Michael Holden, Samuel Engineering. USA

17:10-17:30 **Ball Mill Circuit Models for Improving Plant Performance.**
Robert Mclvor, MetCom Consulting, USA

SAN CRISTÓBAL BALLROOM C – 23 October

Session 8: FLOTATION PROCESS CONTROL

Chair: *Aldo Cipriano*, Pontificia Universidad Católica de Chile.

16:50-17:10 **Control of Flotation Process.**
Jari Moilanen, Outotec, Finland. Antti Remes, Helsinki University of Technology, Finland

17:10-17:30 **Rougher Flotation Multivariable Predictive Control; Concentrator A-1 Division Codelco Norte.**
Guillermo Cortés and *Mauricio Verdugo*, Division North, Codelco Chile. Rene Fuenzalida, Jaime Cerda and Eduardo Cubillos, Honeywell. Chile



SAN CRISTÓBAL BALLROOM B – 23 October

17:30-17:50 **Direct vs Reverse Grinding Circuit Configurations: A Quantitative Assessment of their Relative Operational Performance.**

Jaime Sepúlveda, Moly-Cop, Chile

17:50-18:10 **Improved SAG – Ball Mill Model by Using Porous Media Transport Approach.**

Jorge Menacho and *Patricio Chávez*, De Re Metallica, Chile

18:10-18:20 **Closure Session N° 7**

SAN CRISTÓBAL BALLROOM C – 23 October

17:30-17:50 **Advanced Process Control of a Froth Flotation Circuit.**

Sebastian Gaulocher and *Eduardo Gallestey*, ABB, Switzerland. *Henrik Lindvall*, Boliden Mineral AB Garpenberg, Sweden

17:50-18:10 **Combining on-Line Process Measurements and Models for Monitoring, Diagnosis and Control of Flotation Columns.**

Luis Bergh and *Juan Yianatos*, Santa María University, Chile

18:10-18:20 **Closure Session N° 8**

19:00-22:30 **Cocktail (Foyer) and Seminar Dinner**, Bohio Park (Pool Area).

FRIDAY, 24 OCTOBER

SAN CRISTÓBAL BALLROOMS B & C

08:50-09:00 **Day 3 Programme Presentation and News Up-Date.** *Romke Kuyvenhoven*, Technical Coordinator PROCEMIN 2008, Gecamin Ltd.

Plenary Session 2

Chair: *Chris Bailey*, JKTech, Australia.

09:00-09:40 **From Fag to SAG to BAG: The Theoretical Rationale Behind Current Trends in Operating Practices of Semiautogenous Grinding Applications.**

Jaime Sepúlveda, Moly-Cop, Chile

09:40-10:20 **HPGR Technology: Present and Future.**

Klymowsky Rene, POLYSIUS AG. Germany

10:20-11:10 **Poster Session and Coffee Break, courtesy of Moly-Cop.** San Cristóbal Ballroom A and Foyer.



SAN CRISTÓBAL BALLROOM B – 24 October

Session 9: HPGR – PART I OF II

Chair: *Greg Lane*, Ausenco, Australia.

11:10-11:30 **Analyses of the total required energy for Comminution of Hard Ores in SAG Mill and HPGR Circuits.**
Persio Rosario, AMEC Americas. Robert Hall, University of British Columbia. Canada

11:30-11:50 **High Pressure Grinding; How High Can You Go?**
Frank Peter van der Meer and *Rüdiger Dicke*, Humboldt Wedag GmbH. Germany

11:50-12:10 **Summary of Research Outcomes of an Amira P9N HPGR Project that Incorporated Mineralogical Analysis, Particle Weakening and micro-cracked HPGR Products.**
Mike Daniel, University of Queensland, Australia

12:10-12:15 **Closure Session N° 9**

Session 11: HPGR – PART II OF II

Chair: *Klymowsky Rene*, POLYSIUS AG., Germany

12:20-12:40 **A Small-Scale Test to Determine a Work Index for High Pressure Grinding Rolls.**
Dave Bulled, *Khiratt Husain* and *Carlos Lozano*. SGS Minerals Services. Canada

12:40-13:00 **Plant Layout Considerations for High Pressure Grinding Rolls.**
Chris Morley, Ausenco Ltd., Australia

SAN CRISTÓBAL BALLROOM C – 24 October

Session 10: FLOTATION PLANT OPERATION

Chair: *Sergio Prado*, FLSmidth DORR-OLIVER EIMCO, Chile.

11:10-11:30 **Molybdenite Differential Flotation Process Via Desliming in Order to Split Ultrafine Insoluble.**
Jorge Tapia, Doña Inés de Collahuasi Mining, Chile

11:30-11:50 **Codelco Chile – Division Andina Implementation Rougher Flotation Control System.**
Arturo Barría, División Andina CODELCO Chile and *Mauricio Valdebenito*, Metso Minerals, Chile

11:50-12:10 **Molybdenum Recovery Evolution, Codelco Chile División El Teniente.**
Rolando Morales, *Patricio Giménez*, *Marco Arru* and *Jean Authievre*. Codelco El Teniente. Chile

12:10-12:15 **Closure Session N° 10**

Session 12: FUNDAMENTALS OF FLOTATION

Chair: *Heriban Soto*, SGS Lakefield Research, Chile

12:20-12:40 **Frother Effect on Bubble Coalescence and Break-up.**
Willy Kracht, *César Gomez* and *James Finch*, McGill University, Canada

12:40-13:00 **Factor Affecting froth Stability in Mineral Flotation and Implications on Minerals Recovery: a case of study.**
Massimiliano Zanin, *Sabina Gredelj* and *Stephen Grano*, University of South Australia



SAN CRISTÓBAL BALLROOM B – 24 October

13:00-13:30 **Round Table Discussion HPGR**

SAN CRISTÓBAL BALLROOM C – 24 October

13:00-13:20 **On-Line Estimation of Bubble Size Distributions Using Gaussian Mixture Models.**
Miguel Maldonado, André Desbiens, René del Villar and Helin Girgin. University of Laval. César Gómez, McGill University. Canada

13:20-13:30 **Closure Session Nº 12**

13:30-15:00 **Lunch.** Bohio Park (Pool Area).

SAN CRISTÓBAL BALLROOM B – 24 October

Session 13: TAILINGS HANDLING & THICKENING

Chair: *Fernando Concha*, Universidad de Concepcion, Chile

15:00-15:20 **The Secret to Thickener Performance.**
Richard Triglavcanin, Outotec, Australia. Presented by Brandt Henriksson

15:20-15:40 **Experiences with Modern Dewatering Technologies in Fine Iron Ore Application.**
Guido Görres and Rolf Hindström, Larox Corporation, Germany. Manuel Martínez, Larox Chile S.A.

15:40-15:50 **Closure Session Nº 13**

SAN CRISTÓBAL BALLROOM C – 24 October

Session 14: EQUIPMENT DESIGN

Chair: *Fernando Villanueva*, Minera Los Pelambres, Chile

15:00-15:20 **New Developments in Cone Crusher Performance Optimization.**
Jens Lichter, King Lim, Alex Potapov and Dean Kaja. Metso Minerals Inc., USA

15:20-15:40 **Development and Validation of the TankCell-300.**
Sami Grönstrand, Outotec Minerals Processing, Finland. Peter Bourke, Outotec Pty Ltd. Australia

15:40-16:00 **Application of High Frequency Screens in Closing Grinding Circuits.**
Laércio Albuquerque, Jobe Wheeler, Steven Valine and Brenno Ganahl, Derrick Corporation, USA and Godofredo Barrios, Goldex S.A., Peru

16:00-16:10 **Closure Session Nº 14**



CLOSING SESSION AND CLOSING RECEPTION. San Cristóbal Ballroom A and Foyer.

16:10-16:20 **Seminar Balance and Final Comments.** PROCEMIN 2008 Organising Committee:

Bert Huls, Chairman PROCEMIN 2008

Romke Kuyvenhoven, Technical Coordinator

Carlos Barahona, Executive Director.

Gerhard Von Borries, Chairman PROCEMIN 2009

16:20-16:30 Best Presented Paper and Best Student Poster Awards.

16:30-18:00 **Cheese & Wine**

