



**The future
transformation of the
process industry**

Der Wandel der Prozessindustrie

28th and 29th September 2022

Programme

Welcome



Dear business partners,

the necessary transformation of our industries is constantly being faced with new challenges. Whereas yesterday we had to find solutions to the shortage of raw materials and freight capacities, today we are faced with a turbulence on the energy market that has never before been nearly as dynamic and that is pushing companies in Europe to the limits of their competitiveness.

New technologies will be explored - new products will be developed. More than ever, it is therefore necessary to find smart, sustainable solutions to ensure the survival of the European refractory and steel industries in particular. Innovation arises from joint developments, in close cooperation with the user industries. The first joint organisation of the International Colloquium on Refractories with future STEEL will on the one hand further advance this necessary innovation and at the same time offer visitors from both sectors excellent networking opportunities, including a joint evening event.

Have a fruitful conference - Glückauf!

Ulf Frohneberg, Dagmar Dieterle-Witte



Our sponsors

ICR



www.almatis.com



www.cqbosai.com

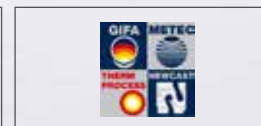


www.mineralmuehle.com

futureSTEEL



www.ferolabs.com



www.messe-duesseldorf.de



www.vng-handel.de

Venue

ICR® and futureSTEEL are being held at the Eurogress congress center of Aachen, Germany.

Parking is available next to the venue (Parkhaus Eurogress, Monheimsallee 44, 52062 Aachen).

Organisers

ECREF European Centre for Refractories GmbH

Rheinstraße 58
D-56203 Höhr-Grenzhausen

Phone: +49 (0)2624 9433-140
Fax: +49 (0)2624 9433-135
E-mail: info@ic-refractories.eu



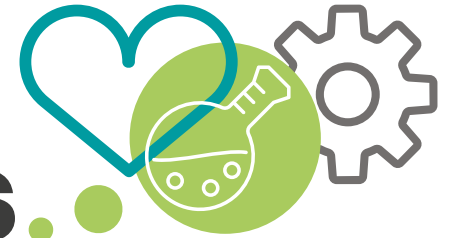
marketSTEEL Media GmbH

Unter den Eichen 51
D-40625 Düsseldorf

Phone: +49 (0) 211 / 92524120
Fax: +49 (0) 211 / 92524122
E-Mail: info@marketsteel.de



PASSION FOR CERAMICS.



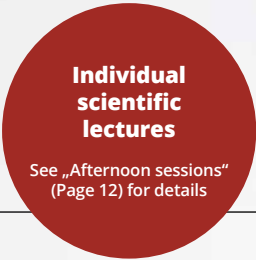
Werkstofftechnik Glas & Keramik in Höhr-Grenzhausen studieren

Das Studium mit besten Berufsaussichten + familiärem Campus + individueller Betreuung + Forschung auf höchstem Niveau




Overview of the programmes

28th September 2022

		ICR		futureSTEEL	
		HALL EUROPA	HALL K3	HALL BRUSSELS	futureSTEEL LOUNGE
10.00	Opening event			10.00	Opening event
12.30	Joint lunch with ICR and futureSTEEL			12.30	Joint lunch with ICR and futureSTEEL
13.20	Afternoon sessions	Castables – Materials design	Materials Testing	13.20	Besuch der Messe
14.00				14.00	Wie wir mit Green Steel die Industrie von morgen gestalten Transformation ist ein fortlaufender Veränderungsprozess
				14.30	Wasserstoff: Vom Buzzword zur Realität
15.00		Castables – Processing (I)	Poster Session – 4 minute pitches	15.00	Circular Economy und Salcos: Nachhaltige Stahlprodukte aus Salzgitter Digitalisierung im Stahlhandel
				15.20	Kaffeepause
				15.30	Case Study „Optimization of steel plants in real time“ - Was KI auf dem Weg zu „grünem Stahl“ leisten kann
16.00				16.00	KI in der Stahlindustrie – Selbstorganisiert, lernfähig und grün Die digitale Transformation ist ein fortlaufender Veränderungsprozess
				16.30	CO ₂ -Neutralität durch Recycling
17.00	Evening reception at the congress venue (flying buffet, drinks, networking)			17.00	Evening reception at the congress venue (flying buffet, drinks, networking)

Overview of the programmes

29th September 2022

		ICR		futureSTEEL		
		HALL EUROPA	HALL K3		HALL BRUSSELS	futureSTEEL LOUNGE
09.00	 <p>Individual scientific lectures See „Morning sessions“ (Page 24) for details</p>	Iron and Steelmaking (I)	Cement Production	09.00	Wie die Digitalisierung die Dekarbonisierung der Prozessindustrie unterstützen kann	
				09.30	Wie lassen sich Wertschöpfungsketten heute intelligent optimieren	
10.00				10.00	Die wachsende Bedeutung des Rohstoffeinkaufs für Stahlhersteller	In der Anarbeitung die Performance steigern durch Planen, Steuern und Umsetzen auf Basis von Realdaten
11.00		Iron and Steelmaking (II)	Non-Ferrous Metallurgy	11.00	Die grüne Transformation der Stahlindustrie – Konsequenzen für Stahlverarbeiter	Börse für nachhaltige Ressourcen – der intelligenteste Weg, mit Stahl zu handeln
				11.30	Warum Digitalisierungsprojekte in der Praxis oftmals scheitern	
				12.00	Trends auf dem Edelstahlmarkt national/international	
12.40	Joint lunch with ICR and futureSTEEL			12.40	Joint lunch with ICR and futureSTEEL	
13.40	 <p>Individual scientific lectures See „Afternoon sessions“ (Page 28) for details</p>	Castables – Processing (II)	Corrosion	13.30	Podiums-Diskussion Wer zahlt die Zeche? Die Dekarbonisierung erfordert erhebliche Investitionen. Der Stahl wird teuer werden. Wer soll den CO ₂ -neutralen Stahl bezahlen Teilnehmer: Schneider, Lipp	
15.00		Castables – Contour Crafting		15.00	Ende der Veranstaltung	
16.00	End of ICR 2022					

The opening event



10.00 HALL EUROPA

Ulf Frohneberg

Chairman of the board
DFFI

Welcome address



Dr. Rainer Gaebel

Managing Director
Refratechnik Holding

The future of the refractory industry –
the transformation of Refratechnik
towards CO₂ neutrality



Constantin Beelitz

Regional President Europe, CIS
RHI Magnesita

The future of energy supply and
diversification – the trends in the
process industry



Dagmar Dieterle

Managing Director,
marketSTEEL

Welcome address



Dr. Henrik Adam

Vice President European
Corporate Affairs
Tata Steel

The future of the steel industry –
the transformation of
Tata Steel towards CO₂ neutrality



Alexander Lück

Head of Sales
VNG Handel & Vertrieb

The future of energy supply and
diversification – the trends in the
energy supply industry





HALL EUROPA

Castables – Materials design

13.20

J. Astoveza

Imerys France

The hydration of iron in calcium aluminate blended cements incorporating recycled industrial by-products

13.40

S. Abdelouhab, C. Delmotte, C. Lang, V. Vandeneede, E. Brochen, C. Dannert

BCRC-INISMa

Development of a boehmite colloidal suspension as new binder for refractory castables

14.00

S. Kuiper, S. Klaus, D. Schmidtmeier, J. Dutton, A. Buhr

Almatis

Three decades of Alphabond 300: an overview of its technical advantages

14.20

R. Kockegey-Lorenz, A. Buhr, D. Schmidtmeier, S. Klaus, J. Dutton

Almatis

Review of dispersing alumina and the matrix advantage system 25 years after launch

14.40

H. Peng, T. Zhu, Y. Li

Elkem Silicon Products Development

Influence of a novel spherical alumina on fracture behaviour of Al₂O₃-C sliding gate based on wedge splitting tests

HALL K3

Materials Testing

13.20

E. Brochen, C. Dannert, J. Klose, S. Esch, P. Kohns, G. Ankerhold

Forschungsgemeinschaft Feuerfest e. V.

Contactless and non-destructive investigation of refractory materials thanks to the laser ultrasonic technology

13.40

T. Tonnesen, W. Reichert, J. Gonzalez-Julian, M. Henze, G. Hirt

RWTH Aachen University

Determination of Young's Modulus and modelling of thermo-mechanical behavior of refractories

14.00

T. Steffen, C. Dannert, O. Krause, A. Koch

Forschungsgemeinschaft Feuerfest e. V.

Testing the CO resistance of refractory materials – a new technological approach to deliver reliable results in shorter testing times

14.20

S. Cappuzzo, S. Sanchetti, L. Folco, D. Gustinčič, J. Laing

Stazione Sperimentale del Vetro

Thermal conductivity: a modified panel method to speed up measures for lightweight and dense re-fractory materials

14.40

G. Sinha, K. Asif Ahmed, S. Sinha, I.N. Chakraborty

Calderys India Refractories

Smart designing of refractory formulation

15.00

Poster Session - see next page



15.00 HALL K3 Poster Session – 4 minute pitches

M. Bach

TU Bergakademie Freiberg
Novel MgO and BaO doped zirconia perovskite-like refractory compounds

T. Leber

RWTH Aachen University
Sillimanite and Kyanite in Sol Gel Based Andalusite and Bauxite Castables – Mullitisation and Dryout Behaviour

H. Trigueros Fernandez

Befesa Aluminium
BAUXAL II: Valorisation towards a circular economy of Al by-products in refractory industry

P. Malczyk

TU Bergakademie Freiberg
High Performance Steel Ceramic Composites for Refractory Applications in Molten Al Alloys

J. Kehren

Koblenz University of Applied Sciences
Quick Identification of Si-N-O Matrix Phases in Nitride Bonded Silicon Carbide refractory materials by Raman Spectroscopy

J. Nießen

RWTH Aachen University
Solidification in the binary system Al_2O_3 - ZrO_2 under containerless conditions

S. Zimmer

Koblenz University of Applied Sciences
In situ study of mineral reactions during hydration of calcium aluminate cement (CAC)

T. Wetzig

TU Bergakademie Freiberg
Novel filtration approaches in steel ingot casting

S. Yaroshevskiy

TU Bergakademie Freiberg
Functional Tailor-made Refractory Parts Manufactured by Means of Fused Filament Fabrication 3D-Printing Technique

T. Waldstädt

Forschungsgemeinschaft Feuerfest e. V.
New method for measuring the thermal conductivity of refractories by a plate calorimeter-MMH

A. Pohkrel

Koblenz University of Applied Sciences
Influence of composition and mixing process on the rheological properties of high alumina coarse dispersions for refractories

J. Podwórny

Łukasiewicz - Instytut Ceramiki i Materiałów Budowlanych
Improved sinterability of the matrix of corundum concrete by high reactive alumina additive

A. Yehorov

TU Bergakademie Freiberg
Wechselwirkung zwischen sekundärmetallurgischen Schlacken und MgO-C Feuerfestmaterialien

A. Razavi, V. Hopp, P. Quirnbach

Universität Koblenz-Landau
Computertomography examination of additive manufactured refractory components

J. Doll, A. Masoudi Alavi, P. Quirnbach

Universität Koblenz-Landau
High-resolution mass spectrometry with multivariate statistical approaches as a powerful tool for the characterization and discrimination of refractory materials

N. L. Grosch, A. Masoudi-Alavi, V. Stein, T. Schemmel, H. Jansen, P. Quirnbach

Universität Koblenz-Landau
Biogenic silica based refractories – qualification of inorganic binders for molded insulation components

28th September 2022 - Afternoon sessions

HALL EUROPA

Castables – Processing (I)

16.00 **M. Bastian, C. Dannert, O. Krause, A. Pokhrel, L. Tadeo Ibarra Plata**
 Forschungsgemeinschaft Feuerfest e. V.
 Measurement of the dynamic viscosity of refractory castables – Interaction between slurry and aggregates

16.20 **J. Angelkort, M. Cichocki, S. Higgins, N. Fröse**
 Intocast
 The impact of Li_2CO_3 and some other accelerators on the CAC hydration

16.40 **J. Kasper, M. Bastian, C. Dannert**
 Forschungsgemeinschaft Feuerfest e. V.
 The role of the pH value on setting of CA cement bonded refractory castables containing phosphate, citric acid and Li_2CO_3

17.00 **Evening reception at the congress venue (flying buffet, drinks, networking)**



MAIN RESEARCH FOCUS

- Dense and porous thermal shock and corrosion resistant materials for high-temperature applications in the metallurgy, cement and glass industry
- Additive manufacturing and 3D hybrid techniques
- Refractory and metal-ceramic composite materials
- Novel ceramic and powder metallurgical processing techniques

EQUIPMENT

Analytics

- ESEM/EDS, SEM/EBSD, PSEM, FIB-SEM
- X-ray diffractometry, Microfocus X-ray tomography
- Helium pycnometry, Laser granulometry, Mercury intrusion porosimetry
- DTA/TG, DSC, Dilatometry, Hot stage microscopy, Rheometry
- Carbon and sulfur analysis, Spark spectrometry for Fe and Al

Testing equipment

- Testing equipment for determination of RUL, CIC, MOR and thermal conductivity
- Testing equipment for determination of MOE up to 1600 °C
- Corrosion testing furnaces up to 1600 °C (dynamic and static testing)
- Strength testing facilities (10 N to 4000 kN)

Pilot equipment

- Metal casting simulator, Gas-fired furnace up to 1100 °C
- 3D printing devices (FFF, SLS, binder jetting, robogelcasting, roboflamespraying)
- Electrospinning devices
- Chamber and tube furnaces up to 1750 °C, partially with adjustable atmosphere
- Facilities for slip casting, pressure slip casting, extrusion, pressing and pulsating CIP
- Manual and fully automated flame spraying systems

OFFERED COURSES OF STUDIES

Course of studies	Degree	Duration	Language
Engineering	Bachelor	7 semesters	German
Additive Manufacturing	Bachelor	7 semesters	German
Ceramic, Glass and Construction Material	Master	3 semesters	German
Technology and Applications of Inorganic Engineering Materials TAIEM	Master	4 semesters	English
Ceramic, Glass and Construction Materials	Diploma	10 semesters	English

For further information please visit the website <https://tu-freiberg.de/en/ikfvw> or contact professor Christos G. Aneziris <https://tu-freiberg.de/en/ikfvw/ceramic>.

28th September 2022 - Afternoon sessions

SAAL BRÜSSEL

Moderation: Dr. Götz Hartmann

14.00 **Dr. Holger Braun**
 Leiter CO2-Strategie
 ArcelorMittal
 Eisenhüttenstadt
 Wie wir mit Green Steel die Industrie
 von morgen gestalten

14.30 **Robert Baron**
 Senior Manager
 Corporate Strategy
 Swiss Steel Holding
 Wasserstoff:
 Vom Buzzword zur Realität

15.00 **Dr. Peter Juchmann**
 Betriebsdirektor
 Salzgitter Flachstahl
 Circular Economy und Salcos: Nachhaltige
 Stahlprodukte aus Salzgitter

Kaffeepause

futureSTEEL LOUNGE

Moderation: Angelika Albrecht

14.00 **Valentin Kaltenbach**
 CEO
 Kaltenbach.Solutions
 Transformation ist ein fortlaufender
 Veränderungsprozess

15.00 **Marcus Zeumer**
 Geschäftsführer
 helviX
 Digitalisierung im Stahlhandel

Kaffeepause

futureSTEEL-Lounge
 Nach einem Impulsvertrag
 vertiefen Sie das Thema,
 stellen Fragen und
 schließen neue Kontakte.
 Hier können Sie
 sich selbst einbringen
 und aktiv diskutieren.
Von Start-Up lernen

28th September 2022 - Afternoon sessions

SAAL BRÜSSEL

Moderation: Dr. Götz Hartmann

15.30

Tim Eschert

Business Operations
Lead,
EMEA fero labs

Case Study „Optimization of steel plants
in real time“ - Was KI auf dem Weg
zu „grünem Stahl“ leisten kann

16.10

Dr. Marcus J. Neuer

Berater AI,
Digitalisierung BFI,
Co-Gründer innoRIID

KI in der Stahlindustrie –
Selbstorganisiert, lernfähig und grün

16.30

**Dipl.-Ing. Thomas Junker,
Dipl.Kffr. Daniela Entzian**

Geschäftsführer/in
BDSV BDSV

CO₂-Neutralität durch Recycling

17.00

**Evening reception at the congress venue
(flying buffet, drinks, networking)**

futureSTEEL LOUNGE

Moderation: Angelika Albrecht

futureSTEEL-Lounge

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vertiefen Sie das Thema,
stellen Fragen und
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Hier können Sie
sich selbst einbringen
und aktiv diskutieren.

Von Start-Up lernen

16.00

**Marc Hartmann,
Christian Germeroth**

Senior Partner
Bronk & Company

Die digitale Transformation ist ein
fortlaufender Veränderungsprozess

HALL EUROPA

HALL K3

*Iron and Steelmaking (I)**Cement Production*

09.00

V. Reynaud, J. Poirier, E. de Bilbao, B. Touzo

Calderys

Challenges of Al₂O₃-SiC-C refractory castables: case studies on blast furnace main iron troughs

09.20

T. Joly, M. Richmond, A. Patrick, D. Shukla

KUMAS Manyezit Sanayi

The new EAF hearth ramming mass design with environmental impact

09.40

V. Kara, N. Sarioglu, H. Gorkem Yanik

KUMAS Manyezit Sanayi

The new EAF hearth ramming mass design with environmental impact

10.00

Ç. Baglan, O. Isik, O. Aydin

MATIL

Use of electric arc furnace slag waste as raw material of refractory insulating brick

10.20

C. Baudín, A.H. de Aza, S. Serena, S. Martínez-Chaparro, P. Acosta Sánchez, E. Quirós Pino, J.F. Almagro Bello

Instituto de Cerámica y Vidrio, CSIC

Post-mortem study of MgO-C based bricks from stainless-steel ladles

10.40

D. Veres, S. Dudczig, G. Endres, D. Herzog, M. Schwarz, L. Schöttler, T. Schemmel, C.G. Aneziris

TU Bergakademie Freiberg

Investigations on the influence of recycled materials in magnesia-carbon refractories on the non-metallic inclusions in steel

09.20

A. Mitra, S. Hazra, P.R. Rauta

Dalmia Bharat Refractories

Variation of elastic property of magnesia spinel bricks with varying percentage of spinel for cement rotary kiln

09.40

O.H. Borges, J.A.P. Sardelli, C. Pagliosa Neto, V.C. Pandolfelli

Federal University of São Carlos

The role played by ZnO as spinellike phase inducer in alumina-based castables

10.00

M.F. Torío

Arciresa - Arcillas Refracta

FBA (Fired Bauxite Aggregate): A European inno-vative sintered aggregate alternative to BFA for refractory applications

10.20

B. Polat, B. Avcioglu

Çimsa Cement Industry and Trade

Investigation of physical and chemical properties of refractory concrete produced by using CAC

29th September 2022 - Morning sessions

HALL EUROPA

Iron and Steelmaking (II)

11.00 L. Otávio Zaparoli Falsetti, D.N. Ferreira Muche, M.R.B. Andreetta, M.H. Moreira, V.C. Pandolfelli

Federal University of São Carlos

Surface wettability of ceramic porous plugs and its performance in removing non-metallic inclusions from molten steel

11.20 J.A.P. Sardelli, O.H. Borges, C. Pagliosa Neto, V.C. Pandolfelli

RHI Magnesita R&D Center

In situ Al₂O₃-MgO and Al₂O₃-ZnO spinel formation: The Kinkerdall effect on physical and mechanical properties

11.40 L. Loison, C. Ganser, B. Bele, P. Masson, P. Kutschek

ArcelorMittal Maizières Research

Improvement of free opening at ArcelorMittal R&D slab pilot caster

12.00 B. Bock-Seefeld, T. Wetzig, J. Hubal-kova, G. Schmidt, M. Abendroth, C.G. Aneziris

TU Bergakademie Freiberg

Development of a novel approach for the manufacturing of carbon-bonded alumina filter based on water-soluble filter templates

12.20 G. Ghosh, A. Singh, N. Sinha, P. Panigrahi, B. Singh

Tata Steel

Development of spinel containing tundish working lining refractory to increase the sequence length for low carbon steel at Tata Steel

12.40 Joint lunch with ICR and futureSTEEL

HALL K3

Non-Ferrous Metallurgy

11.00 J. Neese, R. Pfaar, B. Kesselheim, S. Rollmann, T. Schemmel

Refratechnik Steel

Improvement of the corrosion resistance of refractory concretes against low-viscosity aluminum melts

11.20 M. Zhang, M. Larsson, E. Alibasic, R. Robles

Höganäs Borgestad

Innovative low density fused silica precast shapes for aluminum casthouse

11.40 S. Möhmel, D. Holland, J. Norman

IMERYS Technology Center Villach

The impact of raw materials on the properties of dry vibration silica mixes

12.00 V.K. Atanga, J. Jurek, J. Andre, U. Bach, J. Hess

Dörentrup Feuerfestprodukte

Improving the service life of refractory hot face protective linings for channel induction furnaces in areas where slag and molten iron reside

12.20 C. Voigt, G.C. Gumban, J. Hubálková, C.G. Aneziris

TU Bergakademie Freiberg

Improved copper qualities for recycling approaches based on metal melt filtration with the aid of ceramic foam filters

12.40 Joint lunch with ICR and futureSTEEL

HALL EUROPA

Castables – Processing (II)

13.40

R. Simmat, C. Dannert, O. Krause, B. Noll, T. Stein

Forschungsgemeinschaft Feuerfest e. V.

Influence of deflocculants on the drying behaviour of calcium aluminate bonded refractory castables

14.00

B. Noll, T. Stein, O. Krause, R. Simmat, C. Dannert

Koblenz University of Applied Sciences

Influence of deflocculants on the cement phase formation and their impact on the technological properties of CAC bonded castables

14.20

M.H. Moreira, H. Peng, B. Myhre, S. Dal Pont, V.C. Pandolfelli

Federal University of São Carlos

The size effect on the drying behavior of castables - An experimental and numerical perspective

HALL K3

Corrosion

13.40

J. Sperber, F.-J. Duennes

Steuler-KCH

Refractory Technologies to master the challenge of H₂ atmospheres

14.00

A. Koch, O. Krause, T. Steffen, C. Dannert

Koblenz University of Applied Sciences

Growth and development of carbon nanotubes in cement bonded refractory materials

14.20

K. Hauke, C. Dannert, O. Krause, M. Kaminski, A. Baulich, J. Paul

Forschungsgemeinschaft Feuerfest e. V.

Investigations of alkali corrosion in a temperature gradient from 1700 °C to 500 °C by a unique corrosion test setup

14.40

J. Paul, O. Krause, L. Erbar, F. Holleyn, K. Hauke, M. Sollbach

Koblenz University of Applied Sciences

The informative value of crucible tests for alkali corrosion in refractory castables

15.00

D. Azimi, A. Rezaee, F. Barzegary Dehaj, A. Sani, N. Rajaei, M.A. Harirbafan

Yazd Faranasooz

High-Temperature corrosion behavior of commercial alumina-spinel refractory castables by metallurgical slags

HALL EUROPA

Castables – Contour Crafting

14.40

**L. Klein, F. Holleyn, S. Zimmer,
O. Krause**

Koblenz University of Applied Sciences

Research and development of new 3D printing technologies and adaptation of the contour-craft-ing process to refractories –
Part I: Basics of the printing process and contour-crafting setup

15.00

**F. Holleyn, L. Klein, S. Zimmer,
O. Krause**

Koblenz University of Applied Sciences

Part II: Castable development

15.20

**S. Zimmer, L. Klein, F. Holleyn,
O. Krause**

Koblenz University of Applied Sciences

Part III: In situ Raman spectroscopy of refractory castables

15.40

End of ICR 2022

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SAAL BRÜSSEL

Moderation: Dr. Götz Hartmann

9.00

Andreas Dalchow

Vorstand Technik Finishing
ArcelorMittal Bremen

Wie die Digitalisierung die Dekarbonisierung
der Prozessindustrieeunterstützen kann

9.30

Ilse Henne

Member of the Executive Board
ThyssenKrupp Materials Services

Wie lassen sich Wertschöpfungsketten
heute intelligent optimieren

10.00

Dr. Niklas Friederichsen

Chief Product Officer
Metalshub

Die wachsende Bedeutung des
Rohstoffeinkaufs für Stahlhersteller

10.30

Kaffeepause

futureSTEEL LOUNGE

Moderation: Angelika Albrecht

futureSTEEL-Lounge

Nach einem Impulsvertrag
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schließen neue Kontakte.
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und aktiv diskutieren.
Von Start-Up lernen

10.00

Valentin Kaltenbach

CEO
Kaltenbach.Solutions

In der Anarbeitung die Performance
steigern durch Planen, Steuern und
Umsetzen auf Basis von Realdaten

10.30

Kaffeepause

29th September 2022 - Afternoon sessions

SAAL BRÜSSEL

Moderation: Dr. Götz Hartmann

11.00

Andreas SchneiderInhaber
StahlmarktConsultDie grüne Transformation der Stahlindustrie –
Konsequenzen für Stahlverarbeiter

11.30

Marcus ZeumerGeschäftsführer
HelvixWarum Digitalisierungsprojekte in der
Praxis oftmals scheitern

12.00

Wolfgang LippVice President
SMR – Steel & Metals
Market ResearchTrends auf dem Edelstahlmarkt
national/international

12.30

Mittagessen

13.30

Podiums-DiskussionWer zahlt die Zeche? Die Dekarbonisierung erfordert
erhebliche Investitionen. Der Stahl wird teuer
werden. Wer soll den CO₂-neutralen Stahl bezahlen
Teilnehmer: Schneider, Lipp

15.00

Ende der Veranstaltung

futureSTEEL LOUNGE

Moderation: Angelika Albrecht

11.00

Markus JanovskyGeschäftsleitung
ResorexBörse für nachhaltige Ressourcen –
der intelligenteste Weg, mit Stahl zu handeln

12.30

Mittagessen

Iron free custom services



Drying · Grinding · Pulverization
Micronizing · Blending · Premix



 **H.J.SCHMIDT**
Mineraltechnik
we make it fine

Media partners

futureSTEEL



ICR



Refractory Organisations in Höhr-Grenzhausen







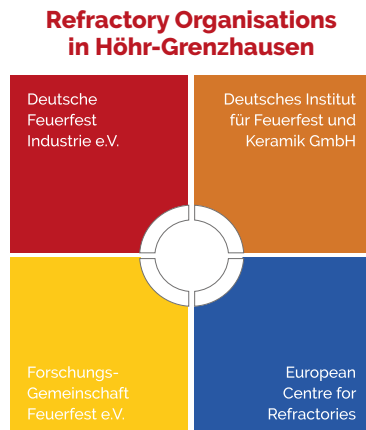
The Business Association

The German Refractory Association (Deutsche Feuerfest-Industrie e.V. | DFFI), founded in 1949, represents and advances the interests of German manufacturers operating in the industry.

The Association collaborates in networks to promote the economic and technological evolution of its member companies by putting forward the jointly adopted positions in both political and societal contexts.

The Association gives a strong voice to the refractory industry – a sector largely dominated by small and medium-sized enterprises.

-  Advocacy | Network | Perception
-  Environment | Climate | Energy
-  Raw Material | Recycling
-  Knowledge | Education | Career



Refractory Organisations in Höhr-Grenzhausen





Service and Performance

The German Refractories Association represents and pursues the politico-economic interests of its member companies vis-à-vis public authorities and government bodies in both national and European contexts. The Association covers a broad spectrum of issues and activities: It provides comprehensive support and guidance in all matters pertaining to raw materials supply security, environment and energy policy as well as tax, law, research and technology, including questions relating to standardisation. Major German companies and international brand leaders have joined the Association, which for its part is a member of the national and European network of associations.







DFFI-Board

The Benefit

-  Information about current technical and economic policy developments with special attention to the interests of the refractory industry.
-  Creation of legally secure statistics on the development, sales and consumption of refractory products, personnel costs, fuel and energy consumption, development of raw material prices and market developments in the customer industries
-  Refractory committee work on technical and environmental issues and participation in BBS, BDI or DIN and ISO.
-  European Cooperation (PRE and Cerame-Unie) is bundled and in dialogue with the European Institutions. World trade and regulatory issues are discussed in the World Refractories Association (WRA).

Managing Director: **Thomas Kaczmarek**

-  Rheinstr. 58
56203 Höhr-Grenzhausen
Germany
-  info@dffi.de
-  +49 2624 94 33 100
-  www.dffi.de









Refractory Organisations in Höhr-Grenzhausen



Deutsches Institut für Feuerfest und Keramik GmbH

DIFK Deutsches Institut für Feuerfest und Keramik GmbH is an independent and international operating test laboratory for testing of refractory raw materials, refractory products like bricks, castables, insulating materials and functional parts and in the case of damage the testing of refractory systems.



-  Standardized Testing
-  Technical Advice
-  Customer Solutions
-  International Services




Deutsches Institut für Feuerfest und Keramik GmbH

The laboratory is accredited by DAkkS under registration number **D-PL-17672-01-00** after **DIN EN ISO / IEC / 17025:2005** and is able to carry out more than 100 standardized resp. specific test methods. In the process chemical, physical and mineralogical methods as well as selected high temperature measuring procedures are used according to the standards and rules of **DIN, EN, ISO, ASTM API, JIS ABNT, CIR**, etc.



Focussed on maximum customer orientation promptness and reliability are the main attributes of the manner of functioning of DIFK GmbH since more than 25 years. The experienced and consequently trained staff works together with best possible equipment of a modern laboratory. The consulting of the international customers for productive selection of the most suitable measuring methods is the focus of dialog to retain customer satisfaction.

Managing Director: **Prof. Dr. Peter Quirnbach**

 Rheinstr. 58
56203 Höhr-Grenzhausen
Germany

 info@difk.de

 +49 2624 94 33 200

 www.difk.de



Unified International Technical Conference on Refractories (UNITECR) 18th Biennial Worldwide Congress on Refractories

26th – 29th September 2023
Germany | Frankfurt am Main | Kap Europa



JOIN IN!

THE CARBON CHALLENGE

Steps and leaps to master the future

CALL FOR PAPERS



The UNITECR President for 2023, Dr. Andus Buhr, and the Scientific Committee are pleased to invite you to submit an abstract of a paper or a poster for consideration and inclusion in the program at www.unitecr2023.org.



Dr. Andus Buhr
UNITECR President for 2023

DEADLINE
Abstract | Poster Submission
30TH NOVEMBER 2022

SCIENTIFIC COMMITTEE

Chairman: Prof. Dr. Christos G. Aneziris

THE TOPICS (and experts)

- | | |
|--|--|
| 1. Raw Materials
<i>Dr. Christoph Wöhrmeyer</i> | 6. Modelling and Digitalization
<i>Rinus Siebring</i> |
| 2. Advances in Monolithic Technology
<i>Prof. Dr. Olaf Krause</i> | 7. Education
<i>Dr. Dietmar Gruber</i> |
| 3. Refractories for Iron- and Steelmaking
<i>Prof. Dr. Helge Jansen</i> | 8. Testing and Standardization
<i>Dr. Christian Dannert</i> |
| 4. Refractories for Non-Ferrous Metallurgy
<i>Daniel Cölle</i> | 9. Basic Refractory Science and Technology Transfer
<i>Prof. Dr. Dr. h.c. Peter Quirnbach</i> |
| 5. Refractories for Non-Metal Industries
<i>Dr. Stefan Postrach</i> | |

NEWSLETTER SERVICE (www.unitecr2023.org)

Don't miss any updates and find out when **registration** begins, how the program is evolving, when the **exhibition forum for booths** and **sponsorship** opens and look forward to the special speakers we have been able to recruit for you.

Unified International Technical Conference on Refractories (UNITECR 2023)

Host
Deutsche Feuerfest-Industrie e.V. (DFFI)
German Refractory Association
Chairman: Ulf Frohneberg
Managing Director: Thomas Kaczmarek

Organizational Office for UNITECR 2023
European Centre for Refractories gGmbH (ECREF)
Secretary General: Thomas Kaczmarek
Secretary Scientific: Dr. Christian Dannert
Event Management: Janina Geller

Westerwald Campus – The Knowledge Center for Refractory —
Future – systemically important – sustainable – unique



Education – Training

The Integrated Refractory Education System (IRES) supports the development of young school leavers across all levels of vocational education and training, from basic apprenticeship courses through to graduate and doctorate programmes.

The Koblenz University of Applied Sciences offers a complementary vocational programme that leads to the qualification of Ceramic Technician ("Keramiktechniker") as well as an academic programme leading to the degree of Bachelor of Engineering which, in cooperation with the University of Koblenz and Landau, can be crowned with the degree of Master of Ceramic Science and Engineering.



Bildungs- und Forschungszentrum Keramik (BFZK)
Ceramics Education and Research Center



BFZK offers with its 8 institutes in Höhr-Grenzhausen a combination of facilities that is unique in the world, all of which deal with the topic of training and further education as well as research within ceramics.

The Montabaur vocational school, with its ceramics branch, is one of the dual partners in ceramics initial training and teaches the necessary theoretical knowledge for successful completion as a skilled worker in industry or as a journeyman in the trade.

Further training as a ceramics technician or ceramics designer at the technical colleges for ceramics technology and ceramics design is then just as possible as studying for a bachelor's or master's degree on the Westerwald Campus.

Information about the 8 members of the education and research center: www.bfzk.de



Westerwald Campus – The Knowledge Center for Refractory —

Study Guide "Materials Engineering Glass & Ceramics"



The Koblenz University of Applied Sciences offers an application-oriented, engineering Bachelor of Engineering, Bachelor of Engineering dual, Ceramics Industrial Engineer and a consecutive Master of Ceramic Science and Engineering on the Westerwald Campus.

The range of courses: broadly based, clearly focused on ceramics and glass, unique. The Campus can look back on a 150-year tradition in training and is the oldest location of the Koblenz University of Applied Sciences.

Together with the local research institutions, the European Center for Refractories (ECREF) and the Research Institute for Inorganic Materials-Glass-Ceramics (FGK), the site forms a unique concentration of training and research in a small radius. More: www.hs-koblenz.de



NEW

Tandem professorship at Koblenz University of Applied Sciences

Master's degree „Refractory Engineering“



Prof. Dr. Amin El Gammal

The German refractory industry is a world leader in product quality and in the application areas of high-temperature processes. The processing of refractory materials is of particular importance. That is why the German refractory industry is supporting the establishment of a professorship „Refractory Engineering“ as an industrial partner. On the Tandem Professorship Dr. Amin El Gammal appointed.

This collaboration between the Koblenz University and the refractory industry will be connected at the Westerwald-Campus and organized by ECREF gGmbH. The development of the international master's degree program „**Refractory Engineering**“ is aimed in particular at international bachelor's graduates in materials science or civil engineering who are about to or after starting their business careers. The content will be divided into the three areas of „**Refractory Engineering**“, „**Refractory Materials**“ and „**Services**“. Aspects such as building law, construction site management or approval procedures are also dealt with in the curriculum.

Companies in the refractory industry and construction are involved in the establishment and expansion of the Tandem professorship and the connection to practice.

Your questions to: **Dr. Christian Dannert | Thomas Kaczmarek**

📍 Rheinstr. 58
56203 Höhr-Grenzhausen
Germany

✉ info@ecref.eu

☎ +49 2624 94 33 130

🌐 www.ecref.eu



Exhibitors at the trade fairs

Exhibitors ICR

Almatis GmbH	Orient Abrasives LTD
Alteo	Pennekamp
Bernd Münstermann GmbH & Co. KG	Possehl Erzkontor GmbH & Co. KG
Carl Spaeter GmbH	Purmetall
Chemische Fabrik Budenheim	Rain Carbon Germany GmbH
Demin SRM GmbH	RWTH Aachen
DIFK, DFFI, ECREF and FGF	Steuler-KCH GmbH
Elkem GmbH	Thyme
ESK-SiC GmbH	Trasteel
Fiven GmbH	Trent Refractories LTD
Hochschule Koblenz	TU Bergakademie Freiberg
IMCE NV	Velco
Imerys	Washington Mills Electro Minerals
Laeis GmbH	Wassmer Spezialmaschinen GmbH
Maschinenfabrik Gustav Eirich	Werner Mader GmbH
Nabaltec AG	Yazd Faranasooz Co.

Exhibitors futureSTEEL

helviX GmbH
Kaltenbach Solutions GmbH
maenken Kommunikation GmbH
marketSTEEL Media GmbH
Messe Düsseldorf GmbH
Resourex GmbH
VNG Handel & Vertrieb GmbH

General Terms and Conditions for ICR 2022

Eurogress, Aachen, Germany

GENERAL TERMS AND CONDITIONS FOR PARTICIPANTS AT ICR 2022

Entrance to ICR® 2022 is only open to registered participants. The registration is binding after the online registration form is sent to ECREF gGmbH ("the organizer"). After registering, you will be invoiced. The invoice acts as confirmation of the registration.

Cancellation of the registration by the participant

For cancellations made by participants before and on 31st July 2022, a 30 % service fee will be charged and 70 % of the ticket fee will be refunded. No refund is possible for cancellations received on and after 1st August 2022. It is however possible to transfer the registration to another person free of charge until 7 days before the event.

For the possibility the event will be postponed, curtailed, closed temporarily or completely or cancelled, see the chapter "Reservations".

Force Majeure

Force Majeure means an event or occurrence which is beyond the reasonable control of any one party without the party's fault or negligence, including, but not limited to, the following events: Acts of God, official directives (e.g. entry or travel restrictions), industrial disputes and any other circumstance beyond the control of the parties such as fire, war, extensive military mobilization, insurrection, requisition, seizure, embargo, restrictions in the use of power, currency and export restrictions, epidemics, natural disasters, extreme natural events, terrorist acts and defects or delays in deliveries by sub-contractors caused by any

such circumstance referred to in this clause.

The party claiming to be affected by Force Majeure shall notify the other party without delay on the intervention and on the cessation of such circumstance. In any case of Force Majeure, the parties undertake to adjust their obligations to the changed circumstances in good faith. Either party shall be entitled to suspend performance of his obligations under the contract to the extent that such performance is impeded or made unreasonably onerous by Force Majeure. In any case of Force Majeure, the parties undertake to adjust their obligations to the changed circumstances in good faith.

The organizer and the participant agree that the provisions on Force Majeure shall apply mutatis mutandis to any effects of the current Covid-19 pandemic on the performance of this contract; however even such an effect is given in the sole opinion of the organizer only.

Terms of payment

The participant is obliged to pay the total amount of the fee within 14 days after the date of invoice. Please transfer the overall amount in Euro currency (all charges paid) to:

Account holder: ECREF gGmbH
 Bank: Commerzbank AG, Bonn
 IBAN: DE69 3804 0007 0127 7227 00
 SWIFT: COBADEFFXXX

Please state the name of the participant and the invoice no. on the bank transfer. Collective remittances should be accompanied by a list of names.

You will also be able to register at the reception desk during ICR 2022®.

General Terms and Conditions for ICR 2022

No warranty or insurance

The organizer shall only be responsible for entrance and exit security control during the opening hours of the exhibition. The organizer shall neither be held liable for theft of or damage to the participants's own or rented goods.

Liability

The participant shall be liable for any and all damages that he, his agents or his helpers cause to himself or to others during ICR® 2022; this includes damage to buildings and exhibition facilities.

The organizer shall be liable to the participant solely for damages that arise from gross negligence or intent on the part of its agencies or employees. One particular exclusion from liability is that of damage resulting from fire, water, explosions, storms or other acts of God, or from violent assault, theft, breaking and entering, failure of supply systems (such as electricity, gas, water) and similar causes, provided they are not attributable to the gross negligence or intent of the organizer, its agencies or employees. This also applies to damage caused by the public (in particular by exhibitors or other participants). Secondary damages or consequential damages resulting from breaches of contract on the part of the organizer are moreover only eligible for damages insofar as such damages are typically to be expected.

Reservations

The organizer reserves the right to postpone, curtail, close temporarily or completely, or to cancel the event at his convenience. Should the organizer not be able to hold the event as a result of unforeseen circumstances, the participants shall be informed immediately. Should the organizer cancel or curtail the event, participants are entitled for full refund of payments

made for the conference fee, while any further claims are excluded.

Data Protection

For the purpose of fulfilling the contract, the organizer shall record, store, process and use the necessary personal data of the participant as well transfer these data to third parties commissioned with the implementation of this contract. All details on the processing of data by the organizer can be found in the privacy policy at https://www.ecref.eu/fileadmin/user_upload/Downloads/Datenschutzerklaerung.pdf. By submitting the registration form, the participant declares that he/she has taken note of the above note on data processing.

Legal Matters

Any and all claims of the participant against organizer shall be lodged in writing. They shall be time-barred within 6 months from the end of the year in which they become material. German law shall apply exclusively. Place of jurisdiction is Koblenz, Germany

General Terms and Conditions for futureSTEEL 2022

ALLGEMEINE GESCHÄFTSBEDINGUNGEN FÜR TEILNEHMER AN DEM KONGRESS FUTURESTEEL

Veranstalter des Events futureSTEEL ist marketSTEEL Media GmbH.

Dieses Event wird mit eveno organisiert. Die Anmeldung ist verbindlich und erfolgt online bei eveno und wird von eveno bestätigt. Nach der Anmeldung erhalten Sie eine Rechnung. Die Rechnung gilt als Anmeldebestätigung.

Der Zutritt zur futureSTEEL 2022 ist nur für registrierte Teilnehmer möglich. Es findet ein Ticketverkauf vor Ort statt, der Teilnehmer muss sich jedoch vor Ort selbst online anmelden und vor Ort die Rechnung begleichen. Es kann zu erheblichen Wartezeiten vor Ort kommen.

Stornierung der Anmeldung durch den Teilnehmer

Bei einer Stornierung durch den Teilnehmer bis zum 31.07.2022 (Eingangsdatum bei eveno) wird eine Bearbeitungsgebühr von 30 % erhoben und 70 % der Konferenzgebühr zurückerstattet. Bei Stornierungen, die nach dem 01.08.2022 eingehen, ist keine Rückerstattung möglich. Es ist jedoch möglich, die Anmeldung bis 7 Tage vor der Veranstaltung kostenfrei auf eine andere Person zu übertragen. Da Sie nach der Anmeldung einen Zugangs-Code erhalten, können Sie dies selbst eine Vertretung eingeben.

Für die Möglichkeit, dass die Veranstaltung verschoben, verkürzt, vorübergehend oder ganz geschlossen oder abgesagt wird, siehe Kapitel „Reservierungen“.

Unter höherer Gewalt versteht man ein Ereignis oder einen Vorfall, der sich der Kontrolle einer Partei entzieht, ohne dass diese ein Verschulden trifft, einschließlich, aber nicht beschränkt auf die folgenden Ereignisse: Höhere Gewalt, behördliche Anordnungen (z.B. Einreise- oder

Reisebeschränkungen), Arbeitskämpfe und alle anderen Umstände, die außerhalb der Kontrolle der Parteien liegen, wie z.B. Feuer, Krieg, umfassende militärische Mobilmachung, Aufstand, Requisition, Beschlagnahme, Embargo, Beschränkungen in der Verwendung von Energie, Devisen- und Ausfuhrbeschränkungen, Epidemien, Naturkatastrophen, extreme Naturereignisse, terroristische Handlungen und Mängel oder Verzögerungen bei Lieferungen durch Unterlieferanten, die durch einen solchen in dieser Klausel genannten Umstand verursacht werden.

Die Partei, die behauptet, von höherer Gewalt betroffen zu sein, hat die andere Partei unverzüglich über das Eintreten und das Ende eines solchen Umstandes zu unterrichten. In jedem Fall höherer Gewalt verpflichten sich die Parteien, ihre Verpflichtungen den veränderten Umständen nach Treu und Glauben anzupassen. Jede Partei ist berechtigt, die Erfüllung ihrer vertraglichen Verpflichtungen auszusetzen, soweit diese Erfüllung durch höhere Gewalt behindert oder unzumutbar erschwert wird. In jedem Fall höherer Gewalt verpflichten sich die Parteien, ihre Verpflichtungen den veränderten Umständen nach Treu und Glauben anzupassen.

Der Veranstalter und der Teilnehmer sind sich darüber einig, dass die Bestimmungen über Höhere Gewalt sinngemäß auch für etwaige Auswirkungen der aktuellen Corona-Pandemie auf die Erfüllung dieses Vertrages gelten; eine solche Auswirkung ist jedoch nur nach alleiniger Einschätzung des Veranstalters gegeben.

General Terms and Conditions for futureSTEEL 2022

Zahlungsbedingungen

Der Teilnehmer ist verpflichtet, den Gesamtbetrag der Gebühr innerhalb von 14 Tagen nach Rechnungsdatum zu zahlen. Bitte zahlen Sie nicht vor Erhalt einer Rechnung.

Bitte geben Sie auf der Überweisung den Namen des Teilnehmers und die Rechnungs-Nr. an. Bei Sammelüberweisungen sollte eine Namensliste beigefügt werden.

Ausstehende Tagungsgebühren können NICHT am Tagungsort (bar) beglichen werden. Teilnehmer können den futureSTEEL-Kongress nur mit einer bestätigten Anmeldung besuchen.

Keine Garantie oder Versicherung

Der Veranstalter ist nur für die Ein- und Ausgangskontrolle während der Öffnungszeiten der Ausstellung verantwortlich. Der Veranstalter haftet auch nicht für Diebstahl oder Beschädigung von eigenen oder gemieteten Gegenständen der Teilnehmer.

Haftung

Der Teilnehmer haftet für alle Schäden, die er, seine Beauftragten oder seine Helfer während des futureSTEEL-Kongress sich selbst oder anderen zufügen; dies gilt auch für Schäden an Gebäuden und Ausstellungseinrichtungen.

Der Veranstalter haftet dem Teilnehmer nur für Schäden, die auf grober Fahrlässigkeit oder Vorsatz seiner Organe oder Mitarbeiter beruhen. Ausgeschlossen ist insbesondere die Haftung für Schäden, die durch Feuer, Wasser, Explosionen, Sturm oder sonstige höhere Gewalt sowie durch gewaltsame Übergriffe, Diebstahl, Einbruch, Ausfall von Versorgungseinrichtungen (z.B. Strom, Gas, Wasser) und ähnliche Ursachen entstehen, soweit sie nicht auf grobe Fahrlässigkeit oder Vorsatz des Veranstalters, seiner Organe oder Erfüllungsgehilfen zurückzuführen sind. Dies gilt auch für Schäden, die durch das Publikum (insbesondere

durch Aussteller oder andere Teilnehmer) verursacht werden. Sekundäre Schäden oder Folgeschäden, die auf Vertragsverletzungen des Veranstalters beruhen, sind darüber hinaus nur ersatzfähig, soweit solche Schäden typischerweise zu erwarten sind.

Buchungen

Der Veranstalter behält sich das Recht vor, die Veranstaltung nach eigenem Ermessen zu verschieben, zu verkürzen, vorübergehend oder ganz zu schließen oder abzusagen. Sollte der Veranstalter die Veranstaltung aus unvorhergesehenen Gründen nicht durchführen können, werden die Teilnehmer unverzüglich informiert. Bei Absage oder Abbruch der Veranstaltung durch den Veranstalter haben die Teilnehmer Anspruch auf Rückerstattung der gezahlten Tagungsgebühr, weitergehende Ansprüche sind ausgeschlossen.

Schutz der Daten

Der Veranstalter erhebt, speichert, verarbeitet und nutzt die zur Erfüllung des Vertrages erforderlichen personenbezogenen Daten des Teilnehmers und gibt diese Daten an mit der Durchführung dieses Vertrages beauftragte Dritte weiter. Alle Einzelheiten zur Verarbeitung der Daten durch den Veranstalter können der Datenschutzerklärung unter <https://www.marketsteel.de/datenschutz.html> entnommen werden. Mit dem Absenden des Anmeldeformulars erklärt der Teilnehmer, dass er den vorstehenden Hinweis zur Datenverarbeitung zur Kenntnis genommen hat.

Rechtsangelegenheiten

Alle Ansprüche des Teilnehmers gegen den Veranstalter sind schriftlich geltend zu machen. Sie verjähren innerhalb von 6 Monaten nach dem Ende des Jahres, in dem sie entstanden sind. Es gilt ausschließlich deutsches Recht. Gerichtsstand ist Düsseldorf in, Deutschland.

Compliance Guide

- Participants are obliged to comply with antitrust regulations at the future STEEL and ICR congresses unconditionally and without exception.
- The two congresses are not intended to create or promote opportunities to discuss or even enter into agreements between participants on topics relevant to competition. The organizers will do their utmost to prevent such conduct.
- No information may be exchanged, discussions of a formal or informal nature held or agreements reached between competing companies, particularly regarding:
Pricing strategy, pricing and future market behavior of the companies involved.

Individual discounts, credits and credit terms.

Individual sales and payment terms.

Individual manufacturing or sales costs, company figures on procurement costs, inventories, production, sales, etc.

Production quantities, production curtailments, limitation of market supply of a product.

Relationships with individual suppliers or customers, especially if this could lead to them being forced out of the market.

„Blacklisting“ or boycotting competitors, customers or suppliers.

Division of markets or sources of supply, whether geographically or by customers.

- During the events, the moderator must prevent statements that are questionable under antitrust law. If there is disagreement about the admissibility of a contribution or discussion, the discussion on this topic must be suspended and adjourned until the antitrust clearance has been clarified.
- The competition rules also apply to discussions in the context of an association meeting (for example, during a coffee break).

28th and 29th September 2022

Programme

The future transformation of the process industry

Der Wandel der Prozessindustrie

Organised 2022 by

European
Centre for
Refractories



www.ic-refractories.eu

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