

Seminar

Transformation of the steel industry

Technology and challenges of hydrogen-based steel production

1 - 2 December 2026,
Düsseldorf, Germany



SEMINAR'S TARGET

Europe wants to become climate-neutral by 2050 and already save 55% of greenhouse gases by 2030 compared to 1990. The EU Climate Act sets these targets in law for the first time. For large parts of the European steel industry, these targets mean a far-reaching technological change. The technical solution has been found and is: Replace coal with hydrogen! But how does the new process route work in detail? What are the challenges? In three days, the seminar will provide a technical overview of the biggest technology change in the steel industry for decades.

SEMINAR CHAIR

Jochen Schlüter

ORGANISATION / REGISTRATION

Steel Academy • Steel Institute VDEh
Sohnstraße 65 • 40237 Düsseldorf, Germany
Fon +49 (0)211 6707-458 • Fax -655
training@vdeh.de • www.steel-academy.de

SEMINAR FEE

EUR 790,00* registration fee VAT-free plus
EUR 119,00 seminar catering => total 909,00 EUR

EUR 890,00 registration fee VAT-free plus
EUR 119,00 seminar catering => total 1009,00 EUR

* for employees of member companies and individual members of the Steel Institute VDEh. Scientific staff of universities gets a 50 % off

+++ as part of the VDEh youth development sponsorship young engineers (up to 28 years) of member companies receive a 50 % discount +++

Catering during seminar: 2 x Lunch, 1 x dinner, soft drinks, coffee, tea.

A free withdrawal from the seminar is possible until two weeks prior to the start. Then, 25 % of the seminar fee must be paid.

CONTENT

- Future role and availability of steel scrap and DRI
- Technology of natural gas and hydrogen direct reduction
- Hydrogen as an atmosphere for refractory materials
- Electric arc furnace technologies (AC / DC)
 - ▶ Excursus: EAF power supply
- Melting of DRI and HBI in the EAF
- Hydrogen production, storage and transport
- Slags of CO2 neutral steel production
- Decarbonisation of downstream processes: hydrogen burners
- From direct reduction to plasma smelting reduction
- Introduction to the the 3 new German direct reduction sites:
 - ▶ tkH2Steel in Duisburg: DR – smelter – converter
 - ▶ SALCOS in Salzgitter: DR – EAF
 - ▶ Power4steel in Dillingen: DR – EAF

VENUE

Steel Institute VDEh
Sohnstr. 65
40237 Düsseldorf
Germany

HOTELS NEARBY

NH Düsseldorf City Nord
Münsterstr. 230-238, 40470 Düsseldorf
Fon 030 22388599, www.nh-hotels.de/hotels/duesseldorf

B&B Hotel Düsseldorf City
Toulouser Allee 2-4, 40211 Düsseldorf
Fon 0211 415500, duesseldorf-city@hotelbb.com

Hotel Achenbach
Achenbachstr. 17
40237 Düsseldorf
Fon 0211 669090, info@villa-achenbach.de
▶ Info for motorists: no good parking facilities

PROGRAMME

Tuesday, 1 Dezember 2026

- 09.30 **Introduction**
Peter Schmieding / Jochen Schlüter
- 10.15 **Future role and availability of scrap and DRI**
Klaus Krüger
Future availabilities of scrap and DRI / Quantities and qualities
- 11:00 *coffee break*
- 11:15 **Technology of NG and H2 direct reduction**
Jochen Schlüter
Construction and design / Reduction process with hydrogen and natural gas / Concept Midrex / Concept Energiron HYL
- 12:30 *lunch break*
- 13:15 **Hydrogen as an atmosphere for refractories**
Jens Sperber
Lining concepts of DR systems: reduction gas, lining, size comparison / Gas permeability and pore size distribution of refractory materials / HIRON materials
- 14.00 **Electric arc furnace technologies**
Klaus Krüger
Historical development / Construction / Process engineering and control of AC and DC EAF
⇒ **Excursus „EAF power supply“**
- 15:45 *coffee break*
- 16:15 **Technology of the OBF/Smelter**
Jochen Schlüter
- 16:45 **Introduction to the 3 new DR sites in Germany:**
SALCOS: Prozessroute DR – EAF
Johannes Höffgen
tkH2Steel: Prozessroute DR – Smelter – Converter
Nils Jäger
Power4Steel – the SHS transformation
Benjamin Blaß
- 18:00 **Summary, first day's last questions**
=> afterwards *common dinner*

Wednesday, 2 Dezember 2026

- 09:00 **Melting of DRI and HBI in the EAF**
Markus Abel
DRI- and HBI-production and transport / Operation with the input of DRI / Equipment design for use of DRI
- 10.00 *coffee break*
- 10:30 **Slags of CO₂ neutral steel production**
David Algermissen
Problem of slag quantity in EAF / Slags in the oxidizing EAF and the reducing OBF / Quality & use of slags
- 11.30 **Hydrogen production, storage and transport**
Karsten Pinkwart
Infrastructure concepts for H2 and electricity / Differences between the processes / Hydrogen vs. oxygen / H2 distribution
- 13.00 *lunch break*
- 13:45 **Decarbonisation of downstream processes – Hydrogen burner**
Nico Schmitz
Requirements / Safety engineering / Control of burner systems / Influences on furnace operation / NOx emissions
- 14.30 **From DR to H2 plasma smelting reduction**
Isnaldi Souza Filho
Motivation / Kinetics of hydrogen metallurgy / New opportunities with hydrogen plasma smelting reduction
- 15.00 **End of seminar**



© WV Stahl

SPEAKERS Markus Abel, tripleS Solutions, Durbach ■ David Algermissen, FEhS Slag Institute / Institut für Baustoff-Forschung, Duisburg ■ Dr. Benjamin Blaß, SHS Stahl-Holding Saar, Dillingen ■ Johannes Höffgen, Salzgitter Flachstahl GmbH, Salzgitter ■ Dr.-Ing. Nils Jäger, thyssenkrupp Steel Europe, Duisburg ■ Prof. Dr.-Ing. Klaus Krüger, Passion Steel, Freilassing ■ Prof. Dr. rer. nat. Karsten Pinkwart, University of Karlsruhe ■ Jochen Schlüter, Dortmund ■ Dr. Isnaldi Souza Filho, Max Planck Institute for Sustainable Materials, Düsseldorf ■ Jens Sperber, Steuler KCH-GmbH, Höhr-Grenzhausen ■ Dr.-Ing. Nico Schmitz, RWTH Aachen University ■ Organisation: Peter Schmieding, Steel Institute VDEh