RECYCLING METALS FROM INDUSTRIAL WASTE

A Short Course and Workshop
with Emphasis on Plant Practice

June 26-28, 2018
Golden, Colorado
26th Year

Sponsored by the Colorado School of Mines
Course Organizer: Paul B. Queneau - Adjunct Professor

June 26-28, 2018
This program focuses on current plant practices to convert metal-containing wastes to products. Processors, raw materials, and markets are identified and quantified. Speakers with decades of hands-on experience detail multiple approaches to recycling metals and associated materials - backed up by slides, videos, and the syllabus.

Particular emphasis is given to combinations of physical, hydrometallurgical, and pyrometallurgical processing, along with associated regulations, to facilitate economical recycling. The presentations are on a practical level, focusing on plant operations, with ample opportunity for interaction by the course participants.

**PROGRAM OUTLINE AND SCHEDULE**

### Tuesday Morning, June 26

7:45  Registration

8:30  Integrated Recycling Strategies at Boliden’s Smelters  
Joachim Pettersson, Sr. Metallurgist, Boliden, Vasterbotten, Sweden

9:00  Complex Tin Recycling at Fenix and Falcon  
John Broxham, Senior Commercial Director, Fenix Metals, Chmielow, Poland

9:30  Break

9:45  Metals Recycling: Using Metsim to Confirm the Value Case  
Lorena Tere, Engineer in Training/Non-Ferrous Pyrometallurgy, Hatch, Mississauga, Ontario

10:15  LCD’s, the New CRT  
Adam Shine, Vice President, Manitoba Corp., Lancaster, NY

10:45  Break

11:00  Pms & Pgms: Seven Years of Recycling Research in CR3  
Brajendra Mishra, Director, Center for Resource Recovery and Recycling, WPI, Worcester, MA

11:30  Networking Time, Followed by Lunch  
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### Tuesday Afternoon, June 26

1:00  World Approaches to Recycling Lead  
Tim Ellis, President, RSR Technologies, RSR, Dallas, Texas

2:00  Break

2:15  My Pgm Love Affair / Progress of a Career  
Mel Elguindy, Manager, SAFAGA LLC, Newport Beach, CA

2:45  Vacuum-Metal Refining Worldwide  
Joe Thomas, President, International Applied Technology, Anaheim, CA

3:15  Break

3:30  Metals Recycling at Terrapure Environmental  
Benoit Deschenes, Vice President Manufacturing, Terrapure Environmental, Ville Sainte Catherine, Quebec, Canada

4:00  Social at the Colorado School of Mines  
Coolbaugh Hall Atrium

### Wednesday Morning, June 27

8:30  How to Win by Recycling Non-Metallics  
Dave Jacobs, Owner, Encore Materials, Pittsburgh, PA

9:00  Towards a Pyrometallurgical Microwave Process  
Chris Pickles, Professor, Queen’s University, Kingston, Ontario

9:30  Break

9:45  The Veolia Model for Electronic Scrap  
Kevin Shaver, General Manager, Veolia Environmental Services, North America, Milwaukee, WI

10:15  The Bre-X Story, and Lessons Learned  
Bill Wilson, Professor of Practice, Nazarbayev University/CSM Partnership, Golden, CO

10:45  Break

11:00  Recycling Pgms from Spent Catalyst  
Jürgen Antrekowitsch, Head, Christian Doppler Laboratory for Heavy-Metal Recycling, Leoben, Austria

11:30  Networking Time, Followed by Lunch  
Colorado School of Mines
**Wednesday Afternoon, June 27**

1:00 *State-of-the-Art Design for Recycling: Case Fairphone*
Marcus Reuter, Director, Helmholtz-Institute Freiberg for Resource Technology, Freiberg, Germany

2:00 Break

2:15 *Through the Years with Zinc, Lead, and Others*
Mike Deelo, Consulting Engineer, Deelo & Associates, Beaver, PA

2:45 *Yes, There is Recycling in Ore Processing*
Harold Cline, Area Sales Manager Mining, TOMRA Sorting Solutions, Englewood, CO

3:15 Break

3:30 *Integrated Process Development: Lessons Learned*
Alain Roy, Principal - Operations, Kingston Process Metallurgy (KPM), Kingston, Ontario

4:00 Social at the Colorado School of Mines Geology Museum

**Thursday Morning, June 28**

8:30 *Multi-Metal Recycling and Refining*
Bert Coletti, R&D Director
Metallo-Chimique, Beerse, Belgium

9:00 *Problem Solving in Process Metallurgy*
Tom Battle, Consulting Metallurgical Engineer, Tom Battle and Associates, Charlotte, NC

9:30 Break

9:45 *Recycling Spent Resid/HDS Catalyst*
Mike Shinn, Manager Business Development, H.C. Starck, Huntsville, AL
Larry McHugh, CEO, Orchard Material Technology, Boston, MA

10:15 *One Hundred Years of Recycling at Nickelhütte*
Wendy Fett, Area Manager, Nickelhütte Aue, Aue, Germany

10:45 *Complex Metals: What They Are, Sourcing and Recycling Processes*
Trevor Landry, Manager – Recycling and Precious Metals Aurubis Buffalo, Buffalo, NY

11:15 Adjourn
COMMENTS FROM PAST PARTICIPANTS

This conference, dollar-for-dollar, is the best that I attend all year! As always, it is a first-rate experience: Quality and diversity of speakers, networking, and opportunities.

Richard Nickerson, President, Cal-Chem Metals, Globe, AZ

What I like best is the variety of presenters and presentations, opportunities to interact with potential partners, and the innovations.

Matt Stevens, Process Coordinator, Stillwater Mining, Columbus, MT

The best companies in the field are identified, attracted to attend, and to make a presentation. Lots of time is available for networking.

Fred Steward, President, Micronutrients, Pittsburgh, PA

This short course’s most significant strengths are the variety of topics, the variety of participants, lots of time for socializing and interacting, in Golden… What a magnificent setting!

Charles Geenen, Director Technology, Metallo-Chimique, Nieuwe, Belgium

After a hiatus of 3 years, I returned to Golden to attend the Recycling Metals course. Key course strengths are content, opportunities to network, meeting new friends, and learning new concepts/processes. My only regret was wondering “What did I miss in the previous 3 years”?

John Likarish, Manager of Marketing, The Doe Run Resources Corporation, St. Louis, MO

It is amazing how this course always pays for itself with new business leads, not to mention it’s such a catalyst for new ideas and innovations.

Scott Volner, President, Catalytic Innovations, Rolla, MO

Simply the best conference of its kind anywhere: Excellent content and contacts year after year, with diversity and balance.

Nigel Morrison, President, AMG Aluminum, Wayne, PA

REGISTRATION INFORMATION

- **Registration Fee**
  - $1495 if registering by April 24
  - $1595 after April 24 and by May 22
  - $1695 after May 22

  Included are the syllabus, continental breakfasts, luncheons, and socials. Assistance may be available to self-employed sole consultants, retired, or unemployed attendees…contact Learn@mines.edu for details.

- **Cancellations and Attendee Substitution Policy**
  - Modification, including cancellation, of your registration requires written notice either by email (Learn@mines.edu) or fax (303-384-2695) to Continuing & Professional Education Services (CPES).
  - Attendee substitutions may be made without cost penalty at any time up to the date of the start of the event.
  - Cancellations will be accepted if notice of cancellation is received by CPES at least five (5) working days prior to the date of the start of the event. Registrants who cancel within this period will be charged a $275 service fee.
  - No refunds will be made to registrants who fail to cancel within the specified cancellation period.

- **Credits**
  - CSM awards two Continuing Education units for this course.

- **Location and Attire**
  - Golden and the Colorado School of Mines (CSM) are located at the foot of the Rockies 15 miles west of Denver. The area is steeped in western history. Mountain hiking and biking trails begin in town along Clear Creek and the Whitewater Park. Attire is casual.

- **Accommodations, if blocks are not full**
  - Blocks of rooms in Golden are at the Table Mountain Inn (Tel: 303-277-9898; Fax: 303-271-0298) by May 26, and the Golden Hotel (Tel: 303-279-0100; Fax: 303-215-1010) by May 10, under the designation "Recycling Short Course." The Dove Inn B&B (Tel: 303-278-2209; Fax: 303-273-5272 is also close by; it is super for couples; the best rooms fill quickly. Golden is a popular summer destination, so book your reservation early.

- **Course Content Details**
  - Contact Paul Queneau at The Bear Group: 303-854-2036, fax 303-273-0494, e-mail: pqueneau@mines.edu

- **Registration Information**
  - Continuing and Professional Education Services (CPES) at Mines: phone: 303-384-2690 • fax: 303-384-2695
  - e-mail: Learn@mines.edu • website: www.csmspace.com