

ALTA 2016
21 - 28 May
Perth, Australia

**Nickel-Cobalt-Copper, Uranium-REE
and Gold-PM Conference & Exhibition**

3 CONFERENCES – 3 SHORT COURSES

Conference Program

About ALTA 2016

ALTA 2016 is the 21st year of one of the world's premier annual metallurgical events, typically attracting 200-300 attendees from 20+ countries. The conference is an annual gathering of the global Nickel, Cobalt, Copper, Uranium-REE and Gold-PM industries and features highly focused programs, topical forums and presentations by key international speakers. Held over eight days at Pan Pacific Perth, it comprises three technical conferences, three short courses, networking functions and an international trade exhibition.

This conference is an outstanding platform for exposing the latest worldwide developments in plant operations, process technology, new projects, testwork & scale-up, process modelling & control systems, application of mineralogy & geometallurgy, research & development, equipment, reagents, materials, tailings disposal and environmental alleviation. The event provides an excellent opportunity to network with a wide variety of key industry professionals and showcase products and services to decision-makers in the pertinent field.

PROGRAM OVERVIEW							
Saturday 21 May	Sunday 22 May	Monday 23 May	Tuesday 24 May	Wednesday 25 May	Thursday 26 May	Friday 27 May	Saturday 28 May
SHORT COURSE	SHORT COURSE	CONFERENCE SESSIONS					SHORT COURSE
The A-Z of Copper Ore Leaching	Solvent Extraction and its Application to Copper, Uranium & Nickel-Cobalt	Nickel-Cobalt-Copper <i>Including Hydromet Processing of Sulphides Forum & Panel</i>			Uranium-REE <i>Including Membranes in Uranium Ore Processing Forum & Panel</i> <i>in parallel with</i> Gold-PM <i>Including Refractory Gold Ores Forum & Panel</i>		Uranium Ore Processing
EXHIBITION							
		Welcome Reception	Conference Dinner	Happy Hour			

Thank you to our Co-Sponsors/Partners



Program Overview

Saturday 21 May to Saturday 28 May

Subject to change.

ALTA 2016
21 - 28 May
Perth, Australia

Conference Venue: Pan Pacific Perth, 207 Adelaide Terrace, Perth

Saturday 21 May

8:30am	Registration Arrival Tea & Coffee	Foyer 5
9:00am	Short Course: A-Z of Copper Ore Leaching	Meeting Room 5

Sunday 22 May

8:00am	Registration Arrival Tea & Coffee	Foyer 5
9:00am	Short Course: SX and its Application to Copper, Uranium and Nickel-Cobalt	Meeting Room 5
2:00-5:00pm	Exhibitor Bump-In	Golden Ballroom
3:00-6:00pm	Registration	Foyer 1

Monday 23 May

7:30am	Presenter Breakfast	Mt Newman
7:30am	Registration	Foyer 1
8:00am	Arrival Tea & Coffee	Golden Ballroom
9:00am	Nickel-Cobalt-Copper Sessions	Grand River Ballroom
5:30-7:30pm	Welcome Reception	Golden Ballroom

Tuesday 24 May

7:30am	Presenter Breakfast	Mt Newman
8:30am	Arrival Tea & Coffee	Golden Ballroom
9:00am	Nickel-Cobalt-Copper Sessions	Grand River Ballroom
6:30-10:00pm	Conference Dinner	Grand River Ballroom West

Wednesday 25 May

8:00am	Presenter Breakfast	Mt Newman
9:00am	Arrival Tea & Coffee	Golden Ballroom
9:30am	Nickel-Cobalt-Copper Sessions	Grand River Ballroom

Thursday 26 May

7:30am	Presenter Breakfast	Mt Newman	
7:30am	Registration	Foyer 1	
8:00am	Arrival Tea & Coffee	Golden Ballroom	
9:00am	Gold-PM Sessions	In parallel with Uranium-REE	Grand River Ballroom West
9:15am	Uranium-REE Sessions	In parallel with Gold-PM	Grand River Ballroom East
5:00-6:00pm	Happy Hour	Golden Ballroom	

Friday 27 May

7:30am	Presenter Breakfast	Mt Newman	
8:30am	Arrival Tea & Coffee	Golden Ballroom	
9:00am	Gold-PM Sessions	In parallel with Uranium-REE	Grand River Ballroom West
9:00am	Uranium-REE Sessions	In parallel with Gold-PM	Grand River Ballroom East

Saturday 28 May

8:30am	Registration Arrival Tea & Coffee	Foyer 5
9:00am	Short Course: Uranium Ore Processing	Meeting Room 5

A-Z of Copper Ore Leaching

Meeting Room 5

8:30am **Registration | Arrival Tea & Coffee** (Foyer 5)

9:00am **Session 1**

10:30am **Morning Tea** (Foyer 5)

10:45am **Session 2**

12:15pm **Lunch** (Monterey's Restaurant)

1:15pm **Session 3**

2:45pm **Afternoon Tea** (Foyer 5)

3:00pm **Session 4**

4:30pm **Close**

Topics Covered

Leachability of minerals, review of commercial processes, developments and trends:

- Leachability of copper minerals and importance of gangue minerals
- Chemistry of oxide and sulphide copper minerals
- Commercially applied leaching processes
- Process outline, history and status
- Developments and trends

Leaching of copper sulphide concentrates:

- Background
- Processes applied commercially
- Processes operated at demonstration plant scale
- Processes operated at pilot plant scale
- Other process developments
- Trends

Agitated leaching of oxide ores:

- Background
- Typical Commercial Operations
- Typical Flowsheets
- Testwork, Scale-up and Equipment Sizing
- Design Criteria
- Layout
- Industry Trends

Heap leaching:

- Background
- Typical Commercial Operations
- Typical Flowsheets
- Testwork, Scale-up and Equipment Sizing
- Design Criteria
- Layout
- Industry Trends

SX and its Application to Copper, Uranium & Nickel-Cobalt

Meeting Room 5

8:30am	Registration Arrival Tea & Coffee (Foyer 5)
9:00am	Session 1
10:30am	Morning Tea (Foyer 5)
10:45am	Session 2
12:15pm	Lunch (Monterey's Restaurant)
1:15pm	Session 3
2:45pm	Afternoon Tea (Foyer 5)
3:00pm	Session 4
4:30pm	Close

Topics Covered

Advantages

Disadvantages

Basic Process

Organic Liquid Constituents

- Extractants
- Diluents
- Modifiers

SX Contactors

SX Ancillary Facilities

Application to Copper

Application to Uranium

Application to Nickel-Cobalt

Plant Arrangement and Layout

Fire Protection

Materials of Construction

Testwork

Scale-Up and Design Criteria

Plant Operation

Performance and Risk

Industry Trends

Nickel-Cobalt-Copper Program

Monday 23 May to Wednesday 25 May

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Monday 23 May

7:30am **Presenter Breakfast** (Mt Newman)

7:30am **Registration** (Foyer 1)

8:00am **Arrival Tea & Coffee** (Golden Ballroom)

Nickel-Cobalt-Copper Sessions (Grand River Ballroom)

Sponsored by



Welcome | Keynote Address

9:00am **Welcome**
Alan Taylor, Managing Director, ALTA Metallurgical Services (Australia)

Sponsor's Welcome

Owen Tinkler, Business Development Director, CYTEC Solvay Group (USA)

9:15am **Keynote Address:**
Are We Any Closer to Hydromet Overtaking Smelting for Copper Sulphide Concentrates
Ken Baxter, VP Technology; Director of Hydrometallurgy, SNC-Lavalin Group (Australia)

Main Sessions

Session Chair: Mike Dry, Owner, Arithmetek Inc. (Canada)

10:00am **Study on the Reductive Leaching of the Seabed Co-Mn Polymetallic Ore with CO and Ammonia**
Kaixi Jiang, LinYong Feng, Wei Jiang, XunXiong Jiang, Beijing General Research Institute of Mining and Metallurgy (BGRIMM) (China)

10:30am **Morning Tea** (Golden Ballroom)

11:00am **Innovation, Sustainability and the Future of Metals Extraction** (double timeslot)
Bryn Harris, NMR360 Inc. (Canada)

Ni/Co Laterites

12:00pm **Completing The Ambatovy Ramp-Up: The Road to Successful Financial Completion**
Lourdes Valle, SNC Lavalin Australia Pty Ltd (Australia); Mark Benz, Mike Chalkley, Michael Collins, Rod Holmwood, Nigel Tuffrey, Sherrit International Corporation (Canada); Tim Dobson, Randy Vrolson, Ambatovy (Madagascar); Anna Malevich, SNC Lavalin Inc, (Canada)

12:30pm **Lunch** (Golden Ballroom)

Session Chair: Boyd Willis, Chief Technical Officer Onshore, DeepGreen Resources, Inc. (Australia)

1:30pm **Technical & Cost Comparison of Laterite Treatment Processes: Part 4 - Hydroxide to Metal**
Mike Dry, Arithmetek Inc. (Canada)

2:00pm **Ni Laterite Heap Leach PLS Neutralisation and Fe/Al Precipitation**
David Readett, Mworx Pty Ltd (Australia); Jamie Sullivan, GME (Australia)

2:30pm **The Starved Acid Leaching Technology (SALT) for Nickel Recovery from Saprolites**
David Dreisinger, InCoR Technologies Limited (Canada)

3:00pm **Afternoon Tea** (Golden Ballroom)

3:30pm **Optimising the Utilisation of Caustic Calcined Magnesia in a Hydrometallurgical Application**
Mike Miller, Mike Miller Consultancy Services (Australia)

4:00pm **Establishment of a 1 TPD HPAL Pilot Plant at ALS Metallurgy**
Neil Bourne, ALS Metallurgy (Australia); Hermann Scriba, Independent Metallurgical Consultant (Australia)

4:30pm **CSIRO Drag Reduction Technology for Improved Slurry Pumping - An Industrial Trial at Glencore's Murrin Murrin Operations Pty. Ltd.**
Reuben Rajasingam, Jie Wu, Dave Robinson, CSIRO Mineral Resources (Australia); Marek Pawelek, Paul Wiltshire, Murrin Murrin Operations Pty. Ltd., (Australia)

5:00pm **Explosion Welding in the Hydromet Industry**
Jeff Scruggs, NobelClad (USA)

5:30-7:30pm **Welcome Reception** (Golden Ballroom)

Sponsored by **NobelClad**

Tuesday 24 May

7:30am **Presenter Breakfast** (Mt Newman)

8:30am **Arrival Tea & Coffee** (Golden Ballroom)

Nickel-Cobalt-Copper Sessions (Grand River Ballroom)

Sponsored by



Session Chair: Michael Moser, Technology Manager MEP, Cytec Solvay Group (USA)

PAL/POx

9:00am **Novel Nanostructured Coating and Other New Developments for Ni/Co HPAL & POx Ball Valve Applications**

George Kim, Perpetual Technologies (Canada)

Leach Process Development

9:30am **Recovery of Copper from Nkana Flotation Tailings**

Rodrick M. Lamy, Tinah Phiri Chanda, Department of Metallurgy, School of Mines and Mineral Sciences, Copperbelt University (Zambia)

10:00am **Factors Affecting the Ranking of Deposits for Potential In-Situ Processing**

Laura Kuhar, Paul Breuer, Dave Robinson, CSIRO Mineral Resources (Australia)

10:30am **Morning Tea** (Golden Ballroom)

11:00am **Metallurgical Test Work and Process Modeling for Copper In Situ Leaching**

Laura Sinclair, Cornell University (USA)

IX/SX/Membranes

11:30am **Selective Removal of Copper from Acid Mine Drainage**

Les Hutton, Steve Colley, Johnson Matthey (UK)

12:00pm **Nano-Filtration Technology for Electrolyte Treatment**

Johannes Herrmann, Advanced Membrane Separation (AMS) Technologies (Israel)

12:30pm **Lunch** (Golden Ballroom)

Session Chair: Murdoch Mackenzie, Consultant (Australia)

1:30pm **Escaid™ 110 Diluent - Meeting The Evolving Needs of The Mining Industry**

Wen Pei Lim, ExxonMobil Chemical Asia Pacific (Singapore)

2:00pm **Recovery of Nickel and Cobalt Directly from Leach Solutions Containing Iron and Aluminium Using a New DSX Process**

Wensheng Zhang, Chu Yong Cheng, Weiwei Wang, Yoko Pranolo, CSIRO Mineral Resources (Australia)

2:30pm **Separation and Recycle of Heavy Metals from Waste Water of Zinc Hydrometallurgy Using Synergic Solvent Extraction**

Yan Li, Limei Yang, Zheng Xu, Qi Sun, National Engineering Laboratory of Biohydrometallurgy, General Research Institute for Non-Ferrous Metals (GRINM) (China)

3:00pm **Afternoon Tea** (Golden Ballroom)

3:30pm **CRUD FORX™ - Advance in Solvent Extraction Crud Management Technology**

Darren Megaw, Priscillia Muzadi, ProProcess Engineering (Pty) Ltd (South Africa); Albert Kashala, Materials of Sciences Engineering Department, ESI, University of Lubumbashi (DRC); Antonio Ramon Sanchez, First Quantum Minerals (Pty) Ltd (Spain)

4:00pm **The Effect of Impeller Design on Phase Separation Efficiency for Solvent Extraction Auxiliary Tanks**

Katlyn Mallory, Richard Kehn, Antonio Iniguez, Marcos Filgueiras, SPX Flow US LLC (LIGHTNIN) (USA)

4:30pm **The RIMM Process - An Advanced Metal Extraction Method**

Pavel Spiridonov, InnovEco Australia Pty Ltd (Australia); Hans Hein, Ricardo Hein, Oryxeo Ingeniería Ltda (Chile)

6:30pm Drinks **Conference Dinner** (Grand River Ballroom West)

Sponsored by **MOGAS Industries**

7:00pm Dinner

10:00pm

Close

Dinner Address: Necessity is the Mother of Invention

Alan Taylor, Managing Director, ALTA Metallurgical Services (Australia)

Followed by entertainment and a relaxing evening!

Wednesday 25 May

8:00am **Presenter Breakfast** (Mt Newman)

9:00am **Arrival Tea & Coffee** (Golden Ballroom)

Nickel-Cobalt-Copper Sessions (Grand River Ballroom)

Sponsored by



Session Chair: Steve Colley, Business Manager, Johnson Matthey (UK)

Heap Leaching

9:30am **Metallurgical Studies and Pilot Plant Tests to Evaluate Low-Grade Copper Oxide Ores for Heap Leaching at the Tuwu Copper Mine in the Gobi Desert, Xinjiang China**

Meilin Liu, Biao Wu, Jiankang Wen, Guoliang Liu, National Engineering Laboratory of Biohydrometallurgy, General Research Institute for Nonferrous Metals (GRINM) (China); Guikuan Tan, Central Asia Huajin Hami Yan Xin Copper Company Limited (China)

Hydromet Processing of Sulphides Forum

10:00am **Decanter Centrifuges for Sulphide Leaching Applications**

Dustin Pepper, Andritz Separation (Australia); Nicolas Perrier, Andritz Separation (France); Christophe Bellow, Andritz Separation (Austria)

10:30am **Morning Tea** (Golden Ballroom)

11:00am **Removal of Impurities from Copper Sulphide Mineral Concentrates**

Mark Weidenbach, Oz Minerals Pty Ltd (Australia); Grenvil Dunn, Yong Teo, Orway Mineral Consultants (WA) Pty Ltd (Australia)

11:30am **The Toowong Process: Developing a Viable Solution for Copper's Dirty Problem**

Peter Rohner, Duncan Turner, David Walker, Lachlan MacDonald, Core Group (Australia)

12:00pm **Lunch** (Golden Ballroom)

Session Chair: Bryn Harris, Managing Partner, NMR360 (Canada)

1:00pm **BioHeap® - Cosmic Boy Mill Recovery Enhancement Project. An Update**

Jason Fewings, Shawn Seet, Tim McCredden, Craig Fitzmaurice BioHeap Ltd (Australia)

1:30pm **The Mondo Minerals Nickel Sulfide Bioleach Project: Construction, Commissioning and Early Plant Operation**

John Neale, Mintek (South Africa), Janne Seppälä, Arto Laukka, Mondo Minerals (Finland); Pieter van Aswegen, P Met Consulting (South Africa); Stephen Barnett, Consultant (UK)

2:00pm **Pressure Oxidation Process Development for Treating Complex Sulfide Copper Materials**

Peter V. Zaytsev, M. A. Pleshkov, A. Y. Lapin, Y. M. Shneerson, SRC Hydrometallurgy (Russia)

2:30pm **Afternoon Tea** (Golden Ballroom)

3:00pm **Leaching of Chalcopyrite Concentrates with Alkaline Glycine Solutions**

Jacques Eksteen, Elsayed Oraby, Curtin University (Australia)

3:30pm **Hydromet Processing of Sulphides Panel Discussion**

Panel Chair: Alan Taylor, Managing Director, ALTA Metallurgical Services (Australia)

Conference Close

Unable to present but included in proceedings

Effective Fire Extinguishment in Settlers and Tanks in SX

Frank Rizzuto, Protec Group (Canada)

AmmLeach™, A New Paradigm in Copper-Cobalt Processing

Nicholas J. Welham, Garry M. Johnston, MetaLeach Limited (Australia); Matthew L. Sutcliffe, Alexander Mining Plc (UK)

Uranium-REE Program

In parallel with Gold-PM Sessions

Thursday 26 May to Friday 27 May

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Thursday 26 May

7:30am **Presenter Breakfast** (Mt Newman)

7:30am **Registration** (Foyer 1)

8:00am **Arrival Tea & Coffee** (Golden Ballroom)

Uranium-REE Sessions (Grand River Ballroom East)

Welcome Address

9:15am **Welcome**

Allison Taylor, ALTA Metallurgical Services (Australia)

Session Chair: Grenvil Dunn, Principal Process Engineer, Orway Mineral Consultants (Australia)

Project Development

9:30am **Developments in Uranium Extraction and Recovery Technology**

Alan Taylor, ALTA Metallurgical Services (Australia)

10:00am **Process Development for the Mulga Rock Project**

Chad Czerny, Xavier Moreau, Tony Chamberlain, Vimy Resources Limited (Australia)

10:30am **Morning Tea** (Golden Ballroom)

11:00am **Kvanefjeld Refinery Pilot Plant Operations**

Damien Krebs, Dominic Furfaro, Greenland Minerals & Energy Ltd (Australia)

Process Development

11:30am **The Extraction of Uranium from Brannerite**

Rorie Gilligan, Aleksandar N. Nikolosk, Murdoch University (Australia)

12:00pm **So You Have Found a Uranium Deposit - Now What?**

Alan Taylor, ALTA Metallurgical Services (Australia)

12:30pm **Lunch** (Golden Ballroom)

Session Chair: Jaco Bester, Global Mining IER Technical Leader, Dow Water & Process Solutions (Netherlands)

1:30pm **Evolution of Structural and Physical Properties of Uranium-Ore Agglomerates During Heap Leaching**

Emerence Hoummady, Fabrice Golfier, Michel Cathelineau, Laurent Truche, Eric Lefevre, University de Lorraine (France); Nicolas Durupt, Jean Jacques Blanvillain, Jeremy Neto, AREVA Mines (France)

2:00pm **Development of Roasting Plant Configurations to Improve Economics and Operability of Rare Earth Roasting Circuits**

Louis de Klerk, Matthew de Klerk, Project and Process Development (Australia)

Scandium Recovery

2:30pm **Recovery of Rare Earth Elements and Scandium From European Deposits by Solvent Extraction**

Carsten Dittrich, Frank Diekmann, Bengi Yagmurlu, MEAB Chemie Technik (Germany); Presenter: Şerif Kaya, METU (Turkey)

3:00pm **Afternoon Tea** (Golden Ballroom)

3:30pm **Recovery of Scandium from Bauxite Residue by Selective Precipitation from Leach Solutions**

Bengi Yagmurlu, MEAB Chemie Technik/RWTH Aachen University (Germany); Carsten Dittrich, MEAB Chemie Technik (Germany); Bernd Friedrich, RWTH Aachen University (Germany)

4:00pm **Syerston Scandium Project: Long Term Sustainable Scandium Supply Using Clean TeQ's Continuous Resin-in-Pulp Technology**

John Carr, Clean TeQ Metals Pty Ltd, (Australia)

Lithium Processing

4:30pm **The Sileach™ Process - Lithium Recovery from Silicates, Without Roasting**

Adrian Griffin, Lithium Australia (Australia)

5:00-6:00pm **Happy Hour** (Golden Ballroom)

Sponsored by **Orica**

Uranium-REE Program

In parallel with Gold-PM Sessions

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Friday 27 May

7:30am **Presenter Breakfast** (Mt Newman)

8:30am **Arrival Tea & Coffee** (Golden Ballroom)

Uranium-REE Sessions (Grand River Ballroom East)

Session Chair: Mark Peacock, Managing Director, BMS Engineers (Australia)

Lithium Processing Cont.

9:00am **Beneficiation of Spodumene Ore into a Concentrate and Further Processing to Produce Battery Grade Lithium Carbonate**

Damian Connelly, Mineral Engineering Technical Services Pty Ltd (METS) (Australia)

Ion Exchange

9:30am **Acid Recovery from Uranium Eluates Using Ion Exchange Resin**

Jaco Bester, Dow Water & Process Solutions (Netherlands); Sophie Corbet, Stéphane Delameilleure, Dow Water & Process Solutions (France); Emmanuel Zaganiaris, Consultant (France)

10:00am **Morning Tea** (Golden Ballroom)

10:30am **Polyamine Functionalised Chelation Ion Exchange Resins for Uranium Extraction**

James Amphlett, Clint Sharrad, University of Manchester (UK), Mark Ogden, University of Sheffield (UK)

Solvent Extraction

11:00am **New Solvent Extraction System for Uranium Recovery Extraction from Leach Solutions Based on Seawater Usage**

Zhaowu Zhu, Chu Yong Cheng, CSIRO Mineral Resources (Australia)

11:30am **Application of Mixed Phosphonic/Phosphinic Reagents for Separation of Rare Earths**

James Quinn, Karin Soldenhoff, Nigel Lengkeek, ANSTO Minerals (Australia); Geoffrey Stevens, University of Melbourne (Australia)

12:00pm **Lunch** (Golden Ballroom)

Session Chair: Chad Czerny, Principal Metallurgist, Vimy Resources Limited (Australia)

1:00pm **Process Developments for Recovery of Uranium and Molybdenum in Karoo Sandstone Deposit via Sulphuric Acid Leaching**

Roxanne Naidoo, Mintek (South Africa); Presenter: Seshree Pillay, Mintek (South Africa)

1:30pm **Commissioning of a Mini REE SX Pilot Plant at SGS Minerals Services - Lakefield Site**

Ernesto Bourricaudy, Niels Verbaan, James Brown, SGS Inc (Canada); Ron Molnar, MetNetH2O (Canada); Sunil Jayasekera, SJ Mets Consultants Pty Ltd (Australia)

Membranes in Uranium Ore Processing Forum

2:00pm **Process Membranes Applied in the Mining Industry**

Frederick Liberatore, GE Water & Process Technologies (USA); Presenter: Erik Hanson, GE Water & Process Technologies (USA);

2:30pm **Afternoon Tea** (Foyer)

3:00pm **Paladin Energy Ltd - Nano-Filtration Technology for Reagent Recovery**

Mark Peacock, Shana McDougall, BMS Engineers (Australia); Paul Boshoff, Darryl Butcher, Merrill Ford, Paladin Energy Ltd (Australia)

3:30pm **Applications of Nanofiltration in Hydrometallurgy**

Adrian Manis, ANSTO Minerals (Australia)

4:00pm **Membranes in Uranium Ore Processing Panel Discussions**

Panel Chair: Alan Taylor, Managing Director, ALTA Metallurgical Services (ALTA)

Conference Close

Unable to present but included in proceedings

Nano-Filtration Technology in Optimizing Uranium Process Efficiency

Johannes Herrmann, Advanced Membrane Separation (AMS) Technologies (Israel)

Egyptian Monazite Digestion by Sulphuric Acid Process; Separation of Thorium

Ibrahim Ismail, Zewail City for Science and Technology (Egypt); Osama Helaly, Kamal Abd El-Baky, Nuclear Material Authority (Egypt), Nabil Abdelmonem Cairo University (Egypt)

Thursday 26 May

7:30am **Presenter Breakfast** (Mt Newman)

7:30am **Registration** (Foyer 1)

8:00am **Arrival Tea & Coffee** (Golden Ballroom)

Gold-PM Sessions (Grand River Ballroom West)

Sponsored by



Welcome | Keynote Address

9:00am

Welcome

Alan Taylor, Managing Director, ALTA Metallurgical Services (Australia)

Sponsor's Welcome

Mark Martin, Business Director, Koch Knight LLC (Australia)

9:15am

Keynote Address:

Selecting the Best Process for the Treatment of a Refractory Gold Ore - Barrick's Experience

Dr Yeonuk Choi, Senior Manager, Strategic Technology Solutions, Barrick Gold Corporation (Canada)

Session Chair: Paul Breuer, Gold Processing Team Leader, CSIRO Mineral Resources (Australia)

Operations

10:00am

Syama Expansion Project - Creating Value and Sharing with our Stakeholders

Robert Sinclair, Resolute Mining Limited (Australia); Michael Minnaar, Professional Cost Consultants (PCC) (Australia)

10:30am

Morning Tea (Golden Ballroom)

11:00am

Small-Scale Gold Mining in Tanzania: Past, Present and Future

Olga Ibragimova, John Rugarabamu, University of Dodoma (Tanzania)

11:30am

Processing High Clay Gold Ores

Damian Connelly, Mineral Engineering Technical Services Pty Ltd (METS) (Australia)

12:00pm

Next Generation of Agitators for Processing Abrasive Ores

Jochen Jung, Wolfgang Keller, Benjamin Multner, EKATO RMT (Germany); Presenter: Siegfried Popp, EKATO RMT (Germany)

12:30pm

Lunch (Golden Ballroom)

Session Chair: Robert Sinclair, Group Metallurgist, Resolute Mining Limited (Australia)

Ion Exchange

1:30pm

Operating Experience and Developments of G-Rex and Aurix100 Resin Exchange Technology

Alexander (Sandy) Lewis-Gray, Peter Richards and Nicholas Katsikaros, Gekko Systems Pty Ltd (Australia); Mark Davies, Castlemaine Goldfields (Australia); Presenter: Varun Patel, Gekko Systems Pty Ltd (Australia)

2:00pm

Selective Removal of Mercury from Gold Mining

Steve Colley, James Stevens, Johnson Matthey (UK)

Treatment of Tails/Wastes

2:30pm

A New Leach System of Base and Precious Metals Recovery from E-Waste

Jacques Eksteen, Elsayed Oraby, Curtin University (Australia)

3:00pm

Afternoon Tea (Golden Ballroom)

Process Optimisation

3:30pm

Online Analysis Solutions for Gold Beneficiation

Lauri Koresaar, Eero Rauma, Outotec (Finland)

4:00pm

Real World Development and Application of a Gold Leaching and Reagent Consumption Model to Optimise CIP/CIL Process Profitability

Greg Zwolak, Peter Leckie, Orica Ltd (Australia)

5:00-6:00pm

Happy Hour (Golden Ballroom)

Sponsored by **Orica**

Subject to change.

Friday 27 May

7:30am **Presenter Breakfast** (Mt Newman)

8:30am **Arrival Tea & Coffee** (Golden Ballroom)

Gold-PM Sessions (Grand River Ballroom West)

Sponsored by 

Session Chair: Mark Martin, Business Director, Asia-Pacific Operations, Koch Knight LLC (Australia)

Non Cyanide Lixiviants

9:00am **A Preliminary Evaluation of Alkaline Glycine as an Alternative to Cyanide for Gold Extraction**
 Mike Dry, Arithmetek Inc. (Canada)

9:30am **Development of a Self-Contained Bromine/Bromide Process for Leaching and Recovery of Gold from Gold Ores**
 Sharon Krumbein-Rubin, Roni Costi, Eli Lancry, Olga Golberg Oster, Israel Chemicals Ltd (Israel); Keren Larmour-Ship, Tenova Bateman Technologies (Israel); Yeonuk Choi, Barrick Gold Corporation (Canada)

10:00am **Morning Tea** (Golden Ballroom)

10:30am **Catalysed Dissolution of Gold in Oxygen-Thiosulfate System**
 Xianwen Dai, Onias Sitando, Paul Breuer, Hongguang Zhang, CSIRO Mineral Resources (Australia); Onias Sitando, Gamini Senanayake, Chemical & Metallurgical Engineering & Chemistry, Murdoch University (Australia)

11:00am **Cyanide-Free Future of Gold Process Selection**
 Lotta Rintala, Maria Leikola, Mari Lundström, Aalto University (Finland)

Refractory Gold Ores Forum

11:30am **Outotec Refractory Gold Technologies; Comparison and Discussion of Different Pre-Treatment Methods**
 Mikko Ruonala, Timo Haakana, Outotec (Finland); Marcus Runkel, Joerg Hammerschmidt Outotec (Germany); Jan van Niekerk, Outotec (South Africa)

12:00pm **Lunch** (Golden Ballroom)

Session Chair: John O'Callaghan, Head of Metallurgy, Newcrest Mining (Australia)

1:00pm **Applications of Advanced Analytical and Mass Spectrometry Techniques to the Characterisation of Refractory Gold Ores**
 Mark G. Aylmore, Kelly Merigot, Brent I.A. McInnes, David Saxey, Denis Fougereuse, Steve Reddy, William Rickard, Noreen Evans, Bradley McDonald, Curtin University (Australia)

1:30pm **The Use of Special Additives to Inhibit Preg-Robbing of Gold in the Process of Double Refractory Concentrates Pressure Oxidation**
 Ilia V. Fomenko, M. A. Pleshkov, P. V. Zaytsev, L. V. Chugaev, Y. M. Shneerson, SRC Hydrometallurgy (Russia)

2:00pm **Autogenous Thiosulfate Generation and Leaching of Gold from Refractory Sulfide Concentrates**
 Paul Breuer, CSIRO Mineral Resources (Australia); Mark Aylmore, Curtin University (Australia); Steven Brunt, Nalco Champion (Australia)

2:30pm **Afternoon Tea** (Foyer 3)

3:00pm **Glycine-Cyanide Synergies in the Leaching of Copper-Gold Ores and Concentrates**
 Jacques Eksteen, Elsayed Oraby, Curtin University (Australia)

3:30pm **Arsenic During Pressure Oxidation of Refractory Gold Ores and its Behavior in Downstream Processing**
 Jakolien Strauss, Volha Yahorava, Volha Bazhko, Mintek (South Africa)

4:00pm **Role of Polythionates on the Stability of Gold in the Leaching of Double Refractory Ores in the Calcium Thiosulfate-Air Leaching System**
 Renaud Daenzer, David Dreisinger, University of British Columbia (Canada); Yeonuk Choi, Barrick Gold Corporation (Canada)

4:30pm **Refractory Gold Ores Panel Discussion**

Panel Chair: John O'Callaghan, Head of Metallurgy, Newcrest Mining (Australia)

Conference Close

Uranium Ore Processing

Meeting Room 5

8:30am	Registration Arrival Tea & Coffee (Foyer 5)
9:00am	Session 1
10:30am	Morning Tea (Foyer 5)
10:45am	Session 2
12:15pm	Lunch (Monterey's Restaurant)
1:15pm	Session 3
2:45pm	Afternoon Tea (Foyer 5)
3:00pm	Session 4
4:30pm	Close

Topics Covered

Uranium Ores and Minerals

Implications of Mineral Composition

Pre-Concentration

Pre-Roasting

Leaching Mediums

Acid Leaching of Uranium Minerals

Carbonate Leaching of Uranium Minerals

Leaching Processes

By-Product Uranium Recovery Processes

Key Process Operations and Equipment

Ion Exchange

- IX Resins
- IX Systems

Solvent Extraction

- SX Extractants
- SX Contactors

Product Recovery Processes

Testwork and Scale-Up

Keys to Successful Project Development

Grade Control

Special Health and Safety Issues

Development of an Agitated Acid Leach Project

- Testwork and Scale-Up
- Design Criteria
- Key Project Design Issues
- Plant Layout Considerations

Industry Trends