

ALTA 2012 NICKEL-COBALT-COPPER PROGRAM

SUNDAY 27TH MAY	
2.00 – 6.00 pm	<i>Registration –Foyer</i>
6.00 – 8.00 pm	<i>Icebreaker – Trade Exhibit Area – Grand Ballroom One</i>
MONDAY 28TH MAY	
7.15 am	<i>Speakers' Breakfast – Studio One</i>
7.30 – 8.30 am	<i>Registration & Welcome Coffee/Tea – Trade Exhibit Area</i>
NICKEL/COBALT/COPPER TECHNICAL SESSIONS – GRAND BALLROOM TWO Gold Sponsor - Cytec Industries	
9.00 - 10.00 am	Welcome & Conference Opening Address <i>Richard Matheson, Nickel Institute, Australasia & South East Asia, "Promoting Growth in Nickel Use and Re-Use"</i>
Chairperson – John Reid, Reid Resource Consulting	
Processing of Laterites	
10.00 – 10.30 am	Comparison of Methods for Calculating Cash Costs - Focus on the Nickel Industry <i>Peter Jolly, Highland Pacific Limited, Australia</i>
10.30 – 11.00 am	Nickel Laterites and the Three Mineral Acids <i>Mike Dry, Arithmetek Inc. & Bryn Harris, Neomet Inc., Canada</i>
11.00 – 11.30 pm	Morning Tea – Trade Exhibit Area
11.30 - 12.00 pm	Precipitation of Base Metals with MgO <i>Christoph Pawlick & Seshree Pillay, Mintek, South Africa</i>
12.00 – 12.30 pm	Developments and Trends In Hydrometallurgical Processing of Nickel Laterites <i>Boyd Willis, Boyd Willis Hydromet Consulting, Australia</i>
12.30 – 1.00 pm	Ongoing Development of Acid Recovery from Nickel Laterite Processes <i>Brett Muller, Simon Willis & Sarah Mitchel, Simulus Engineers, Australia</i>
1.00 – 2.00 pm	Lunch – Trade Exhibit Area
Laterite Projects	
2.00 – 2.30 pm	Scandium Breathes New Life Into Old Greenvale Nickel Mine <i>Kevin Pery, Peter Mason, Gavin Becker & Andrew Gillies, Metallica Minerals Limited, Australia</i>
2.30 – 3.00 pm	Overview of Dutwa Nickel Project <i>Chad Czerny, African Eagle Resources plc, UK</i>
3.00 – 3.30 pm	The recovery of Nickel and Cobalt from the Weda Bay Lateritic Ore Deposit (Halmahera, Indonesia) Using an Atmospheric Leaching process <i>Bertrand Berthomieu, Eramet / Weda Bay PT Nickel, Indonesia</i>
3.30 – 4.00 pm	Afternoon Tea – Trade Exhibit Area
Chairperson - Boyd Willis, Boyd Willis Hydromet Consulting	
Process Technology	
4.00 – 4.30 pm	Advanced Controls for Heap Leach Drum Agglomeration <i>Graeme Miller, Miller Metallurgical Services, Australia</i>
4.30 – 5.00 pm	Topsoe Wet Gas Sulphuric Acid (WSA) Technology – A Feasible Way to Handle SO ₂ Gases <i>Erik Eriksson, Haldor Topsøe A/S, Denmark</i>
5.00– 7.00 pm	Welcome Reception – Trade Exhibit Area - Sponsored by Dynamic Materials Corporation, USA

TUESDAY 29TH MAY	
7.15 am	Speakers' Breakfast – Studio One
7.45 – 8.30 am	Welcome Coffee/Tea – Trade Exhibit Area
NICKEL/COBALT/COPPER TECHNICAL SESSIONS – GRAND BALLROOM TWO	
Gold Sponsor - Cytec Industries	
Chairperson - Mark Weatherseed, Outotec	
Electrowinning	
8.30 – 9.00 am	Novel DSA® Anode for Electrowinning of Non-Ferrous Metals <i>Carl Brown, De Nora Tech, Inc., USA, & Antonio Lorenzo Antozzi & Alice Calderara, Industrie De Nora SpA, Italy</i>
9.00– 9.30 am	
9.30 – 10.00 am	Developments in Nickel Electrowinning Cellhouse Design <i>Tim Robinson, Republic Alternative Technologies Pty Ltd, USA, Frank Crundwell, CM Solutions (Pty)Ltd, South Africa, Masatsugu Morimitsu, Doshish University, Japan, & Lauri Palmu, Talvivaara Mining Company Plc. Finland</i>
IX/SX	
10.00 – 10.30 am	Use of Molecular Recognition Technology to Achieve High Purity Cobalt, Nickel and Copper <i>Neil Izatt, Ronald Bruening & Steven Izatt, IBC Advanced Technologies Inc., USA</i>
10.30 - 11.00 am	Morning Tea – Trade Exhibit Area
11.00 – 11.30 am	Elution Strategies for Recovery of Ni/Co from Laterite Tails through Scavenging Resin-in-Pulp <i>Patrick Littlejohn & James Vaughan University of Queensland, & Aleks Nikoloski, Murdoch University, Australia</i>
11.30 – 12.00 pm	Hydrometallurgical Nickel Laterite Processing: A Review of Current SX Flowsheets and Industry Trends <i>Adam Fischmann, Shane Wiggett, Troy Bednarski, Violina Cocalia and Cyril Bourget, Cytec Industries Inc.</i>
12.00 – 12.30 pm	Recovery of Copper from Strong Chloride Solutions using Mixed Organic Reagents <i>Chu Yong Cheng, Parker Centre / CSIRO Process Science and Engineering / CSIRO Minerals Down Under National Research Flagship, Australia</i>
12.30 – 1.00 pm	Chuquicamata Retrofit and Franke - Recent Cu Solvent Extraction Projects Implemented by Outotec <i>Jarkko Hakkarainen, Outotec (Finland) Oyj, Finland; Alexis Villarroel, Arturo Sotomayor & Claudio Rodriguez, Outotec (Chile) S.A., Chile</i>
1.00– 2.00 pm	Lunch – Trade Exhibit Area
Chairperson - Simon Moses, Bateman	
2.00 – 2.30 pm	Centrifugation Solution for Crud Treatment in Hydrometallurgy Processes <i>Tore Hartmann, GEA Westfalia Separator Group GmbH, Germany</i>
Flotation	
2.30 – 3.00 pm	The Froth Flotation of Nickel Sulphide Ore Using PAX and Its Mixtures with DTC and DTP <i>Walter Amos Ngoben, Gregory Hangone & Daniel Ikhu-Omoregbe, Cape Peninsula University of Technology, South Africa</i>
3.00 – 3.30 pm	Afternoon Tea – Trade Exhibit Area
Cobalt Recovery	
3.30 – 4.00 pm	Not just another Cobalt resource (Review of Cobalt Processing Routes and the Value of Testwork) <i>Rogan Roulstone, The MDM Group, South Africa</i>
4.00 – 4.30 pm	Activities and Extractive Metallurgy Around Copper and Cobalt Recovery in the African Copperbelt <i>Christoph Pawlick, Mintek, South Africa</i>
7.00 – 10.30 pm	Nickel/Cobalt Conference Dinner – Astral One Pre-Dinner Drinks 7.00 – 7.30 pm Sponsored by Mogas Industries, USA/Australia Keynote Address, Prof. David Dreisinger, UBC, Canada, "Hydroprocessing of Sulphides - Where Are We and Where Are We Heading"

WEDNESDAY 30TH MAY	
7.15 am	Speakers' Breakfast – Studio One
7.45 – 8.30 am	Welcome Coffee/Tea – Trade Exhibit Area
NICKEL/COBALT/COPPER TECHNICAL SESSIONS – GRAND BALLROOM TWO	
Gold Sponsor - Cytect Industries	
Chairperson - Rob Mean, CESL/Teck	
Equipment & Materials	
8.30 – 9.00 am	The Next generation of Pump Technology in PAL Plants <i>Rudolf Gänsel, FELUWA Pumpen GmbH, Germany</i>
9.00 – 9.30 am	Numerical Design Tools Optimize Agitators, Vessels and Internals to Ensure Safe and Economic Plant Operation <i>Wolfgang Keller, EKATO RMT, Germany</i>
9.30 – 10.00 am	Mortars for Acid Resistant Brick Linings in Hydrometallurgical Applications <i>Mark Martin (Presenter), Kevin Brooks, Koch Knight LLC, USA</i>
Hydroprocessing of Sulphides Forum	
10.00 – 10.30 am	TBA <i>Jason Fewings, Western Areas NL/BioHeap, Australia</i>
10.30 – 11.00 am	Morning Tea – Trade Exhibit Area
11.00 - 11.30 am	High Temperature Heap Leaching of Ni, Cu & Co and Platinum, Group Metals from South African Platreef Concentrates Coated on Gravel <i>Jacques Eksteen, Curtin University, Australia, Jochen Petersen, University of Cape Town; Steven Bradshaw & Guven Akdogan, University of Stellenbosch, South Africa</i>
11.30 – 12.00 pm	Nickel-Copper Project Development <i>David Jones, Jones Hydromet Ltd/CESL, Canada & Glenn Barr, Twin Metals Minnesota LLC, USA</i>
12.00 – 12.30 pm	The Application and Economic Consideration of NSC Pressure Oxidation to Combined Copper Molybdenum Concentrates <i>Corby Anderson, Colorado School of Mines, Todd Fayram, Continental Metallurgical Services & Larry Twidwell, Montana Tech, USA</i>
12.30 – 1.30 pm	Lunch – Trade Exhibit Area
Chairperson – David Dreisinger, UBC	
1.30 – 2.00 pm	Developments In The Treatment Of Copper-Arsenic Concentrates <i>Ken Baxter & Iman Ghanad, SNC-Lavalin, Australia & David Dixon, University of British Columbia, Canada</i>
2.00 – 2.30 pm	Application of Mixed Chloride Technology for the Recovery of TiO ₂ and Base Metals <i>Vaikuntam Lakshmanan, Ram Sridhar & Raja Roy, Process Research Ortech Inc., Canada</i>
2.30 – 3.00 pm	Afternoon Tea – Trade Exhibit Area
3.00 – 3.30 pm	Development of a Versatile HCl-Leach Based Metal Extraction Technology Stack <i>Herbert Weissenbaec, SMS Siemag Process Technologies GmbH, Germany</i>
3.30 – 4.00 pm	Kell Hydrometallurgical Process for Extraction of Platinum Group and Base Metals from Flotation Concentrates - An Update <i>Mike Adams, Mutis Liber, Australia & Keith Liddell, Lifezone Ltd, Switzerland</i>
4.00 – 4.30 pm	Panel Discussion: Hydroprocessing of Sulphides Chaired by David Dreisinger
End of Nickel-Cobalt-Copper Sessions	

ALTA 2012 URANIUM PROGRAM

THURSDAY 31TH MAY	
7.45 am	<i>Speakers' Breakfast – The Studio</i>
8.00 – 9.00 am	<i>Registration & Welcome Coffee/Tea – Trade Exhibit Area</i>
URANIUM TECHNICAL SESSIONS – ATRAL TWO	
Chairperson - John Baines, Toro Energy	
SX/IX	
9.00 – 9.30 am	Various Stripping Reagents for Uranium-Loaded Alamine 336, and Their Respective Costs <i>Marthie Kotze, Mintek, South Africa</i>
9.30 – 10.00 am	Recovery of Uranium and Separation from Vanadium In Alkaline Solutions Using Solvent Extraction <i>Zhaowu Zhu, Yoko Pranolo & Chu Yong Cheng, The Parker Centre / CSIRO Process Science and Engineering / CSIRO Minerals Down Under National Research Flagship, Australia</i>
10.00 – 10.30 am	Developments in Uranium IX from Hyper-Saline Solutions <i>Derrin Auerswald, Bateman Engineering Project; Marthie Kotze & Olga Yahorava, Mintek, South Africa</i>
10.30 – 11.00 am	<i>Morning Tea – Trade Exhibit Area</i>
11.00 – 11.30 am	Strong Acid versus Ammonia Strip in Uranium SX Circuits <i>Deon van Tonder & Chuck Edwards, AMEC, Australia/Canada</i>
11.30 – 12.00 pm	Uranium Solvent Extraction Plant Designs – Where Does Copper Come Into It? <i>Graeme Miller, Miller Metallurgical Services Pty Ltd, & Murdoch Mackenzie, Murdoch Mackenzie Metallurgy, Australia</i>
12.00 – 12.30 pm	Application of WINTRAY Extraction Column to a Direct Uranium Solvent Extraction Process <i>Yasunori Nozoe, Takashi Nakayama, Shimpei Satake, Masayuki Sato, & Shinichiro Yumoto, JGC Corporation, Japan</i>
12.30 – 1.30 pm	<i>Lunch – Trade Exhibit Area</i>
Chairperson - Petrus van Staden, Mintek	
1.30 – 2.00 pm	Advances in Bateman Pulsed Column Design and Application for Uranium Solvent Extraction <i>Alan Miller, Nadav Dobrin, Einat Shooster & Oded Lerner, Bateman Advanced Technologies Ltd. (BAT), Israel</i>
2.00 – 2.30 pm	Uranium recovery using DEHPA/Alamine 336 mixed reagent <i>James Quinn & Karin Soldenhoff, ANSTO, Australia</i>
Uranium Ore Leaching	
2.30 – 3.00 pm	The Use of Ammonium Carbonate as Lixiviant in Uranium Leaching <i>Dick Groot & Bundjoko Kweto, University of Pretoria; Janine Suthiram & Jan Rijn Zeevaart, NECSA, South Africa</i>
3.00 – 3.30 pm	<i>Afternoon Tea – Trade Exhibit Area</i>
Project Development	
3.30 – 4.00 pm	Metallurgical Development of the Samphire Uranium Project <i>Simon Hall, UraniumSA Ltd, Australia</i>
IX (Cont.)	
4.30 – 4.00 pm	Removal of Trace Metals such as Uranium <i>Areski Rezkallah & Cushla Connolly, Dow Water & Process Solutions, The Dow Chemical Company, France/Australia</i>
4.30 – 5.00 pm	Process to get a High Conc Eluate Concentration from Liquors Containing High Saline Concentrations <i>Areski Rezkallah & Cushla Connolly, Dow Water & Process Solutions, The Dow Chemical Company, France/Australia</i>

FRIDAY 1ST JUNE	
7.45 am	Speakers' Breakfast – The Studio
8.15 – 9.00 am	Welcome Coffee/Tea – Trade Exhibit Area
URANIUM TECHNICAL SESSIONS – ASTRAL TWO	
Chairperson - Marthie Kotze, Mintek	
Project Development (Cont.)	
9.00 – 9.30 am	Pilot Plant Treatment of Ore from Toro Energy's Wiluna Uranium Project <i>John Baines, Toro Energy Limited, Australia</i>
9.30 – 10.00 am	Leaching of Kvanefjeld Concentrate <i>Damien Krebs & Domenic Furfaro, Greenland Minerals and Energy Ltd, Australia</i>
10.00 – 10.30 am	Environmental Aspects of Uranium Projects <i>Gordon McPhail, SLR Consulting Australia Pty Ltd, Australia</i>
10.30 – 11.00 am	Morning Tea – Trade Exhibit Area
11.00 – 11.30 am	To Gamma or Not To Gamma? U235 Detection Methods: Core Assay vs. Prompt Fission Neutron vs. Gamma <i>Alex Ross & Caleb Ames, GAA Wireline, Australia</i>
Uranium Heap Leaching Forum	
11.30 – 12.00 pm	Heap Leaching Philosophy with Specific Reference to Uranium Ores <i>Petrus van Staden & Carl Bergmann, Mintek, South Africa</i>
12.00 – 12.30 pm	The Critical Role of Gangue Element Chemistry in Heap and Agitated Leaching of Uranium Ores <i>Grenvil Dunn & Yong Yong Teo, Orway Mineral Consultants, Australia</i>
12.30 – 1.30 pm	Lunch – Trade Exhibit Area
Chairperson - Dick Groot, University of Pretoria	
1.30 – 2.00 pm	Uranium Heap Leach Modeling <i>Francois Geffroy, AREVA Mining BG, France & David Dixon, University of British Columbia, Canada</i>
2.00 – 2.30 pm	Early stage metallurgical evaluation of a complex low-grade uranium project <i>Will Goodall & Julian Perkins, Aura Energy, Australia</i>
2.30 – 3.00 pm	Afternoon Tea – Trade Exhibit Area
3.00 – 3.30 pm	Uranium Recovery as a By-Product at Talvivaara Mine <i>Pertti Pekkala & Annika Hämäläinen, Talvivaara Mining Company Ltd., Finland & Ken Gullen, Cameco Corporation, Canada</i>
3.30 – 4.00 pm	Development of the Letlhakane Uranium Deposit, Botswana <i>Alan Taylor, ALTA, Randall Pyper, Kappes Cassiday, Grenvil Dunn, Orway, & Peter Wilkinson, SGS Lakefield Oretest, Australia; Paul Woolrich, David Cairns, Paul Thomson & Jerome Randabel, A-CAP Resources, Australia/Botswana,</i>
4.00 – 4.30 pm	Panel Discussion: Uranium Heap Leaching
End of Uranium Sessions	

ALTA 2012 GOLD PROGRAM

THURSDAY 31TH MAY	
7.45 am	Speakers' Breakfast – The Studio
8.00 – 9.15 am	Registration & Welcome Coffee/Tea – Trade Exhibit Area
GOLD TECHNICAL SESSIONS – ASTRAL ONE	
Gold Sponsor – Koch Knight	
9.15 – 10.00 am	Welcome & Key Note Address: “Challenges and Opportunities in the Treatment of Refractory Gold Ores” Robert Dunne, Fellow – Metallurgy, Newmont Mining Corporation, Denver, USA
Chair Person - Paul Breuer, CSIRO	
Process Technology	
10.00 – 10.30 am	The Gold Technology Group and the AMIRA 420 project: 25 Years of Research, Development and Service to Industry <i>Jacques Eksteen & William Staunton, Curtin University, Australia</i>
10.30 – 11.00 am	Morning Tea – Trade Exhibit Area
11.00 – 11.30 pm	One Day You May Consider Producing Metallic Antimony Rather than Gold <i>Nursen Guresin, Snowden, Australia</i>
11.30 – 12.00 pm	<u>Cyanide Detoxification of Cyanidation Tails and Process Streams</u> <i>Danielle Hewitt, Paul Breuer & Coby Jeffery, CSIRO Process Science and Engineering, Australia</i>
12.00 – 12.30 pm	Practical Use of Computational Fluid Dynamics (CFD) on Mixing Applications in Mining <i>Richard Kehn & Bernd Gigas, SPX Flow Technology (LIGHTNIN), USA</i>
12.30 – 1.30	Lunch – Trade Exhibit Area
Chairperson - Nick Clarke, AngloGold Ashanti	
1.30 – 2.00 pm	Process Simulation For Improved Plant Design Through P&ID Validation (Applied to Conga Copper and Gold Project, Peru) <i>Brett Schug, Andritz Automation; Michael Nees & Thomas Gamarano, Newmont Mining Corp., USA</i>
Refractory Gold Ores Symposium	
2.00 – 2.30 pm	Maximising the Value of Gold Diagnostic Leaching <i>Rebecca Meakin & Nicole Chapman, Zoe Frangeskides & Laura Kuhar, CSIRO Process Science and Engineering, Australian Minerals Research Centre, Australia</i>
2.30 – 3.00 pm	The Processing of Gold Copper and Copper Gold Ores with Flowsheet Development and Strategies <i>Damian Connelly, Mineral Engineering Technical Services Pty Ltd, Australia</i>
3.00 – 3.30 pm	Afternoon Tea – Trade Exhibit Area
3.30 – 4.00 pm	Impregnated Activated Carbon for Gold Extraction from Thiosulphate Solutions <i>Courtney Young, Robert Gow & Mariam Melashvili, Montana Tech, USA & Marc LeVier, Newmont Mining Corp., USA (Currently at Texas Rare Earth Resources Corp, USA)</i>
4.00 – 4.30 pm	Geometallurgical Mapping of a Complex Gold Ore Body to Manage Process Risk and Validate the Proposed Process Flowsheet <i>Damian Connelly, Mineral Engineering Technical Services Pty Ltd, Australia</i>

FRIDAY 1ST JUNE	
7.45 am	Speakers' Breakfast – The Studio
8.15 – 9.30 am	Welcome Coffee/Tea – Trade Exhibit Area
GOLD TECHNICAL SESSIONS – ASTRAL ONE	
Gold Sponsor – Koch Knight	
Chairperson - Yeonuk Choi, Barrick Gold	
Refractory Gold Ores Symposium (Cont.)	
9.30 – 10.00 am	The Increased Activity in the Development of Thiosulfate Based Systems for Gold Recovery <i>P. Breuer, Xianwen Dai, Danielle Hewitt and H. Zhang, CSIRO Process Science and Engineering, Australia</i>
10.00 – 10.30 am	Gold Recovery from Copper Rich Ores Employing a Gold Selective Ion Exchange Resin <i>Johanna van Deventer, Purolite International & Marthie Kotze, Mintek, South Africa</i>
10.30 – 11.00 am	Morning Tea – Trade Exhibit Area
11.00 – 11.30 am	Maelgwyn's Refractory Gold Technology <i>Stuart Glen, Maelgwyn, UK</i>
11.30 – 12.00 pm	Roasting of Refractory Gold Concentrates and Handling of Minor Elements <i>Lars Hedström, Ake Holmstrom & Joerg Hammerschmidt, Outotec, Sweden/Germany</i>
12.00 – 12.30 pm	Recent Advances in the BIOX® Technology <i>Jan van Niekerk, Gold Fields Limited, South Africa</i>
12.30 – 1.30 pm	Lunch – Trade Exhibit Area
Chairperson – Robert Dunne, Newmont Mining	
1.30 – 2.00 pm	Developing the Next Generation BIOX® Design <i>Jan van Niekerk & Chris van den Heuvel, Gold Fields Limited, South Africa</i>
2.00 – 2.30 pm	Commercialisation of the Albion Process <i>Mike Hourn, Xstrata Technology & Duncan Turner, Core Resources Pty Ltd, Australia</i>
2.30 – 3.00 pm	Afternoon Tea – Trade Exhibit Area
3.00 – 3.30 pm	Evaluating Process Options for Treating Some Refractory Ores <i>Mark Aylmore & Ashraf Jaffer, Bateman, Australia</i>
3.30 – 4.00 pm	Panel Discussion Chaired by Robert Dunne
End of Gold Sessions	

SATURDAY 26th MAY

8.30 – 9.00

Registration & Welcome Coffee/Tea – The Studio Foyer

SHORT COURSE: SX & ITS APPLICATION TO COPPER, URANIUM & NICKEL-COBALT **VENUE: THE STUDIO**

9.00 – 10.30

Session 1

10.30—10.45

Morning Tea

10.45 – 12.15

Session 2

12.15 - 1.15

Lunch

1.15 – 2.45

Session 3

2.45 – 3.00

Afternoon Tea

3.00 – 4.30

Session 4

Topics covered:

- Reference Sources
- Introduction
- 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 & Layout
- Fire Protection
- Materials of Construction
- Testwork
- Scale-Up & Design Criteria
- Plant Operation
- Performance and Risk
- Industry Trends

SATURDAY 2nd JUNE

8.30 – 9.00

Registration & Welcome Coffee/Tea – The Studio Foyer

SHORT COURSE: URANIUM ORE PROCESSING

VENUE: THE STUDIO

9.00 – 10.30

Session 1

10.30—10.45

Morning Tea

10.45 – 12.15

Session 2

12.15 - 1.15

Lunch

1.15 – 2.45

Session 3

2.45 – 3.00

Afternoon Tea

3.00 – 4.30

Session 4

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 & 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