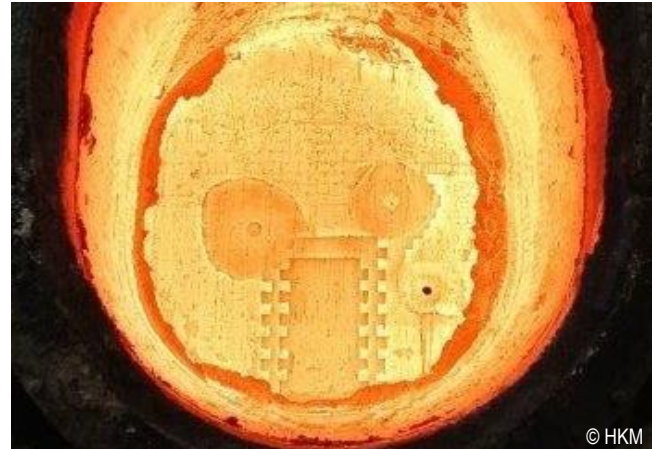


Online Seminar / Live Stream

Steel Ladle Lining

31st of May to 1st of June 2021
at 12.30 p.m. till 6.30 p.m. CET (Berlin)



TECHNICAL CHAIRMEN

Dr. Andreas Buhr, Almatis / Helmut Lachmund, Dillinger

ONLINE SEMINAR CONCEPT

The Steel Academy attaches great importance to the audio-visual quality of its online seminars. This ladle lining seminar will be broadcast as a live-stream from Steel Academy's film studio in Dusseldorf – with high quality camera, microphone and lighting. In the picture will be shown the speaker and his presentation. A moderator leads through the lectures. => *Note: Due to Corona travel restrictions only half of the speakers can come to the film studio. The others will present via MS Teams.*

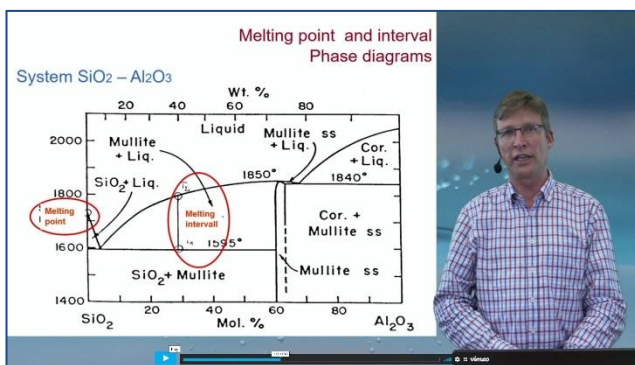


Photo: Chairman Dr. Andreas Buhr during an online lecture at the Steel Academy

Online seminar - how does it work?

- 2-3 days before seminar's starting the participant receives an e-mail with a link and a password
- the link leads you to the streaming platform vimeo.com
- you log in with the password
- you need just a PC / laptop / tablet / mobile phone
 - ⇒ we recommend earphones/headsets and LAN or good WLAN

Schedule

2 days, 6 hours, 12.30 p.m. till 6.30 p.m.

Seminar handouts

Before seminar's starting the participant can download the presentations as a pdf

CONTENT

- Trends in clean steel technology and steel ladle lining
- Demands on refractories for secondary metallurgy
- Improvements of the steel ladle linings
- Thermal efficiency and management of teeming ladles
- Neutral steel ladle lining for flat steel production
- Purging plugs in steel ladles – important factors for reliable performance
- Monolithic lining in a 3-converter-shop
- Basic ladle lining for flat steel production
- Flexibility of refractory lining for varying operating conditions
- Optimization of economics in refractories

TARGET GROUP

The wear of refractory materials in the secondary metallurgy is particularly high. These high wear mechanisms are complex, but mainly caused by slags. High temperatures, long-terming treatment and turbulences of stirring gas are also important factors for wear and failures.

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.

ORGANISATION / REGISTRATION

Steel Academy • Steel Institute VDEh
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REGISTRATION FEE

€ 540,00* // € 590,00 VAT-free

* for employees of member companies and individual members of the Steel Institute VDEh. Scientific staff of universities gets a 50 % off. Also 50 % discount for each additional participant from the same company. Cancellation free of charge is not possible after receiving of the log-in data. **+++ as part of the VDEh youth development sponsorship also young engineers (up to 35 years) of member companies receive a 50% discount +++**

PROGRAM

Monday, 31st of May 2021

- 12.30 p.m. **Introduction to the seminar**
Peter Schmieding / Andus Buhr
- 12.45 p.m. **Introduction – Trends in clean steel technology and steel ladle lining**
Andus Buhr, Almatiss
Trends in secondary metallurgy and steel ladle lining / Dream ladle lining
- 1.45 p.m. **questions & answers**
- 2.00 p.m. **Demands on refractories for secondary metallurgy**
Helmut Lachmund, Dillinger
Increased tapping temperature / Longer residence time of steel in the ladle / Metal-slag reactions / Recarburisation by refractory material / Reaction steel and refractory material
- 3.00 p.m. **questions & answers**
- 3.15 p.m. **Improvements of steel ladle lining**
Jens Pischke, Salzgitter Flachstahl
Ladle logistics and secondary metallurgy / Lining concept, wear lining and safety lining / Precast components / Refractory maintenance / Refractory improvements
- 4.15 p.m. **questions & answers**
- 4.30 p.m. **Thermal efficiency and management of teeming ladles**
Matthew Davies, Tata Steel PortTalbot
Thermal modelling and measurements, ladle campaign prediction, thermal stability of insulating materials
- 5.30 p.m. **questions & answers**
- 5.45 p.m. **Economics in refractory usage**
Rinus Siebring, Tata Steel Ceramic Research Center
- 6.30 p.m. **end of 1st day**

Tuesday, 1st of June 2021

- 12.30 p.m. **Flexibility of refractory lining for varying operating conditions**
Leandro Schöttler, DEW
Balanced lining for various tapping weights and a wide range of steel grades / Ladles for operation in LF, RH and VOD / Dolomite lining / Low carbon stainless steels: Carbon pick up
- 1.30 p.m. **Digital Steel Plant Tour**
Film: Steel Ladle Lining at DEW Siegen
- 1.45 p.m. **questions & answers**
- 2.00 p.m. **Neutral steel ladle lining for flat steel production**
Marcel Peekel, Tata Steel IJmuiden
Overview of current steel ladle construction, ladle operation and impact of refractories performance / Recent developments
- 3.00 p.m. **questions & answers**
- 3.15 p.m. **Monolithic ladle lining in a 3-converter shop**
Jukka Vatanen, SSAB Finland
Refractory materials for steel ladle / Installation of monolithic-brick combined lining / Reduction of specific refractory consumption / Ladle injuries
- 4.15 p.m. **questions & answers**
- 4.30 p.m. **Purging plugs in steel ladles – important factors for reliable performance**
Stephan Clasen, HKM
Interaction refractory material and quality, purging plug's geometry and gas channel system
- 5.30 p.m. **questions & answers**
- 5.45 p.m. **Summary Discussion in a MS Teams Meeting**
Chairman Andus Buhr, all speakers and participants
- 6.30 p.m. **end of seminar**

SPEAKERS Dr. rer.nat. Andreas Buhr, Almatiss GmbH, Frankfurt ▪ Dr.-Ing. Stephan Clasen, Hüttenwerke Krupp Mannesmann, Duisburg ▪ Matthew Davies, Tata Steel Strip Products UK, Port Talbot ▪ Dr.-Ing. Helmut Lachmund, AG der Dillinger Hüttenwerke, Dillingen ▪ Marcel Peekel, Tata Steel Strip Products Mainland Europe, IJmuiden ▪ Dipl.-Ing. Jens Pischke, Salzgitter Flachstahl, Salzgitter ▪ Dipl.-Ing. Leandro Schöttler, Deutsche Edelstahlwerke Specialty Steel, Siegen ▪ Rinus Siebring, Tata Steel Ceramics Research Centre, IJmuiden ▪ Dipl.-Ing. Jukka Vatanen, SSAB Europe Oy, Raahе ▪ Organization: Peter Schmieding, Steel Academy, Steel Institute VDEh, Duesseldorf