

## UPCOMING EVENTS

Continuous Casting – A Practical Training Seminar  
13–15 October 2020  
Virtual Meeting

Environmental Solutions: Meeting EPA Air Emission Requirements  
19–20 October 2020  
Virtual Meeting

Steel Mill Combustion and Thermal Systems  
27–28 October 2020  
Virtual Meeting

# SECONDARY STEELMAKING REFRACTORIES

## A PRACTICAL TRAINING SEMINAR

6-7 OCTOBER 2020  
Virtual Meeting

  
Association for Iron & Steel Technology  
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## 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.

## ORGANIZED BY

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



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## REGISTRATION INCLUDES

Live virtual instruction via individual link; electronic access to course material; networking opportunities; and live Q&A with instructors

**AIST MEMBERS**  
US\$295

**NON-MEMBERS**  
US\$445

## ATTENTION NON-MEMBERS

Non-member registration fees include membership in AIST through 31 December 2021. Membership is not automatic. A completed membership application must be returned to AIST.

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# SCHEDULE OF EVENTS



## Tuesday, 6 October 2020

9 a.m. EST  
**Introductions**

9:45 a.m. EST  
**Refractory Brick Production**

Korey Skala, HarbisonWalker International  
Production of refractory bricks from raw material to finished product.

10 a.m. EST  
**Break**

10:15 a.m. EST  
**Ladle Construction Design and Insulation**

Rob Doty, IMACRO Inc.  
This presentation features a wide-ranging discussion about the many options in ladle refractory design. The basics of heat transfer will then be covered, from molten steel through refractories to ladle shells, followed by insulation choices, how they affect ladle shell temperatures and refractory expansion dynamics.

11:15 a.m. EST  
**Break**

11:30 a.m. EST  
**Ladle Pre-Heat and Handling**

Jimmy Barrett, Allied Mineral Products Inc.  
Steel ladles will be covered in detail, including pre-heating, refractory wear mechanisms and measuring options.

Noon  
**Lunch Break**

1 p.m. EST  
**Ladle Breakout and Slidegate Failure Investigation and Analysis**

David Ehrhart and Jack Shoff, RHI Magnesita  
This presentation will discuss investigation strategies for ladle and slidegate failure and offer insight on potential root causes.

2:15 p.m. EST  
**Break**

2:30 p.m. EST  
**Ladle Burner, Technical and Controls**

Dale Smith and Mark Kampe, Honeywell Combustion Safety

3:30 p.m. EST  
**End of Day Wrap-Up and Adjourn**

## Wednesday, 7 October 2020

9 a.m. EST  
**Secondary Steelmaking Process – LMF**

Helmut Oltmann, Nucor Steel–Berkeley  
This presentation provides a review of the ladle metallurgy furnace processes to modify chemistry and temperature of the steel in the ladle and their impact on refractories.

10 a.m. EST  
**Break**

10:15 a.m. EST  
**Refractory Materials Testing and Product Selection**

Rakesh Dhaka, U. S. Steel Research and Technology Center  
Standard test methods and their application in evaluating and selecting refractory materials will be discussed

11:15 a.m. EST  
**Advancements in Infrared Technology**

John Lewis, Connors Industrials Inc.  
This presentation will cover an examination of newly developed infrared technologies for practical secondary processing applications.

Noon  
**Lunch Break**

1 p.m. EST  
**Ladle Laser Program**

Michel Bonin, Vesuvius  
Advances in laser-based refractory thickness monitoring continue in our industry. The state of the art includes insertable scanners that can measure the entire vessel in one single comprehensive measurement. These advances as well as the general theory and approach to laser-based refractory monitoring will be addressed.

1:30 p.m. EST  
**Tundish Refractory**

Fred Adkins, HarbisonWalker International  
This presentation will focus on tundish design. It will cover the composition design of the refractory lining materials, the design of the arrangement of flow modifiers, and the effect they have on steel, and the way it is processed in the tundish.

2:45 p.m. EST  
**Break**

3 p.m. EST  
**Flow Control Products**

Josh Kaser, RHI Magnesita  
This presentation will focus on isostatic refractories that are used at the caster during continuous casting.

3:45 p.m. EST  
**Conference Adjourn**