SKS™ Lead Smelting: A Clean and Innovative Technology

Review of 3 Years SKS Lead Smelting Operations at YGJ Smelter Using Oxygen Bottom Blowing Injection Technology

By Dr. Johnny Zhang

Short Course: 29 June 2014 (09h to 17h), Americana Condesa Cancun All Inclusive Resort, Cancun, Mexico

SKS lead smelting technology was developed in a pilot and commercial scale in the 1990s with the aim to reduce the emissions and energy consumption. Today almost 50% of the lead production is produced using SKS lead process with an annual volume of 4 million tons. The successive two-step SKS-YGL lead smelting-direct reduction technology was developed and commissioned at YGJ Lead Smelter in 2009 which produces 100,000t of lead cathode annually.

In the past 3 to 6 year of operations, numerous innovative techniques have been implemented in the SKS-YGL furnace design for both smelting and direct reduction operations. The plant has successfully demonstrated its unique excellent performances on all aspects from processing capacity, product quality, energy reduction, cost reduction and emission reduction.

This short course highlights the technical essentials and operations updates of SKS Oxygen Bottom Blowing Injection Technology that is used for lead production at the YGJ Smelter and gives an update of improvements using proven production data and records.

- It focuses on the following major process performances: metal recovery, fuel-free autogenous operation, high sulfur capture, cost effective solution etc.
- It emphasizes the development history, process fundamental, furnace design, installations and commercial operation cases.
- It covers all aspects from technological concept, flowsheet development, major unit operations, equipment, EPCM design, commissioning, operation, process automation, maintenance, safety, EHS etc.
- It discusses in brief the preliminary economic features, benefits, future developments.
- It makes a comparison with some other technologies on performance, cost and environmental aspects.
- It is supported by videos and online supplemental references.

Course Contents

No	Subject Topics
1	Introduction to SKS Technology
2	Fundamental Studies, M&H Balances, Simulations
3	Unit Operations, Equipment & Automation
4	Engineering Design
5	Operation & Maintenance
6	Preliminary Economic Analysis
7	EHS Evaluations
8	Installations and Application Cases
9	Preliminary Comparison with Other Technologies
10	Future Developments

Who Should Attend

This course is specifically designed for the professionals with demanding schedules, but who are still interested in life-time learning opportunity about a modern smelting technology in a one-day course.

- Individuals with creative minds who appreciate innovations will enjoy it the most.
- The primary audience are (a) the executives who are looking for modern technology to improve their existing smelters operations with better economic and environmental performances or new installations on greenfield, (b) the managers who seek for the knowledge of advanced technology to improve their projects, (c) the engineers who require comprehensive technology skills to complete their projects, and (d) the sales representatives who need the basic understanding of engineering technology to promote the sales of their products such as refractory bricks, air guns and subsequent customer service.
- The secondary audience includes but is not limited to the following professionals: (a) the inventors who try to create new clean eco-friendly metallurgical technologies with innovative methodology, (b) academics (professors and graduate students) who conduct advanced scientific researches, and (c) the attorneys in the fields of intellectual properties, patents, etc.

The participant will also receive:

- CD with course material in pdf
- Certificate of completion
- Lunch and refreshments

Course Instructor Johnny Zhang, Ph.D in Metallurgy

Dr. J. Zhang is a registered metallurgical professional engineer in Canada. In the last 20 years he has been senior process engineer at Rio Tinto, principal engineer at Teck Cominco and project leader at Sherritt Intl. As a process leader, he supervised some capital projects with contractors like AMEC, HATCH, Worley Parsons etc. He has been a technical instructor of NI43-101 report (TSX) for Silvercorp Metals Inc, a metallurgical engineering instructor at the Central South University and University of Alberta. Previously, until 1990 he taught full-time at Central South University (CSU) and now he is a guest professor at the same university as wells as a technical marketing manager for SKS technology transfer.

Dr. Zhang has been a member of TMS, IPMI, CIM and APEGGA. His research, operation and engineering design activities covered base metals, rare metals and precious metals in hydro, pyro and electrometallurgical aspects. He has authored and co-authored a number of technical and professional articles and presented lectures and reports at numerous seminars and conferences in China, Canada and U.S. His book “Application of SKS Technology for Clean Copper and Lead Smelting” is expected to be published at CSU by Aug 2014.
Dr. Zhang earned B.Sc. (1983), M.Sc (1986) and Ph.D (1992) degrees in Metallurgical Engineering from Central South University. He also conducted postdoctoral studies for the European Union projects at the University of Lisboa and University of Toronto.

REGISTRATION: http://www.flogen.org/ShechtmanSymposium