



LADLE REFRACTORY & SECONDARY STEELMAKING

A PRACTICAL TRAINING SEMINAR

06-08 OCTOBER 2014

SHERATON INDIANAPOLIS CITY CENTRE

INDIANAPOLIS, IND., USA

ABOUT THE COURSE

Since ongoing refractory maintenance is vital to both productivity and safety in a meltshop, 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; refractory handling, installation and preheating; ladle secondary steelmaking — LMF; vacuum degassing operations; and wear mechanisms.

Presentations will provide data from actual operations. Open discussions will allow participants to gather additional information and network with attendees and instructors.

WHO SHOULD ATTEND

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

SCHEDULE OF EVENTS

MONDAY, 6 OCTOBER 2014

4-6 p.m.
Registration

5-6:30 p.m.
Welcome Reception

TUESDAY, 7 OCTOBER 2014

7-8 a.m.
Registration and Continental Breakfast

8-8:30 a.m.
Keynote Speaker
Gerry Gillen, Nucor Steel-Indiana

8:30–9:30 a.m.

Raw Materials, Brick and Monolithics

Ruth Engel, Refractory Consulting Services

The seminar will start by discussing the raw materials used in the manufacture of refractories, why they are used and their characteristics. With this understanding, a discussion will take place about the role of the different components and their effect on the properties of the brick/shape. This knowledge will be extended to monolithics, where additional parameters like installation and dryout will be covered.

9:30–9:45 a.m.

Break

9:45–11 a.m.

Insulation and Ladle Construction Design

Rob Doty, IMACRO Inc.

This unit will cover the basics of heat transfer from molten steel through ladle refractories and explain how the refractories are affected. It will also cover the many choices of refractory materials, qualities, and shapes used in ladle refractory lining construction along with the advantages and disadvantages of each.

11 a.m.–Noon

Safety Then and Now

John Panconi, Bisco Refractories

A brief description of past and present safety programs and a look into the future of a safer workplace.

Noon–1 p.m.

Lunch

1–2 p.m.

Stir Plugs, Lances and Slidegates

Carl Corbin, Vesuvius USA

Basic concepts of ladle gas stirring will cover reasons for purging in ladles, overview of gas delivery equipment, types of systems used, purge plug design basics, achieving desired results and troubleshooting. The slidegate discussion will include controlling steel flow from the ladle. Details include types of mechanisms, ancillary equipment, drive concepts, ladle cycle in shop practice and refractory used.

2–2:15 p.m.

Break

2:15–3 p.m.

Ladle Preheat and Handling

Jimmy Barrett, Allied Mineral Products Inc.

Preheating of ladles for optimum refractory performance and minimizing problems of putting ladles into service. Recommended preheat schedules are discussed for particular lining configurations. Ladle lining wear mechanisms are discussed, along with examples of lining configurations to help combat various operating conditions.

3–3:45 p.m.

Tap-to-Cast Operations

Harriet Dutka, Magnesita Refractories

Ever wonder why the caster had problems with that last heat? Does the casting team always seem like they are changing their minds? Do you ever wonder why some practices are in place? This session will provide practical explanations from an operations perspective.

3:45–4 p.m.

Break

4–5 p.m.

Refractory Materials Testing

Dawn Mandich, U. S. Steel Research and Technology Center

This session details the importance of understanding the information presented in property data sheets for ladle refractory material selection. The standard testing methods used to evaluate the refractories used in steel ladles will be defined and explained.





9:30–10:30 a.m.

Secondary Steelmaking — Vacuum Treatments

Kevin Cotchen, SMS-Siemag LLC

The presentation provides a complete overview of degassing, including the purpose, theory, process and equipment. The basic operation is discussed with respect to the equipment design of the two major degasser types, the recirculation process and the ladle degassing process, and how these affect the refractory materials used in the ladle and refining vessel. Finally, steam ejector and mechanical vacuum pumping system types will be compared with respect to their operation and associated costs.

10:30–10:45 p.m.

Break

10:45 a.m.–Noon

Ladle Refractory & Secondary Steelmaking Panel Discussion/Roundtable

Harriet Dutka, Dawn Mandich, Kamallesh Mandal and Kevin Cotchen

Moderator: Jimmy Barrett

12–1 p.m.

Lunch

1–4 p.m.

Plant Tour of Nucor Steel–Indiana



WEDNESDAY, 8 OCTOBER 2014

7–8 a.m.

Continental Breakfast

8–9:15 a.m.

Secondary Steelmaking Process — LMF

Helmut Oltmann, Nucor Steel–Berkeley

The LMF transforms raw steel from the EAF into a castable product and delivers it to the caster at the appropriate time, temperature and chemistry (bulk and inclusion chemistry). Killing and alloying the steel, making a slag, controlling temperature and non-metallic inclusions, and potential impact on refractory lining performance are also reviewed.

9:15–9:30 a.m.

Break

REGISTRATION FEES

Advance registration by 25 August 2014: Member US\$695, Non-member US\$910. Registration fee after 25 August 2014: Member US\$795, Non-member US\$1,010. Registration fee includes reception Monday, continental breakfasts, lunches and continuous breaks Tuesday and Wednesday, plant tour and a course workbook.

>> REGISTER NOW

COMPANY DISCOUNT

Three or more individuals from the same facility attending any one seminar can receive a 10% discount per person. All registrations must be received together along with payment to qualify for the discount. Not applicable with any other discount.