Steel Institute VDEh

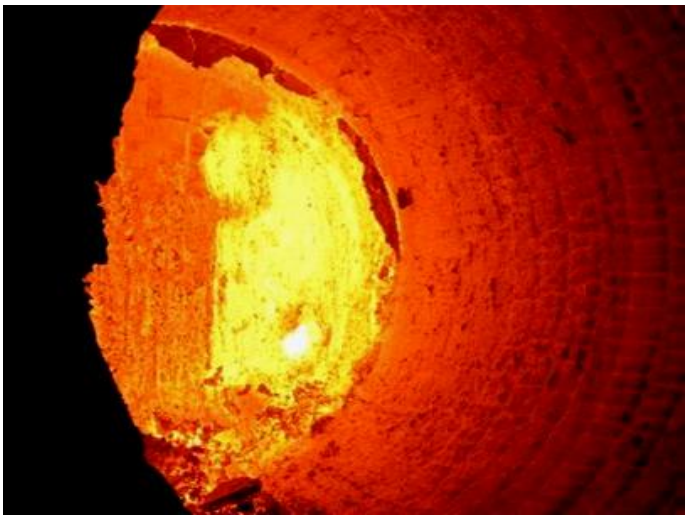
Steel Academy

Seminar

Refractory Technology

Applications, Wear Mechanism and Failures

22 - 25 November 2026
Düsseldorf | Germany



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 refractory materials.

Directed by

Dr. Andreas Buhr, Frankfurt

Organisation

Steel Academy ▪ Stahlinstitut VDEh
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Registration fee / Remarks

EUR 1.090,00* registration fee VAT-free plus
EUR 415,00 conference package

EUR 1.290,00 registration fee VAT-free plus
EUR 415,00 conference package

* special rate for employees from member plants and personal members of the Steel Institute VDEh / university staff
=> for becoming a personal VDEh member click **HERE**

+++ VDEh young talent promotion: young engineers (≤ 30 years, personal VDEh member or employees of member companies) also receive the 50% discount +++

Catering includes 3 lunches, 2 dinners, cold drinks, coffee, tea, cakes.

Seminar cancellation is free of charge up to 2 weeks before the start of the seminar. After that, 25% of the seminar fee is payable.

Content

- Steel manufacturing process
- General overview of wear mechanisms and methods for examination of the refractory material after use
- Refractory lining and wear mechanism of blast furnace, taphole, and runners
- Refractory materials for direct reduction plants
- Process conditions affecting the refractory lining life and the development of refractory materials technology in oxygen blowing converters
- Steel Teeming Ladle: ladle metallurgical treatment, refractory stress, materials and lining concepts
- Refractory lining and wear of AC and DC furnaces
- Economics in refractory usage
- Challenges and solutions for continuous casting refractories in consideration of clean steel, automation and economy
- Teamwork on failure case studies

Venue

Steel Institute VDEh / Stahl-Zentrum
Sohnstraße 65
40237 Düsseldorf / Germany

Hotels Nearby

NH Düsseldorf City Nord
Münsterstr. 230-238, 40470 Düsseldorf
Fon +49 30 22388599
www.nh-hotels.de/hotels/duesseldorf

H2 Hotel Düsseldorf City
Toulouser Allee 11A, 40211 Düsseldorf
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B&B Hotel Düsseldorf City
Toulouser Allee 2-4, 40211 Düsseldorf
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PROGRAMME

Sunday, 22 November

16:00 **Introduction**
Andreas Buhr

Participants can present their failure cases and the according information material, so that they can be included in the team work on failure cases

16:30 **Steel Manufacturing Process**
Andreas Buhr

17:30 **GENERAL OVERVIEW of Wear Mechanisms, Methods for Examination of the Refractory Material after Use**
Annika Mertke

Chemistry, physics, mineralogy, procedure and evaluation: wear mechanisms, types of damages, description of optional research methods to examine the wear mechanism, typical failures of refractory material after the operational application, evaluation of the samples

19:00 Common Dinner

Monday, 23 November

8:30 **Refractory Lining and Wear Mechanism of the BLAST FURNACE, Taphole, and Runners**
Tobias Broch

Lining concepts considering furnace dimensions, cooling and investment costs. Refractories for furnace shaft and hearth, wear mechanism. Intermediate repair techniques to extend furnace campaign. Development of tapping technique, requirements on taphole mixes and materials used. Performance criteria on lab and practical scale

10:30 Coffee Break

11:00 **Refractory materials for direct reduction plants**
Joschka Udert

Refractory lining | Use of hydrogen in DRI plants

11:45 **TEAM WORK – Introduction**
Andreas Buhr

12:30 Common Lunch

13:30 **TEAM WORK – Failure Case Studies**

15:00 Coffee Break

15:30 **Process Conditions and Factors affecting the Lining Life and the Development of Refractory Materials Technology in OXYGEN BLOWING CONVERTERS**
Michael Berger and Jochen Schlüter

Development of LD process, combined blowing process, use of sublance, purpose of bottom stirring, re-blowing/ direct tapping. Charge materials: hot metal; scrap; fluxes/additives. Development in the refractory materials sector, trends and philosophies. Process models and process sequences. Wear mechanism, development and adaptation of lining concepts, counteractions in the refractory materials area and detection of wear. Maintenance and care (until 18:30, incl. short break)

19:00 Common Dinner

Tuesday, 24 November

8:30 **STEEL TEEMING LADLE: Metallurgical Treatments, Refractory Materials, Lining Concepts, Refractory Wear and CO_2 footprint**
Hans Schröter and Andreas Viertauer

Metallurgical tasks and equipment, Slag chemistry vs. Steelgrades, Lining Concepts, Purging, "Problem Areas"

10:00 Coffee Break

10:30 **STEEL TEEMING LADLE, Part II**
Andreas Viertauer and Hans Schröter

"Horror Cabinet" and measures

12:00 Common Lunch

13:00 **TEAM WORK – Failure Case Studies**

14:30 Coffee Break

15:00 **Lining and Wear of the ELECTRIC ARC FURNACE**
Leandro Schöttler

Influences on the wear, comparison of AC and DC furnaces, different kinds of lining, relining hearth and sidewalls between the heats

16:30 short break

16:45 **Inspection of Refractory Lining by Means of 3D-Laserprofile Measurement**
Rolf Lamm

17:45 **Introduction to ECONOMICS**
Rinus Siebring

19:00 Common Dinner

Wednesday, 25 November

8:30 **ECONOMICS in Refractory Usage**
Rinus Siebring

Including Teamwork

10:00 Coffee Break

10:30 **Challenges and Solutions for CONTINUOUS CASTING Refractories in Consideration of Clean Steel / Automation and Economy**
Sven Karrasch and Georg Krumpel

Exchangeable nozzles, ladle shrouds, subentry nozzles, stopper and tundish lining. Process- and quality- affecting factors. Re-oxidation of the steel. Steel flow in the tundish and in the mould. Damage of the casting system. Optimization of the lining. Automation and economy. Influence of the refractory material on the product quality. Recycling of refractory

12:30 Common Lunch

13:30 **Discussion of Teamwork: Results**
Andreas Buhr

15:30 Closing Remarks / Discussion

SPEAKERS Dipl.-Ing. Michael Berger, RHI Magnesita, Wien ■ Tobias Broch, Iron Making & Refractory Consultant, Duisburg ■ Dr. rer. nat. Andreas Buhr, Almatis GmbH, Frankfurt ■ Dipl.-Ing. Sven Karrasch, thyssenkrupp Steel Europe AG, Duisburg ■ Georg Krumpel, RHI Magnesita, Leoben ■ Dipl.-Ing. Rolf Lamm, Minteq International GmbH, Duisburg ■ Dr.-Ing. Annika Mertke, Salzgitter Flachstahl GmbH, Salzgitter ■ Dipl.-Ing. Jochen Schlüter, former SMS group, Düsseldorf ■ Dipl.-Ing. Leandro Schöttler, Deutsche Edelstahlwerke GmbH, Siegen ■ Dipl.-Ing. Hans-Christian Schröter, Schröter GmbH, Blomberg ■ Ir. Rinus Siebring, Tata Steel Research and Development, IJmuiden ■ Joschka Udert, STEULER - KCH GmbH, Höhr-Grenzhausen ■ Ing. Andreas Viertauer, Mayerton Refractories Ltd., Solihull / West Midlands