

9<sup>th</sup> International VDEh-Seminar

# Steel Ladle Lining

Refractory Seminar with  
Steel Plant Tour

13 to 15 September 2016,  
Mönchengladbach, Germany



Photo: Hüttenwerke Krupp Mannesmann

## SUPPORTED BY

Technical Committee Refractory Materials  
of the Steel Institute VDEh

## DIRECTED BY

Dr. Andreas Buhr and Dr. Helmut Lachmund

## 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. The speakers are experts in their practical field and represent various European steel companies and their refractory concepts. These concepts will be discussed with the participants in very informal atmosphere of trust.

## VENUE / SEMINAR HOTEL

Dorint Parkhotel Mönchengladbach  
Hohenzollernstraße 5  
41061 Mönchengladbach,  
Tel.: +49 2161 893-0,  
<http://hotel-moenchengladbach.dorint.com>

The Steel Academy will automatically make a room booking for the participants at the Dorint Hotel from 13 – 15 September 2016 for a special rate of EUR 78,00 per night incl. breakfast. The hotel room bill will be settled by you upon departure. Please advise at your registration, if you do not need a reservation or whether you would like to stay longer in the hotel.

## CONTENT

Presentations of Steel Ladle Lining Concepts of:

- AG der Dillinger Hüttenwerke, Dillingen, Germany
- Deutsche Edelstahlwerke, Witten/Siegen, Germany
- Georgsmarienhütte GmbH, Georgsmarienhütte, Germany
- Hüttenwerke Krupp Mannesmann, Duisburg, Germany
- Salzgitter Flachstahl, Salzgitter, Germany
- SSAB Finland, Raahе
- Tata Steel Netherlands, IJmuiden
- Tata Steel UK, Rotherham
- voestalpine Stahl, Linz, Austria
- Exercise: Optimization of Economics in Refractories
- Steel Plant Tour at Hüttenwerke Krupp Mannesmann

## REGISTRATION FEE

EUR 1.311,80 (EUR 1.190,00 registration fee VAT-free  
+ EUR 121,80 conference package)

EUR 1.111,80\* (EUR 990,00\* registration fee VAT-free  
+ EUR 121,80 conference package)

\* for employees of member companies and individual members of the Steel Institute VDEh and for scientific staff of universities.

The conference package includes food and beverages during the seminar (incl. 19 % VAT).

A free withdrawal from the seminar is possible until two 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.

## ORGANISATION / REGISTRATION

Steel Academy • Steel Institute VDEh  
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## Tuesday, 13 September 2016

- 14.30 **Introduction to the theme**  
Andus Buhr  
Trends in secondary metallurgy and steel ladle lining / Dream ladle lining (teamwork)
- 16.00 **DILLINGER HÜTTE: Demands on refractory material for secondary metallurgy**  
Helmut Lachmund  
Increased tapping temperature / Longer residence time of steel in the ladle / Intensive metal-slag reactions / Recarburisation by refractory material / Reaction between steel and refractory material
- 17.00 Coffee Break
- 17.30 **TATA STEEL – Living with change**  
Tim McGuinness  
Stainless, free cutters and low carbon steels / Wide range of steel grades impacting on steel ladle lining and requiring adjustments of the lining / Bricked and monolithic ladle lining / Interface slag line and wall lining  
=> afterwards: Common Dinner

## Wednesday, 14 September 2016

- 08.30 **SALZGITTER FLACHSTAHL: Improvements of the steel ladle linings at the Steel Plant Salzgitter**  
Jens Pischke  
Ladle logistics and secondary metallurgy / Lining concept, wear lining and safety lining / Precast components / Refractory maintenance / Lifetime / Refractory improvements
- 09:45 **Exercise: Optimization of ECONOMICS IN REFRACTORIES, Part I**  
Rinus Siebring / Andreas Buhr  
Lectures, exercises and models on refractory costs
- 10.30 Coffee Break
- 11.00 **Optimization of ECONOMICS IN REFRACTORIES, Part II**
- 12.30 Lunch
- 13.30 **HÜTTENWERKE KRUPP MANNESMANN: State of the art and review of steel ladle linings**  
Hans-Christian Schröter  
Operating parameters / Ladle operation and performance / Current lining concept / Review on the developments in the last years

- 14.30 **Steel Plant Tour at Hüttenwerke Krupp Mannesmann**  
Guide: Hans Schröter  
=> afterwards: Common Dinner at the HKM Guest House

## Thursday, 15 September 2016

- 08.30 **TATA STEEL IJMUIDEN: Steel ladle lining – current design and recent developments**  
Marcel Peekel  
Overview of current steel ladle construction, ladle operation and performance at Corus IJmuiden BOS plant / Recent developments
- 09.30 **SSAB EUROPE OY: Steel ladle lining practice in Raaha, Finland**  
Jukka Vatanen  
Refractory materials for steel ladle / Installation of monolithic-brick combined lining / Material consumption / Ladle injuries
- 10.30 Coffee Break
- 11.00 **VOESTALPINE STAHL: Steel ladle lining in Linz, Austria**  
Reinhard Exenberger  
Refractory department / Lining concepts / Wear / Selection criteria / Installation practice / Drying and heating / Operating parameters
- 12.00 Lunch
- 13.00 **DEUTSCHE EDELSTAHLWERKE: Lining concepts at stainless steelworks Witten and Siegen**  
Leandro Schöttler  
Balanced lining for various tapping weights and a wide range of steel grades / Ladles for operation in LF, RH and VOD / Return to domestic raw materials: dolomite lining / Low carbon stainless steels: Carbon pick up from refractory / Ladle spout design for deslagging operation / Preheating strategies
- 14.15 **GEORGSMARIENHÜTTE: Ladle lining for quality and engineering steels in Georgsmarienhütte**  
Amin El Gammal  
Current practice of ladle lining at GMH / Development of ladle life time / Modified insulation / Laser ware measurement since Jan 2016 / Lining of ladle conus
- 15.15 **Summary**  
Andus Buhr
- 16.00 End of Seminar

**SPEAKERS** Dr. rer.nat. Andreas Buhr, Almatis GmbH, Frankfurt ▪ Dr.-Ing. Amin El Gammal, Georgsmarienhütte GmbH, Georgsmarienhütte ▪ Dipl.-Ing. Reinhard Exenberger, voestalpine Stahl, Linz ▪ Dr.-Ing. Helmut Lachmund, AG der Dillinger Hüttenwerke, Dillingen ▪ Tim McGuinness, Tata Steel UK, Rotherham ▪ Marcel Peekel, Tata Steel Netherlands, IJmuiden ▪ Dipl.-Ing. Jens Pischke, Salzgitter Flachstahl, Salzgitter ▪ Dipl.-Ing. Leandro Schöttler, Deutsche Edelstahlwerke, Siegen ▪ Dipl.-Ing. Hans-Christian Schröter, Hüttenwerke Krupp Mannesmann, Duisburg ▪ Rinus Siebring, Tata Steel Research, IJmuiden ▪ Dipl.-Ing. Jukka Vatanen, SSAB Europe Oy, Raaha