



## **AMERICAN CERAMIC SOCIETY**

**St. Louis Section**  
*and the*  
**Refractory Ceramics Division**

Fifty-second Annual Symposium

on

Refractories

**March 30-31, 2016**

**Hilton St. Louis Airport Hotel**

Theme:

**“Refractories for the Ferrous Industry:  
A Historical Perspective, Present and Future Directions”**

## PROGRAM

### “Refractories for the Ferrous Industry: A Historical Perspective, Present, and Future Directions”

March 29<sup>th</sup>, 2016

5:00 P.M. Kickoff Event – St. Louis Blues Hockey Game

March 30<sup>th</sup>, 2016

7:15 A.M. Registration and Coffee

8:00 Morning Technical Sessions  
Welcome and Introductions

**St. Louis Section Chairman**

*Roger Smith*

Imrie-Gielow, Inc.

**Refractory Ceramics Division Chair**

*Ben Markel*

Resco Products

**Co-Program Coordinators**

*Simon Leiderman*

U.S. Steel Research and Technology

*Bill Davis*

HarbisonWalker International

8:15 An Overview of Blast Furnace Hearth Construction  
*Mike Alexander – Riverside Refractories*

8:45 The Evolution of Anhydrous Taphole Clay in NAFTA - 1970's to Present  
*Glenn Biever & Ryan Hershey – Vesuvius USA*

9:15 The Use of Metals in Refractories  
*Ruth Engel – Refractory Consulting Service*

9:45 Coffee Break

10:15 Changes in North American Blast Furnace Operations and Their Effect on Casthouse  
Refractory Practice - 1970's to Present  
*Sam Bonsall & Ashley Hampton – Vesuvius USA*

10:45 Trends in Clean Steel Technology and Refractory Engineering  
*Andreas Buhr – Almatix GmbH, Germany; Ralf Bruckhausen – AG der Dillinger Hüttenwerke,  
Germany; Reinhard Fandrich – Stahlinstitut VDEh, Germany*

11:15 Raw Materials Used in Tundish Linings and Their Effect on Performance  
*Gary Hallum – COMAT, A Division of CCPI, Inc.*

11:45-1:00 Luncheon Banquet

## **Afternoon Session**

- 1:00-1:45 Presentation of the T.J. Planje St. Louis Refractories Award to **Bjørn Myhre – Elkem Silicon Materials**
- 2:00 Possibilities to Determine the Refractories Influence on Inclusion Formation during Clean Steel Production  
*Peter Quirnbach, Lisa Redecker & Almuth Sax – University of Koblenz-Landau, Germany*  
*Stephan Clasen & Christian Dannert – Forschungsgemeinschaft Feuerfest e.V., Germany*
- 2:30 Coffee Break
- 3:00 Engineering Refractory Aggregates – Potentials to Facilitate the Installation and Improve the Performance of Refractories  
*Shangzhao Shi – Materials Technology Innovation; Ningsheng Zhou – Henan University of Science and Technology, China; Jill Cooper – NZ at Palmer Technologies Pty Ltd, New Zealand*
- 3:30 New Higher Temperature Resistant Microporous Insulation for Molten Iron and Steel Refractory Applications - Focus on Steel Ladles  
*J. Robert Doty – IMACRO, Inc.*
- 4:00 Development of a Novel Hybrid Method for the Production of Macroporous Foam Ceramics  
*M. Rath – Spumix Dämmstoffe GmbH, Austria; C. Lebeda & H. Bruckner – Vienna University of Technology, Austria*
- 4:30 Questions & Discussion  
Co-Program Coordinator
- 4:45 RCD Annual Members Meeting
- 5:00 Closing Remarks  
*Roger Smith*  
Imrie-Gielow, Inc.  
*Ben Markel*  
Resco Products
- 5:00-7:00 Exposition and Cocktail Hour
- |                          |                          |
|--------------------------|--------------------------|
| Almatis                  | IMERYS                   |
| AluChem                  | Kerneos, Inc.            |
| Alteo-Alumina            | Kyanite Mining Corp.     |
| American Ceramic Society | Lancaster Products       |
| BassTech International   | Orton Ceramic Foundation |
| Calucem, Inc.            | Possehl Erzkontor N.A.   |
| Christy Minerals         | PQ Corporation           |
| Cilas Particle Size      | RED Industrial Products  |
| Conitex Sonoco           | Refractory Minerals      |
| DIFK GmbH, Germany       | TAM Ceramics             |
| Elkem Materials, Inc.    | UltraTest GmbH, Germany  |
| FESIL Sales, Inc.        | Washington Mills         |
| FX Minerals              | Zili USA                 |
| Great Lakes Minerals     | ZIRCAR Ceramics, Inc.    |
- 7:00 Dinner Buffet

March 31<sup>st</sup>, 2016

6:30 A.M. Refractory Ceramics Division (RCD) Breakfast Meeting

8:15 Morning Technical Sessions  
Welcome and Introductions

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8:30 Steel Related Refractory Research at the PSMRC

*Ronald O'Malley – Peaslee Steel Manufacturing Research Center, Missouri University of Science & Technology*

9:00 A First Approach to In-Situ Spinel Formation in Al<sub>2</sub>O<sub>3</sub>-MgO Systems

*S.L.S. Silva, A.M. Correa & A.G.S. Mangualde – Magnesita R&D, Brazil*

9:30 Slide Gate Refractories & Systems: Adapted Solutions for High Quality Steel

*M. Zefferer & M. Wiesel – RHI AG, Austria; S. Tate – RHI US, Ltd.*

10:00 Coffee Break

10:30 A Study of the Kinetics for Carbon Transfer from Magnesia-Graphite Ladle Refractories to Ultra Low Carbon Steel

*Andrew Russo, Jeffrey D. Smith, Ronald O'Malley & Von Richards – Missouri University of Science & Technology*

11:00 Heat Transfer, Erosion, and Stress Analysis for Refractory

*Chenn Zhou – Purdue University Calumet*

11:30 Steelmaking Refractories - 2030 Dream Scenario

*Vanessa Mazzetti-Succi & Tom Vert – ArcelorMittal Dofasco*

12:00 Questions & Discussion  
Co-Program Coordinator

**St. Louis Section Chairman**

*Roger Smith*

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12:30 St. Louis Section Officer Business Meeting & Lunch