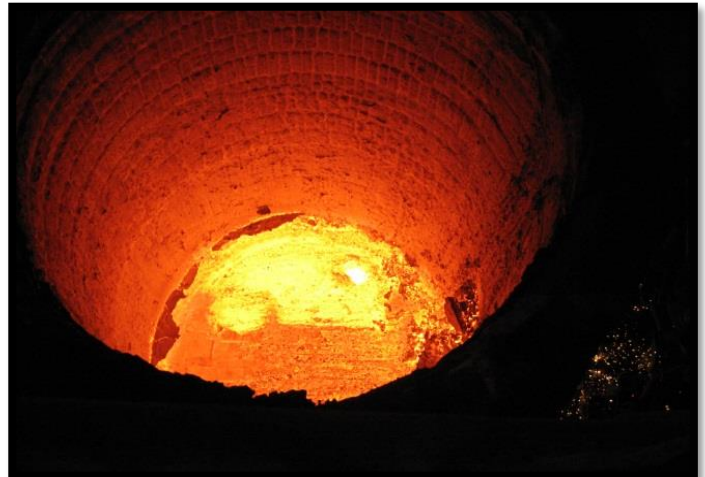


International Seminar

Refractory Technology

Refractory Materials and Slags
in Metallurgy

28 – 30 April 2025



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.

DIRECTED BY

Dr. Patrick Tassot, Bonn
Dr.-Ing. Helmut Lachmund, Dillingen

REGISTRATION FEE

EUR 1.090,00* seminar registration fee VAT-free plus
EUR 319,50 conference package (total EUR 1.409,50)

EUR 1.290,00 registration fee VAT-free plus
EUR 319,50 conference package (total EUR 1609,50)

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

+++ as part of the VDEh young talents promotion also young engineers (up to 35 years) of member companies receive a 50% discount +++

The conference package includes food and beverages during the seminar (incl. 19 % VAT). This fee does not include the hotel room. 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 has to bear the cancellation costs of the seminar hotel.

ORGANISATION / REGISTRATION

Steel Academy / Steel Institute VDEh
Sohnstraße 65
40237 Düsseldorf
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CONTENT

- Basics on chemical and mineralogical composition
- Testing and evaluation
- Synthetic alumina raw material and high alumina cement
- Insulating materials
- The world of monolithics
- Machines for processing and delivering refractory concretes and sprayable refractories
- Basic bricks
- Recycling of Refractory Materials
- Blast furnace slag and refractory material
- Converter slag and refractory material
- Electric arc furnace: Unit for low-CO₂ steel production
- Ladle slag and refractory material
- Limestone minerals, lime and dolime
- Production and Use of Blast Furnace Slags and Steel Slags

VENUE

NH Düsseldorf City
Kölner Straße 186
40227 Düsseldorf, Germany
<https://www.nh-hotels.com/en/hotel/nh-duesseldorf-city>

The Steel Academy will automatically make a room booking for the participants at the NH Düsseldorf City North from 27 (the night prior to the seminar) to 30 April 2025 for a special rate of EUR 119,00 per night incl. breakfast. The hotel room bill will be settled by you upon departure. Please advise at your seminar registration, if you do not need a reservation, you arrive on the 28 in the morning or whether you would like to stay longer in the hotel.

Monday, 28 April

- 09:00 **Welcome and brief introduction to the topic**
Patrick Tassot
- 09:45 **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
- 11:15 Coffee break
- 11:45 **Testing and Evaluation of Refractory Materials**
Olaf Krause
Sampling / Mechanical properties / Thermal properties / Porosity / Thermal conductivity / Corrosion / Standardisation
- 12:45 Lunch
- 13:45 **Synthetic Alumina Raw Material and High Alumina Cement**
Sebastian Klaus
Production, properties and application of tabular alumina / White fused alumina / Spinel / Various matrix alumina and cement / Raw material concept for refractory castables / New developments
- 15:15 Coffee break
- 15:45 **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
- 17:15 End of day 1
- 18:30 Common Diner

Tuesday, 29 April

- 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 / Typical application / New developments
- 10:00 Coffee break
- 10:30 **Shaped refractory products based on aluminum**
Joschka Udert
Fireclay and high alumina / Fired bricks / Carbon containing bricks / Raw materials and additives / Shaping and heat treatment of brick products / Applications in steel industry
- 11:30 **Machines for Processing and Delivering Refractory Concretes and Sprayable Refractories**
Malte Janssen
Types of machines, function, and way of application
- 12:45 Lunch
- 13:45 **Dolomite Refractories in the Steel Industry**
Clemens Ebner
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 development

- 14:45 **Basic Bricks for the Steel Industry**
Bernd Neubauer
Raw materials for basic bricks: production and classification / Magnesia carbon-bricks: characterization, production / Magnesia- and magnesia chromite bricks in steel plant applications
- 16:15 Coffee break
- 16:45 **Recycling of Refractory Materials**
Horn & Co.
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- 17:30 End of day 2
- 18:30 Common Diner

Wednesday, 30 April

- 08:30 **Blast furnace slag and refractory material**
Tobias Broch
Blast furnace process / structure / raw materials / reactions/slag
- 10:00 Coffee break
- 10:30 **Converter slag and refractory material in the oxygen blowing process**
Helmut Lachmund
Development of the LD process / Metallurgical fundamentals of the oxygen top-blowing-process: refining reactions, slag formation, lime magnesia-wustite saturation / Interactions: steelmaking slag and refractory material.
- 11:15 **Electric arc furnace: Unit for low-CO₂ steel production**
Helmut Lachmund
Feed materials | Metallurgy for mass steel production (carbon steels) | Requirements for the slag
- 12:00 Lunch
- 12:45 **Limestone minerals, lime and dolime and their use in the Iron and Steelmaking**
Leomar Marcon
Limestone and Dolomite Minerals / Usage of Lime in the Iron & Steelmaking / Refractory Wear Control by Slag / Environment
- 13:30 **Ladle slag and refractory material in secondary metallurgy**
Helmut Lachmund
Formation of ladle top slags / Slag composition / Metal-slag reaction / Interactions between ladle top slags and refractory material / Characteristics of ladle top slags and deoxidation-products during casting
- 14:15 **Production and Use of Blast Furnace Slags and Steel Slags**
David Algermissen
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
- 15:15 End of the seminar

SPEAKERS David Algermissen M.Sc., FEhS - Institut für Baustoff Forschung e.V., Duisburg ■ Dr. rer. nat. Andreas Buhr, Almatix GmbH, Frankfurt ■ Dipl.-Ing. Tobias Broch, Consultant Ironmaking & Refractory, Duisburg ■ Dr. Clemens Ebner, RHI Magnesita, Leoben ■ Malte Janssen, M. Eng., Purmetall GmbH & Co. KG, Oberhausen ■ Dr. rer. nat. Sebastian Klaus, Almatix GmbH, Frankfurt ■ Prof. Dr. Dipl.-Min. Olaf Krause, Koblenz University of Applied Science ■ Dr.-Ing. Helmut Lachmund, ehem. Dillinger, Dillingen ■ Dipl.-Ing. Leomar Marcon, Rheinkalk GmbH, Wülfrath ■ Dipl.-Ing. Bernd Neubauer, RHI Magnesita, Leoben ■ Dr. Patrick Tassot, Bonn ■ Joschka Udert, Steuler-KCH GmbH, Höhr-Grenzhausen