International Seminar

Refractory Technology
Refractory Materials and Slags in the Metallurgy

22 to 25 November 2015, Cologne

TARGET GROUP
Maintenance and operating personnel, supervisors responsible for plant and unit operations, and managers responsible for decisions on refractory problems will learn about new materials and installation methods. Refractory installers, third party inspectors, and contract maintenance personnel will particularly benefit from detailed discussions on new installation techniques and materials.

SUPPORTED BY
Joint Refractories Committee of the Steel Institute VDEh

PRICE
EUR 1.262* (EUR 990* registration fee VAT-free plus EUR 272 conference package)
EUR 1.462 (EUR 1.190 registration fee VAT-free plus EUR 272 conference package)
* for employees of member companies and individual members of the Steel Institute VDEh
The conference package includes food and beverages during the seminar. A free withdrawal from the seminar is possible until 2 weeks prior to the start. Then, 25% of the seminar fee must be paid. The total registration amount will be charged for no show or cancellation from the first day of the event. The participant also has to bear the cancellation costs of the seminar hotel.

DIRECTED BY
Dipl.-Geol. J., Hartenstein, Subject “Refractories Materials”
Dr.-Ing. H. Lachmund, Subject “Slags”

CONTENT
Basics on chemical and mineralogical composition of refractory material and slag / Testing and evaluation of refractory materials in the laboratory / Dolomite refractories in the steel industry / Synthetic alumina raw material and high alumina cement / Insulating materials for the steel industry / The world of monolithics / Machines for processing and delivering refractory concretes and sprayable refractories / Lime- and dolomite products for steelmaking / Blast furnace process and slags / Oxygen steel making process / Secondary metallurgy / Synthetic slags / Basic bricks for the steel industry / Production and use of Blast furnace slags and steel slags

VENUE / SEMINAR HOTEL
art’otel Cologne
Holzmarkt 4, 50676 Cologne, GERMANY
Tel +49 221 80103-0
www.artotels.com

Once we have confirmed your place on the seminar the Steel Academy will automatically make a room booking for the participants at the art’otel Cologne from 16 – 19 March 2015 for a special rate of EUR 109/night incl. breakfast. The hotel room bill will be settled by you upon departure. Please advice at registration, if you do not need a reservation or whether you would like to stay longer in the hotel.

ORGANISATION / REGISTRATION
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**Programm**

**Sunday, November 22, 2015**

17:30  **Welcome / Introduction into Refractories**
19:00  **Common Dinner**

**Monday, November 23, 2015**

08:30  **Basics on Chemical and Mineralogical Composition of Refractory Material and Slag**
       Andreas Buhr
   - Terms used for material description / Compositions, properties and reaction between refractory material and slag / Methods used for mineralogical investigation / Wear model of refractory material

10:00  **Break**

10:30  **Testing and Evaluation of Refractory Materials in the Laboratory in Terms of the Application in Service**
       Olaf Krause
   - Sampling / Mechanical properties / Thermal properties / Porosity / Thermal conductivity / Corrosion / Standardisation

11:30  **Shaped Refractory Products Based on Alumina**
       Werner Schönwelski
   - Fireclay and high alumina / Fired bricks / Carbon containing bricks / Raw materials and additives / Shaping and heat treatment of brick products / Applications in iron and steel industry

12:30  **Lunch**

13:30  **Synthetic Alumina Raw Material and High Alumina Cement**
       Andreas Buhr
   - Production, properties and application of tabular alumina / White fused alumina / Spinel / Various matrix alumina and cement / Raw material concept for refractory castables / New developments

15:30  **Break**

16:00  **Dolomite Refractories in the Steel Industry**
       Johannes Hartenstein
   - Dolomite and dolomite carbon refractories / Fired and carbon bonded bricks / Properties and relevant testing methods / Use of bricks in converters and ladles / Operating experiences & future developments.

17:00  **Insulating Materials for the Steel Industry**
       Patrick Tassot
   - Review of the main raw materials for the insulation / Main products / Review on the main regeneration on refractory ceramic fibres / Case studies

18:30  **Common Dinner**

**Tuesday, November 24, 2015**

08:30  **The World of Monolithics**
       Patrick Tassot
   - Introduction / Main raw materials used / Cements, main binders, other additives / Dense alumina based monolithics / Anchors, ways of installation / Drying of monolithics / Typical application / New developments

10:00  **Break**

10:30  **Machines for Processing and Delivering Refractory Concretes and Sprayable Refractories**
       Martin Breitzmann
   - Types of machines, function and way of application

11:45  **Refractory Installations - important aspects to consider**
       Rüdiger Rasch
   - Personal resources / planning of installations / practical aspects on site / safety and environmental protection. The presentation describes general aspects important for refractory installations using examples from the pig iron industry.

12:30  **Lunch**

13:30  **Basic Bricks for the Steel Industry**
       N.N.
   - Raw materials for basic bricks: production and classification / Magnesia carbon-bricks: characterisation, production / Magnesia and magnesia chromite bricks in steel plant application

15:30  **Coffee Break**

16:00  **Blast Furnace Process and Slags**
       Peter Eisen
   - Metallurgical tasks of the blast furnace and the BF slag / Composition and properties of the BF slags / Changes in slag composition on the way from the blast furnace to the runner

17:30  **Production and Use of Blast Furnace Slags and Steel Slags**
       Heribert Motz
   - Definition and slag types / Cooling methods / Properties of slags / Use as building materials and fertiliser / Technical standardisation and environmental behaviour / Statistics on production and use

18:30  **Common Dinner**

**Wednesday, November 25, 2015**

08:30  **Oxygen Steel Making Process**
       Helmut Lachmund
   - Development of the LD process / Metallurgical fundamentals of the oxygen top-blowing-process: refining reactions and evolution of bath and slag composition, slag formation, lime magnesia-wustite saturation / Interactions: steelmaking slag and refractory material

09:30  **Break**

10:00  **Lime- and Dolomite Products for Steelmaking**
       Matthias Blöser
   - The whole range of lime based products and special-products: production and use

11:00  **Synthetic Slags**
       Jost Günther
   - Raw materials: types + composition / Production, properties, use of synth slag / Melting products / Sintered products / Wet slag formers / Mixed products / Alkaline slag / CA slag / Labeling / REACH

12:00  **Lunch**

13:00  **Secondary Metallurgy**
       Helmut Lachmund
   - Formation of ladle top slags / Slag composition as a function of process route and targets for secondary metallurgy / Metal-slag reaction / Interactions between ladle top slags and refractory material / Characteristics of ladle top slags and desoxidation-products during casting

14:00  **Closing Remarks / Discussion**