

## ICR® 2022 – SCIENTIFIC PROGRAMME

(Preliminary as of 27<sup>th</sup> June 2022)

### 28<sup>th</sup> September 2022

#### 10:00 *Opening event / Keynotes*

**Ulf Frohneberg**

Opening address from the President, DFFI

**Dagmar Dieterle-Witte**

Opening address from the CEO, marketSTEEL

**Rainer Gaebel**

*Refratechnik Holding*

The future of the refractory industry – the transformation of Refratechnik towards CO<sub>2</sub> neutrality

**Hendrik Adam**

*Tata Steel*

The future of the steel industry – the transformation of Tata Steel towards CO<sub>2</sub> neutrality

**Constantin Beelitz**

*RHI Magnesita*

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

**Alexander Lück**

*VNG*

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

#### 12:30 *Lunch*

#### 13:20 *Castables – Materials design*

#### *Location: Hall Europa*

**J. Astoveza**

*Imerys France*

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

**M. Ghassemi Kakroudi, S. Sajjadi**

Milani, N. Pourmohammadie Vafa

*University of Tabriz*

Investigating the effect of different sols on alumina-spinel castable refractory

**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

**S. Kuiper, S. Klaus, D. Schmidtmeier,**

J. Dutton, A. Buhr

*Almatis*

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

**S. Haxel, M. Edinger, S. Barlag,**

S. Horn, C. Setzer

*Chemische Fabrik Budenheim*

Increasing shelf life and maintaining the plasticity of phosphate bonded plastic storable mixes

**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

**H. Peng, T. Zhu, Y. Li**

*Elkem Silicon Products Development*

Influence of a novel spherical alumina on fracture behaviour of Al<sub>2</sub>O<sub>3</sub>-C sliding gate based on wedge splitting tests

#### 13:20 *Materials Testing*

#### *Location: Hall K3*

**E. Brochen, C. Dannert, J. Klose,**

S. Esch, P. Kohns, G. Ankerhold

*Forschungsgemeinschaft Feuerfest*

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

**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

**T. Steffen**, C. Dannert, O. Krause, A. Koch  
*Forschungsgemeinschaft Feuerfest*

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

**M. Picicco**, S. Cappuzzo, S. Sanchetti, L. Folco, D. Gustinčić, J. Laing  
*Stazione Sperimentale del Vetro*

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

**G. Sinha**, K. Asif Ahmed, S. Sinha, I.N. Chakraborty  
*Calderys India Refractories*

Smart designing of refractory formulation

#### 16:00 **Castables – Processing (I)**

#### **Location: Hall Europa**

**M. Bastian**, C. Dannert, O. Krause, A. Pokhrel, L. Tadeo Ibarra Plata  
*Forschungsgemeinschaft Feuerfest*

Measurement of the dynamic viscosity of refractory castables – Interaction between slurry and aggregates

**J. Angelkort**, M. Cichocki, S. Higgins, N. Fröse  
*Intocast*

The impact of  $\text{Li}_2\text{CO}_3$  and some other accelerators on the CAC hydration

**J. Kasper**, M. Bastian, C. Dannert  
*Forschungsgemeinschaft Feuerfest*

The role of the pH value on setting of CA cement bonded refractory castables containing phosphate, citric acid and  $\text{Li}_2\text{CO}_3$

17:00 **Evening reception at the congress venue (flying buffet, drinks, networking)**

## 29<sup>th</sup> September 2022

#### 09:00 **Iron and Steelmaking I**

#### **Location: Hall Europa**

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

Challenges of  $\text{Al}_2\text{O}_3$ -SiC-C refractory castables: case studies on blast furnace main iron troughs

**T. Joly**, M. Richmond, A. Patrick, D. Shukla  
*Vesuvius Europe*

Next generation of taphole clay: formaldehyde and PAH free technology

**V. Kara**, N. Sarioglu, H. Gorkem Yanik, V. Kara  
*KUMAS Manyezit Sanayi*

The new EAF hearth ramming mass design with environmental impact

**Ç. Baglan**, O. Isik, O. Aydin  
*Istanbul Technical University*

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

**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

**09:00 Cement Production**

**W. Garot** *SILICON Refractory Anchoring Systems*

**A. Mitra**, S. Hazra, P.R. Rauta  
*Dalmia Bharat Refractories*

**O.H. Borges**, J.A.P. Sardelli,  
C. Pagliosa Neto, V.C. Pandolfelli  
*Federal University of São Carlos*

**M.F. Torío**  
*Arcresa - Arcillas Refracta*

**B. Polat**, B. Avcioglu  
*Çimsa Cement Industry and Trade*

**Location: Hall K3**

Enhancing burner pipe lifespan in cement plants

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

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

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

Investigation of physical and chemical properties of refractory concrete produced by using calcium aluminate cement

**11:00 Iron and Steelmaking II**

**L. Otávio Zapparoli Falsetti**, D.N. Ferreira Muche, M.R.B. Andreetta, M.H. Moreira, V.C. Pandolfelli  
*Federal University of São Carlos*

**C. Ebner**, M.-A. Müller, T. Müller,  
J.-F. Stenger  
*RHI Magnesita*

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

**L. Loison**, C. Ganser, B. Bele,  
P. Masson, P. Kutscheck  
*ArcelorMittal Maizières Research*

**G. Ghosh**, A. Singh, N. Sinha,  
P. Panigrahi, B. Singh  
*Tata Steel*

**Location: Hall Europa**

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

From lab to plant - from mine to refractory bricks: Making use of a new dolomite raw material source in Europe

In situ Al<sub>2</sub>O<sub>3</sub>-MgO and Al<sub>2</sub>O<sub>3</sub>-ZnO spinel formation: The Kinkerdall effect on physical and mechanical properties

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

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

**11:00 Non-Ferrous Metallurgy**

**J. Neese**, R. Pfaar, B. Kesselheim,  
S. Rollmann, T. Schemmel  
*Refratechnik Steel*

**M. Zhang**, M. Larsson, E. Alibasic,  
R. Robles *Höganäs Borgestad*

**S. Moehmel**, D. Holland, J. Norman  
*IMERYS Technology Center Villach*

**V.K. Atanga**, J. Jurek, J. Andre,  
U. Bach, J. Hess  
*Dörentrup Feuerfestprodukte*

**C. Voigt**, G.C. Gumban, J. Hubáľková,  
C.G. Aneziris  
*TU Bergakademie Freiberg*

**Location: Hall K3**

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

Innovative low density fused silica precast shapes for aluminum casthouse

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

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

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

**12:40 Lunch**

**13:40 Castables – Processing (II)**

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

**B. Noll**, T. Stein, O. Krause, R. Simmat,  
C. Dannert  
*Koblenz University of Applied Sciences*

**M.H. Moreira**, H. Peng, B. Myhre,  
S. Dal Pont, V.C. Pandolfelli  
*Federal University of São Carlos*

**Location: Hall Europa**

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

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

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

**13:40 Corrosion**

**J. Sperber**, F.-J. Duennes  
*Steuler-KCH*

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

**A. Koch**, O. Krause, T. Steffen,  
C. Dannert  
*Koblenz University of Applied Sciences*

**J. Paul**, O. Krause, L. Erbar,  
F. Holleyn, K. Hauke, M. Sollbach  
*Koblenz University of Applied Sciences*

**M. Talebi**, D. Azimi, A. Rezaee, F. Barzegary Dehaj, A. Sani, N. Rajaei, M.A. Harirbafan  
*Yazd Faranasooz*

**Location: Hall K3**

Refractory Technologies to master the challenge of H<sub>2</sub> atmospheres

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

Growth and development of carbon nanotubes in cement bonded refractory materials

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

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

**15:00 Castables – Contour Crafting**

**L. Klein**, F. Holleyn, S. Zimmer,  
O. Krause  
*Koblenz University of Applied Sciences*

**F. Holleyn**, L. Klein, S. Zimmer,  
O. Krause  
*Koblenz University of Applied Sciences*

**S. Zimmer**, L. Klein, F. Holleyn,  
O. Krause  
*Koblenz University of Applied Sciences*

**Location: Hall Europa**

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

Part II: Castable development

Part III: In situ Raman spectroscopy of refractory castables

**16:00 End of ICR 2022**