



Secondary Steelmaking Refractories

A Practical Training Seminar

23–26 October 2017
Milwaukee, Wis., USA
The Westin Milwaukee





About the Program

Secondary steelmaking refractory maintenance is vital to both productivity and safety in a meltshop and caster. It is important for those involved to have a thorough understanding of the basic concepts of refractory system design. Consultants, suppliers and recognized industry experts have developed a curriculum to educate attendees on the following topics: refractory raw material selection; properties of refractories, application and limitations of refractories; theory and application of insulation; design and application of stir plugs, lances and slidegates; free opens, refractory handling, installation and pre-heating; ladle secondary steelmaking — LMF; and casting requirements and wear mechanisms. Presentations will provide data from steelmaking operations, and attendees will benefit from the practical experience of the presenters, including the application of the latest tools and techniques being used. Open discussions will allow participants to gather additional information and network with attendees and instructors.

Who Should Attend

This conference is intended for steelmaking operations personnel, maintenance and supervisory employees. Refractory suppliers and service suppliers should also attend. The AIST Ladle & Secondary Refining and Refractory Systems Technology Committees strongly believe that this course provides the basic knowledge for a better understanding of secondary steelmaking, refractory and insulating systems.



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Organized By

AIST's Ladle & Secondary Refining and Refractory Systems Technology Committees.

Schedule of Events

Monday, 23 October 2017

4 p.m.
Registration

Tuesday, 24 October 2017

7 a.m.
Registration and Breakfast

8 a.m.
Welcome Keynote Speaker
Greg Schaefer, Charter Steel – Saukville

8:30 a.m.
Introductions

8:45 a.m.
Raw Materials, Bricks, Shapes and Monolithics
Ruth Engel, Refractory Consulting Services
This section will discuss the raw materials used and why they are used, their availability and characteristics, and how their combination affects properties. Installation and dry-out of castables will also be discussed.

9:45 a.m.
Break

10 a.m.
Brick Manufacturing
Korey Skala, RHI USA Ltd.
Overview of refractory brick manufacturing from raw materials to finished product.

10:45 a.m.
Break

11 a.m.
Ladle Construction Design and Insulation
Rob Doty, IMACRO Inc.
Presentation of the numerous refractory and insulation choices used in the construction of ladle linings and their effects on thermal expansion and heat transfer through the refractory.

Noon
Lunch

1 p.m.
Slide Gates, Tundish Gates and Ladle Stirring
Carl Corbin, Vesuvius USA
Overview includes reasons for stirring, gas delivery, systems, basic plug design, achieving results and troubleshooting. The slidegate discussion will include general refractory selection, mechanism types and troubleshooting.

2 p.m.
Break

2:15 p.m.
Ladle Pre-Heating and Handling
Jimmy Barrett, Allied Mineral Products Inc.
Steel ladles: pre-heating, refractory wear mechanisms and measuring options.

3 p.m.
Break

3:15 p.m.
Tap-to-Cast Operations
Harriet Dutka, Magnesita Refractories
A brief overview that is focused on answering the “why’s” of certain practices and procedures in steelmaking. If you are a new to steelmaking or are in a non-technical role, this presentation will answer many of the questions you would like to ask.

4 p.m.
Panel Discussion and Reception
Moderator: Jimmy Barrett, Allied Mineral Products Inc.
Panelists: Helmut Oltmann, Nucor Steel–Berkeley; Harriet Dutka, Magnesita Refractories; Rob Doty, IMACRO Inc.

Wednesday, 25 October 2017

7 a.m.

Breakfast

8 a.m.

Safety: Past/Present/Future

John Panconi, BISCO Refractories Inc.

Safety as it was, where we are today and projections on the future of safety.

8:30 a.m.

Refractory Materials Testing and Product Selection

Rakesh Dhaka, U. S. Steel Research and Technology Center

The presentation will cover the various types of tests that are conducted to develop and characterize refractory materials. Importance of testing and how to read product data sheets will be emphasized.

9:30 a.m.

Break

9:45 a.m.

Secondary Steelmaking Process — LMF

Helmut Oltmann, Nucor Steel–Berkeley

A review of the LMF processes to modify chemistry and temperature of the steel in the ladle and the impact on refractories.

10:45 a.m.

Break

11 a.m.

Infrared: A Steelmaker's Tool

Thomas Connors, Connors Industrials Inc.

Infrared allows a steelmaker to "see" non-visible activities and provide non-contact temperature measurement accurately. The discussion will focus on how to improve safety, product quality and cost avoidance with infrared.

11:30 a.m.

Ladle Laser Program

Michel Bonin, Process Metrix LLC

Noon

Lunch

1 p.m.

Ladle Free Opens: Theory and Application

James Conrad, Fedmet

Ladle free opening will be discussed, including theory, variables, options and troubleshooting.

1:45 p.m.

Break

2 p.m.

Total Tundish Technology

Daniel Schaner, Vesuvius USA

This presentation will focus on the tundish.

Discussion will include the refractory makeup of a tundish, the equipment utilized for installation and the technology applied to optimize the tundish.

3:15 p.m.

Break

3:30 p.m.

Principles of Mold Flux Technology

Darrell Sturgill, Imerys Steelcasting USA Inc.

The presentation will give novice operations personnel an overview of continuous casting fluxes, including their design, production and application.

4:15 p.m.

Flow Control Products

Joshua Kaser, RHI/VRA

This presentation will describe and explain the purposes and capabilities of ladle shrouds, stopper rods and tundish shrouds.

Thursday, 26 October 2017

7 a.m.

Breakfast

8 a.m.

Plant Tour of Charter Steel – Saukville

Noon

Return From Plant Tour and Adjourn

Registration

AIST Members

US\$845

by 11 September 2017

US\$945

after 11 September 2017

Non-Members

US\$1,060

by 11 September 2017

US\$1,160

after 11 September 2017

Registration Includes

Tuesday and Wednesday breakfast and lunch, reception, Thursday continental breakfast, plant tour with bus transportation, and a course workbook or flash drive including presentations.

Hotel Accommodations

A block of rooms has been reserved at The Westin Milwaukee. Please call the hotel at +1.800.325.3589 by 2 October 2017 to secure the AIST discount rate of US\$159 per night for single/double occupancy.

Featured Plant Tour

Charter Steel – Saukville



Upcoming Events

- > **Managing Technology — Big River Steel**
12–14 September 2017
Sheraton Memphis Downtown Hotel > Memphis, Tenn., USA
- > **Sheet Processing and Finishing Lines — A Practical Training Seminar**
17–21 September 2017
Ann Arbor Marriott Ypsilanti at Eagle Crest > Ypsilanti, Mich., USA
- > **Material Handling and Transportation Logistics**
10–12 October 2017
The Seelbach Hilton Louisville > Louisville, Ky., USA
- > **Environmental Solutions: Meeting EPA Air Emission Requirements**
16–18 October 2017
Sheraton Indianapolis City Centre > Indianapolis, Ind., USA



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