

International Online-Seminar

Refractory Technology

Refractory Materials and Slags
in Metallurgy

26 to 28 April 2021, Live-Stream



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.

CONTENT

Basics on chemical and mineralogical composition of refractory material and slag | Testing and evaluation of refractory materials in the laboratory | Synthetic alumina raw material and high alumina cement | Insulating materials for the steel industry | The world of monolithics | Machines for processing and delivering refractory concretes and sprayable refractories | Lime- and dolomite products | Basic bricks for the steel industry | Blast furnace process and slags | Oxygen steel making process and slags | Secondary metallurgy and slags | Synthetic slags | Production and use of Blast furnace slags and steel slags

DIRECTED BY

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REGISTRATION FEE

€ 640,00* // € 690,00 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. The seminar fee is VAT-free according to § 4, number 22 UStG

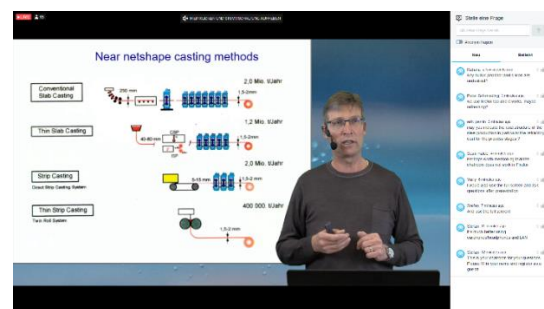
ORGANISATION / REGISTRATION

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ONLINE SEMINAR ORGANISATION

Technical quality

The Steel Academy attaches great importance to the audio-visual quality of its online seminars. The 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.



Online seminar - how does it work?

- 2-3 days before seminar's starting you receive 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 a PC / laptop / tablet
 - ⇒ we recommend using headphones, LAN connection or good WLAN

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

Monday, April 26, 2021

- 09:00 **Welcome and introduction**
Patrick Tassot
- 09:15 **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 of refractory material
- 10:45 time for more questions or a coffee
- 11:00 **Testing and Evaluation of Refractory Materials in the Laboratory**
Olaf Krause
Sampling / Mechanical properties / Thermal properties / Porosity / Thermal conductivity / Corrosion / Standardisation
- 11:45 time for more questions
- 12:00 **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
- 13:15 time for a short lunch
- 14:00 **Insulating Materials for the Steel Industry**
Patrick Tassot
Review of the main raw materials for the insulation / Main products / Review on the main regimentation on refractory ceramic fibres / Case studies
- 15:00 End of day 1

Tuesday April 27, 2021

- 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
- 09:30 let's have a coffee
- 09:45 **Shaped refractory products based on aluminum**
Werner Schönwelski
Fireclay and high alumina / Fired bricks / Carbon containing bricks / Raw materials and additives / Shaping and heat treatment of brick products / Applications in steel industry
- 10:30 questions?

- 10:45 **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
- 11:30 time for more questions or a coffee
- 11:45 **Machines for Processing and Delivering Refractory Concretes and Sprayable Refractories**
Malte Janssen
Types of machines, function and way of application
- 12:30 time for more questions and a short lunch
- 13:15 **Basic Bricks for the Steel Industry**
Bernd Neubauer
Raw materials for basic bricks: production and classification / Magnesia carbon-bricks: characterisation, production / Magnesia- and magnesia chromite bricks in steel plant applications
- 14:15 End of day 2

Wednesday April 28, 2021

- 08:30 **Blast furnace slag and refractory material**
Stephan Clasen
Blast furnace process / structure / raw materials / reactions/slag
- 09:30 the morning wake-up coffee or questions
- 09:45 **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 and evolution of bath and slag composition, slag formation, lime magnesia-wustite saturation / Interactions: steelmaking slag and refractory material.
- 10:30 one more coffee?
- 10:45 **Ladle slag and refractory material in secondary metallurgy**
Helmut Lachmund
Formation of ladle top slags / Slag composition as a function of process route and targets for secondary metallurgy / Metal-slag reaction / Interactions between ladle top slags and refractory material / Characteristics of ladle top slags and deoxidation-products during casting
- 11:30 time for a short lunch
- 12:15 **Lime and dolomite in iron and steel production**
Leomar Marcon
Hot lime / dolomite lime / special products for hot metal and steel desulphurization / top slag as a slag former
- 13:00 time for some last questions

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