

TECHNICAL PROGRAM

(7 plenaries + 54 presentations as of May 2, 2017)

Represented Countries (13): Australia, Bolivia, Brazil, Canada, Chile, China, Ecuador, Finland, Germany, Mexico, Peru, USA, Zambia

Inauguration Ceremony, Wednesday June 21

Opening Address

Challenges and Opportunities in Hydrometallurgical Development at Codelco Radomiro Tomic Division

Lindor Quiroga, General Manager, Radomiro Tomic Division, Codelco, Chile

Plenary Presentations

(07)

Thursday June 22

(A72) Recent Updates on the Hydrometallurgical Processing of Primary Copper Sulfides

Ahmad Ghahreman, Queen's University, Canada

(A09) Challenges in 20 Years of Operation of the Leaching Plant, Solvent Extraction and Electrowinning at Toquepala

José Tenorio and José Arenas, Toquepala, Southern Copper, Peru

(A70) Scale Up of Hydrodynamic and Metallurgical Parameters in Heap Leaching Operations

Jorge Menacho, De Re Metallica Ingeniería, Chile

Friday June 23

Title TBC

Devesh Bajinath, Pampa Norte, BHP Billiton, Chile

(A77) Iron Phase Control during Pressure Leaching of Copper in Sulfate Solutions at Elevated Temperatures

Corby Anderson and Camille Fleurialt, Colorado School of Mines, USA; Scott Shuey, Newmont Mining, USA

Title TBC

Jaime Pérez de Arce, ENAMI, Chile

(A34) PLCC Project: Autoclave Technology Applied to Complex Copper Concentrates

Nelson Parra, Marcelo Acuña and Orlando Fuentes, EcoMetales, Chile

New Reagents, Materials and Technology Development

(1 abstracts)

(A36) Aqueous Two-Phase System of Poly (Ethylene Glycol) 4000 and Ferric Sulphate at 323.15 K

Islamán Villalobos, Yahaira Barrueto, Katuska Garnica and Yecid Jiménez, Universidad de Antofagasta, Chile

Innovation, Development and Process Improvement**(5 abstracts)****(A03) Economic Recovery and Upgrade of Metals from Middling and Tailings Streams**

Paul Voigt, Daniel Mallah, Mike Hourn, Virginia Lawson, Greg Anderson and Glenn Stieper, Glencore Technology, Australia

(A33) De Nora's Mixed Metal Oxide (MMO) Self-Protected Anode Technology Platform for Metal Electrowinning

Carl Brown and Piero Casanello, De Nora Tech, USA; Félix Prado, Infotrol, Spain; Luciano Iacopetti, Michele Perego, Giuseppe Faita, Paulo Perrone and Alice Calderara, Industrie De Nora, Italy

(A37) Copper Ore Leaching with Pre-Treatment

María Taboada, Pía Hernández, Aldo Padilla and Osvaldo Herreros, Universidad de Antofagasta, Chile; Rafael Quiroz and Teófilo Gráber, CICITEM, Chile

(A55) Elimination of Air Pollution by Acid Mist in Copper Electrowinning Plants from Copper Oxide Ores

Víctor Vidaurre, Tecminomet, Chile

(A79) Path to a cultural transformation with "C+" Gabriela Mistral Division, Codelco

Alejandro Flores and Nelson Salazar, Gabriela Mistral Division, Codelco, Chile

Instrumentation, Modeling, Optimization, and Automatic Process Control**(5 abstracts)****(A18) Phenomenological Modelling of Industrial Heap and Dump Bioleaching**

Roberto Collao and Roberto Bobadilla, CodelcoTech, Chile

(A20) Speciation and Conditioning of Copper Leach Solutions

Jesús Casas, Process Consulting, Chile; José Luis Campos, Universidad Adolfo Ibáñez, Chile; Leonardo Romero, Universidad Católica del Norte, Chile; Patricia Piña and Roberto Bobadilla, CodelcoTech, Chile

(A74) Dynamic Simulation of Operational Variables for Optimal Design of a Processing Plant Adaptation

Verónica Escobar, Sebastián Gálvez and José Guerra, Jacobs, Chile

(A78) Application of an Operative Model of Excellence for the Optimization of Hydrometallurgical Plants

Reinaldo Mendoza and María Veas, RMV Ingehidromet, Chile

(A69) Advanced Control System to Maximize Copper Recovery in Heap Leaching Operations

Francisco Troncoso and Jorge Menacho, De Re Metallica Ingeniería, Chile; Adrián Freitte, Emerson, Chile

**Base metal, Precious Metal, Non-Metallic Elements, Saline Compounds, and Rare Earth Hydrometallurgy
(08 abstracts)****(A01) Cyanidation of Silver Telluride (Ag₂Te): Effect of Lead (II) Concentration, Particle Size and Presence of Pyrite**

Adrián González, Fabiola Nava and Alejandro Uribe, CINVESTAV, Mexico

(A11) Leaching of Auriferous Minerals with Hypochlorite Salts and Recovery with Activated Carbon: Polydopamine Composite

David Meza, Juan Benavides, Ernesto de la Torre and Alicia Guevara, Escuela Politécnica Nacional, Ecuador

(A13) An Effective New Leaching Aid Successfully Tested with Copper Ores

Jack Bender, BASF, USA

(A19) Development of an Active Carbon: Polydopamine Composite to Increase the Adsorption Capability of Ions [AuCl₄]⁻ and Cu²⁺

Juan Benavides and Ernesto de la Torre, Escuela Politécnica Nacional, Ecuador

(A49) Silver Leaching From Jarosite by Thiourea in Acid Media: Effect of Copper and Sulfur on the Stability of the Thiourea-Silver System

Dandy Calla, Fabiola Nava and Juan Fuentes, Cinvestav Saltillo, Mexico

(A48) Oxygen Mass Transfer in the Albion Process™: From the Laboratory to the Plant

Paul Voigt, Mike Hourn and Daniel Mallah, Glencore Technology, Australia

(A66) Extraction of Rare Earths Elements from Ion Clays Deposit in a Continuous Desorption State-of-the-Art Process

Arturo Albornoz, Minera Biolantánidos, Chile

(A71) Oxidation Plant Optimization at Empresa Nacional de Minería

Manuel Carmona, Luis Collao, Miguel González and Gleny Espinoza, ENAMI, Chile

Leaching and Bioleaching of Sulfide Concentrates and Minerals

(10 abstracts)

(A10) Compatibility and Enhancement of Bioleaching of Primary Copper Sulfide Ore in the Presence of Chloride

Patricia Piña, Yasna Gallardo and Roberto Bobadilla, CodelcoTech, Chile

(A17) Bioleaching of Enargite: Copper Recovery with Microorganisms from Arsenic-containing Ores

Patricio Martínez and Roberto Bobadilla, CodelcoTech, Chile

(A07) Pre-treatment with Sodium Chloride and Sulfuric Acid of a Bornitic Concentrate and Later Leaching in Chloride Solution

Fabiana Bahamonde, Matías, Gómez and Patricio Navarro, Universidad de Santiago de Chile

(A35) Environmental Benefits of the CESL Process for the Treatment of High-Arsenic Copper Concentrates

Darren Schwartz and Susan Stocker, Teck CESL, Canada; Vanya Omaynikova, Aurubis, Germany

(A52) Outotec Process Solutions and Equipment for Hydrometallurgical Treatment of Cu Sulfides

Claudio Rodríguez and Boris Merino, Outotec, Chile; Janne Karonen and Kaarlo Haavanlammi, Outotec, Finland

(A53) New Electrolytic Process to Remove Copper Impurities from Molybdenite Concentrate by Simultaneously Electrowinning Copper and Regenerating a Ferric Chloride Leaching Agent

Jaime Simpson, Protech, Chile

(A64) BioCobre® Technology: An Improved Methodology to Leaching Mineral Concentrates

Raimundo Bordagorry, Juan Rivadeneira and Gustavo Rodríguez, Laboratorio de Investigación Aplicada, Chile; Miguel Herrera, Universidad Adolfo Ibáñez, Chile

(A50) The Evolution of Complex Ores in the Copper Industry: Lessons Learned from the Gold Industry and the Acceptance of Pressure Hydrometallurgical Flowsheets

William McCombe, Kevin Fraser, Brad Hewitt, and Frank Cheuk, Hatch, Canada

(A45) The FLSmidth® ROL Process: BASF-FLS Pilot Plant Testing

David Chaiko, Sara Rocks, Chase Dickinson and Frank Baczek, FLSmidth, USA; Jack Bender, BASF, USA

(A76) Copper Leaching from Sulfide Ore in Acidic-Chloride Media

Eduardo Hasan, Ricardo Vergara, Felipe Guerrero and Yerko Órdenes, Minera Tres Valles, Chile

Fundamentals and Operation of Solvent Extraction and Ion Exchange	(10 abstracts)
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(A12) High Chloride in PLS and their Impact on Copper Solvent Extraction

Héctor Yáñez, Leonor Ardiles and Cristóbal del Río, BASF, Chile

(A23) Effect of Degradation Products on the Performance of Hydroxyoxime Extractant

Wang Chaohua, Ji Shangjun, Xu Zhigang, Zou Qian, Peng Xue, Ren Jiao and Yang Zheng, KopperChem, China

(A24) Effect of PLS Characteristics and Extractant Concentration on the Iron Transfer in Copper SX Plant

Tang Qiming, Li Feng, Liu Dan, Yang Qi-hua, Zhou Shu-rong, Wang Jing-hong and Chen Shi-min, KopperChem, China

(A25) Study on the Effect of Diluent on the Performance of Extractant

Wang Chaohua, Xu Zhigang, Zou Qian, Ji Shangjun, wang Fei, Peng Xue and Ren Jiao, KopperChem, China

(A26) Study on the Effect of Modifiers on the Extraction Performance of the Hydroxyoxime Extractants

Ji Shangjun, Xu Zhigang, Zou Qian, Luo Xing, Yu Li-yan, Xiao Xue-mei and Jiang Xue, KopperChem, China

(A30) Piloting Chinese Copper Solvent Extraction Reagents in Zambia

James Besa, CHEN Mineral & Engineering, Zambia

(A43) Separation of Didymium from Lanthanum by Liquid-Liquid Extraction using Organophosphorus Acids and Acetic Acid

João Silva and Ysrael Vera, Center for Mineral Technology, Brazil

(A47) Nitronium Ion Inhibition in Aqueous Solution: The Final Answer to Oxime Nitration in SX

Rodrigo Zambra and David Acevedo, Solvay, Chile; Matthew Soderstrom and Laurent Cohen, Solvay, USA

(A14) A New Phase Dispersion and Superior Phase Separation System

Daniel Ernt, Minertech, USA

(A65) SX Operation under High Chloride Content Conditions

Rodrigo Zambra and Mauricio Morales, Solvay, Chile; Matthew Soderstrom and Laurent Cohen, Solvay, USA

Leaching and Solvent Extraction in Chloride Medium	(3 abstracts)
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(A27) Leaching of Primary Copper Sulfides in Chloride-Ferrous Medium

Oswaldo Herreros and Camila Córdova, Universidad de Antofagasta, Chile; Karina Salinas and Juan Álvarez, Minera Zaldívar, Chile; Cynthia Torres, CICITEM, Chile

(A56) In Situ Acid Generation: A Potential Option for Copper Oxide Heap Leaching Process

Felipe Hilário, Barbara Cardoso, Danielly Couto, Geysa Pereira and Rogério Ribeiro, Vale, Brazil

(A62) Saline Tailings: AMD Production, Microbial Changes and the Effect of Washing with LAR-2® as Remediation Strategy

Cristián Pugh, Bernardo González and Juan Rivadeneira, Center of Applied Ecology and Sustainability, Chile; Héctor Ayala, Raimundo Bordagorry and Gustavo Rodríguez, Laboratorio de Investigación Aplicada, Chile

Interfering Elements Control and Impurity Extraction**(1 abstract)****(A42) Insights on the Behavior of Arsenic Species on Activated Carbon during Catalytic Arsenic Oxidation**

Rebecca Radzinski and Ahmad Ghahreman, Queen's University, Canada

Design and Operation of Solvent Extraction and Electrowinning Circuits**(5 abstracts)****(A05) Measurements in Intercell Busbar with Four Contact Points for Copper Electrowinning Plant**

Chi Zhang, Peking Brotech Company, China; and Junyi Wu, Sanmen Sanyou Technology, China

(A51) Development of a Low Resistance, Low Corrosion Cathode Plate for Electrowinning and Electrorefining

Nigel Aslin, Christian Pasten, Addin Pranowo and Graham Heferen, Glencore Technology, Australia

(A54) New Electrolytic Process for Copper Electrowinning and Simultaneous Generation of Ferric ion for Sulfide leaching

Jaime Simpson and Victor Araya, Protech, Chile

(A68) Development and Implementation of SELE® Technology in EW Tank House, Radomiro Tomic

Mario Núñez and Felipe Lagno, Radomiro Tomic Division, Codelco, Chile; Sergio Cortés, New Tech Copper, Chile

(A75) Start-Up Solvent Extraction – Electrowinning

José Aldana, Minera Antucoya, Chile

Recycling of Metals and Alloys**(4 abstracts)****(A08) Acid Leaching and Precipitation of Metals from Spent Li-Ion Batteries**

Diana Endara and Sebastián Armas, Escuela Politécnica Nacional, Ecuador

(A15) Neodymium Recovery from Post-Consumer Computer Hard Drive Magnets using H_3PO_4 and HCl Solutions

Raquel Ibarra and Ernesto de la Torre, Escuela Politécnica Nacional, Ecuador

(A28) A Sustainable Process for the Recovery of Valuable Metals from Spent $LiNi_{1/3}Co_{1/3}Mn_{1/3}O_2$ Batteries

Liping Xu, Conghao Sun and Tao Zhou, Central South University, China; Xiangping Chen, Shaanxi University of Science and Technology, China

(A29) Selective Extraction of Lithium from Waste Cathode Materials of Spent Lithium-Ion Batteries using Phosphoric Acid

Liping Xu, Conghao Sun and Tao Zhou, Central South University, China; Xiangping Chen, Shaanxi University of Science and Technology, China

Others**(2 abstracts)****(A02) Underground Acid Drainage Treatment in Mina San José Oruro**

Gerardo Zamora, Elvis Trujillo and Milton Salas, Universidad Técnica de Oruro, Bolivia

(A67) Adsorption: An Interesting Hydrometallurgical Option to Remove Ions from Water Mines

Fernando Valenzuela, Carlos Basualto, Gonzalo Montes, Viviana Ide and Geraldine Quintana, Universidad de Chile

PRESENTATION DISTRIBUTION**Mining Companies****(8 abstracts)**

Toquepala, Southern Copper, Peru (1)
Vale, Brazil (1)
Minera Biolantánidos, Chile (1)
Radomiro Tomic Division, Codelco, Chile (1)
ENAMI, Chile (1)
Minera Antucoya, Chile (1)
Minera Tres Valles, Chile (1)
Gabriela Mistral Division, Codelco, Chile (1)
Pampa Norte, BHP Billiton, Chile
Minera Zaldívar, Chile
Newmont Mining, USA

Engineering and Consulting Companies**(14 abstracts)**

Peking Brotech Company, China (1)
CHEN Mineral & Engineering, Zambia (1)
Hatch, Canada (1)
CodelcoTech, Chile (3)
Glencore Technology, Australia (3)
Teck CESL, Canada (1)
De Re Metallica Ingeniería, Chile (2)
Jacobs, Chile (1)
RMV Ingehidromet, Chile (1)

Supplier Companies**(16 abstracts)**

BASF, Chile (1)
BASF, USA (1)
Minex tech, USA (1)
KopperChem, China (4)
Outotec, Chile (1)
De Nora Tech, USA (1)
EcoMetales, Chile (1)
Solvay, Chile (2)
FLSmidth, USA (1)

Protech, Chile (2)
Tecminomet, Chile (1)

Universities and Research Centers

(21 abstracts)

CINVESTAV, Mexico (1)
Universidad Técnica de Oruro, Bolivia (1)
Universidad de Santiago de Chile (1)
Escuela Politécnica Nacional, Ecuador (4)
Universidad Adolfo Ibáñez, Chile (1)
Universidad de Antofagasta, Chile (3)
Central South University, China (2)
Queen's University, Canada (2)
Universidad de Chile (1)
CINVESTAV Saltillo, Mexico (1)
Center for Mineral Technology, Brazil (1)
Center of Applied Ecology and Sustainability, Chile (1)
Laboratorio de Investigación Aplicada, Chile (1)
Colorado School of Mines, USA (1)