

Information for the participants

For the participation we kindly request you to return the registration form to the GDMB Office by May 18, 2010 at the latest. The invoice for the short course fees which is likewise the confirmation of participation will be sent to you in due time.

Participation in the Short Courses is limited and is on a first registered, first accepted basis. Each Short Course participant will receive a copy of the short course notes, which will be available only at the short course itself. The notes will be an invaluable reference on the topics covered by the short course. All rights reserved by the organizing committee to change the course of the programme especially the order of the lectures. The organizers reserve the right to cancel the short course, if the registration is inadequate, and a full refund will be provided in such circumstances.

We have pre-reserved hotels at Hamburg, see www.cu2010.gdmb.de, accommodation. Please do the room reservation by yourself as soon as possible in the hotel you have chosen under the keyword "GDMB-Copper".

For members of GDMB, IIMCh, MetSoc, MMIJ, TMS, SME the short course fees amount to 380 EURO, the short course fees for non-members amount to 520 EURO. Participants of company-members participate at the price for members. We offer 50 % discount for Students before the first examina. The short course fees include the participation in the technical lectures, coffee breaks, lunch and the metallurgical evening. The Short Courses fees are immediately due after the reception of the bill and have to be paid (free of charges) to the account 5140 at Sparkasse Goslar/Harz, BLZ 268 500 01 (S.W.I.F.T.-Bic: NOLA DE 21 GSL, IBAN: DE33 2685 0001 0000 005140), stating the number of the bill. Credit cards are accepted.

If the registration is cancelled before May 18, 2010, a processing fee of 25 % of the registration fees will be levied. In case of cancellation after May 18, 2010, the registration fee cannot be refunded. The registration may be transferred to a substitute.

Registration form

Short Course on Slag Cleaning

at June 5, 2010

I am member of GDMB , IIMCh ,
MetSoc , MMIJ , TMS/SME .

Name, First Name Title

Company/Institute

Company address

E-mail

Telephone- and Telefax-number

Metallurgical Evening yes no

Date, Signature

please return to: GDMB
Gesellschaft für Bergbau, Metallurgie,
Rohstoff- und Umwelttechnik e. V.
Paul-Ernst-Straße 10
38678 Clausthal-Zellerfeld, Germany
Telefax: 05323 / 937 937

GDMB Gesellschaft für
Bergbau, Metallurgie, Rohstoff- und
Umwelttechnik e. V.

Short Course on Slag Cleaning

Organized by: Prof. Dr. mont. Peter Paschen

June 5, 2010

In conjunction with



June 6-10, 2010 - Hamburg, Germany
Organized by GDMB Gesellschaft für Bergbau, Metallurgie, Rohstoff- und Umwelttechnik e.V.

Venue: Aurubis AG
Hoovestraße 50
20539 Hamburg, Germany
Telephone: +49 5323 937 959
Telefax: + 49 5323 937 937
E-mail: Cu2010.gdmb.de

Saturday, June 5, 2010: Short Course on

Slag Cleaning

Organized by: Organized by: *em. Prof.. Peter Paschen*

- 8.00 h **Registration** at Aurubis AG, Hoovestraße 50, 20539 Hamburg, Germany, and **delivery of course material**
- 8.30 h Welcome: Dipl.-Ing. *Michael Kopke*, Dipl.-Ing. *Norbert L. Piret*, *Paykan Safe*, Prof. *Peter Paschen*
- 8.45 h *Michael Stelter*, TU Bergakademie Freiberg/Germany
Slag Cleaning in Copper Metallurgy
High throughput demands in smelting furnaces cause problems in slag treatment – Separation of slag and matte influenced by many physical and chemical factors – Retention time – Convection processes
- 9.30 h *Hector Henao*, *Baojun Zhao*, *Peter Hayes*, *Eugene Jak*, University of Queensland, St. Lucia/Australia
Chemical and Physical Properties of Cleaning Slags
Copper production flowsheets – Phase equilibria – Physical separation of matte or copper droplets from slag – Chemical separation of copper – Effect of total mass on copper losses
- 10.45 h **Coffee Break**
- 11.15 h *Mario Sánchez*, Universidad de Concepción, Chile
Valuation of Copper Slags and Recovery of Valuable Metals and Materials
- Reactors and equipment for the process flow sheets - Characterization of slags – Treatment for valuable metals and materials recovery (pyrometallurgical and hydrometallurgical) – Proposed alternatives – Environmental evaluation
- 12.15 h *Robert Hansson*, *Theo Lehner*, Boliden Mineral AB, Skelleftehamn/Sweden
Slag Cleaning at the Rönnskär Smelter
Flowsheets for primary and secondary inputs – Extraction of valuable metals – Flash smelting/Electric furnace/Fuming furnace – Slag handling and cleaning Steps
- 13.15 h **Lunch**
- 14.15 h *Patricio Rojas*, *Gilberto Raimann*, ENAMI Paipote Smelter, Copiapó/Chile
Improvements in Copper Slag Treatment in an Electric Furnace
Copper concentrate smelting in a Teniente converter – Slag cleaning in an electric furnace – Slag characteristics – Duration of refractory lining – New water refrigeration circuits
- 15.00 h *Marcin Kacperski*, KGHM Polska Miedz S.A., Głogów/Poland
KGHM Slag Cleaning Process
Process flowsheet and engineering – Electric furnace slag cleaning: Theory and practice – Furnace design – Comparison of actual process data (electricity, coke and limestone consumption, campaign life)
- 15.45 h **Coffee Break**
- 16.15 h *Jean-Luc Roth*, *Michel Houbart*, *Gaspard Devos*, Paul Wurth S.A., Luxembourg/Luxemburg
Optimal and Sustainable Metals Recovery from Copper Slag
Copper slags as a burden and a valuable by-product – The Paul Wurth i-Meltor™ Electric Arc Furnace process – Smelter throughput, copper yield, iron and valuable metals behaviour – Sustainability
- 17.00 h *Josef Pesl*, Montanwerke Brixlegg AG, Brixlegg/Austria
State of Slag Cleaning in Secondary Copper Smelting
Josef Pesl, Montanwerke Brixlegg AG, Brixlegg/Austria Secondary copper metallurgy flowsheets – Differences in slag properties and behaviour to primary metallurgy – Recovery of valuable metals – Yield optimisation – Present practice
- Event
- 19.30 h Metallurgical Evening at Aurubis, “Alte Schlosserei”