Secondary Steelmaking Refractories
A Practical Training Seminar
14–17 October 2019
Hilton Palacio Del Rio
San Antonio, Texas, USA

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, 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.

Registration Includes
Tuesday and Wednesday breakfast and lunch, reception, Thursday 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 Hilton Palacio Del Rio. Please call the hotel at +1.210.222.1400 by 23 September 2019 to secure the AIST discount rate of US$189 per night for single/double occupancy.

Professional Development Hours
This course may qualify for up to 14 Professional Development Hour (PDH) credits. Each attendee will receive a certificate listing the quantity of PDH credits earned for the course. This course is not approved for PDH credits in New York, Florida, North Carolina and Oklahoma.

Organized By
AIST’s Ladle & Secondary Refining and Refractory Systems Technology Committees.
Monday, 14 October 2019

4 p.m.
Registration

Tuesday, 15 October 2019

7 a.m.
Registration and Breakfast

8 a.m.
Keynote address: Safety Culture at CMC Steel Texas
Matthew Fowell, Commercial Metals Company – Texas

8:30 a.m.
Introductions

8:45 a.m.
Raw Materials, Bricks and Shapes and Monolithics
Ruth Engel, Refractory Consulting Services
The seminar will begin by presenting the raw materials used in the manufacture of refractories, why they are used, their availability and expected characteristics. Using this information, the raw materials will be combined to make bricks or shapes and the role the different components play on their properties will be discussed. This discussion will extend to monolithics, where additional parameters like installation and dry-out will be covered.

9:45 a.m.
Break

10 a.m.
Refractory Brick Production
Korey Skala, HarbisonWalker International
Production of refractory bricks from raw material to finished product.

10:45 a.m.
Break

11 a.m.
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.

1 p.m.
Stir Plugs, Lances, Slidegates and Tundish Gates
Carl Corbin, Vesuvius USA

2 p.m.
Break

3 p.m.
Total Refractory
Fred Atkins, HarbisonWalker International.

3:30 p.m.
Principles of Mold Flux Technology
Darrell Sturgill, Imerys Steelcasting USA Inc.
Participants will receive an overview of continuous casting fluxes from production through their end use. Included in the discussion are continuous casting flux selection criteria.

4:15 p.m.
Flow Control Products
Josh Kaser, RHI Magnesita
This presentation will go into detail on the isostatic products of the refractory industry. This includes ladle shrouds, stopper rods and tundish shrouds.

Wednesday, 16 October 2019

7 a.m.
Breakfast

8 a.m.
Safety: Past/Present/Future
John Panconi, BISCO Refractories Inc.
Discussion will focus on safety and its progression through the years.

8:30 a.m.
Refractory Materials Testing and Product Selection
Rakesh Dhaika, U. S. Steel Research and Technology Center
Standard test methods and their application in evaluating and selecting refractory materials will be discussed.

9:30 a.m.
Break

9:45 a.m.
Secondary Steelmaking Process — LMF
Helmut Oltmann, Nucor Steel–Berkeley
This presentation provides a review of the ladle metallurgy furnace (LMF) processes to modify chemistry and temperature of the steel in the ladle and their impact on refractories.

10:45 a.m.
Break

11 a.m.
Pros and Cons of Infrared and Analog Cameras on Refractory Applications
Tom Connors and John Lewis, Connors Industries Inc.
Camera applications for the refractory manager can be useful in recognizing system limitations.

11:30 a.m.
Ladle Laser Program
Sean Guy, Process Metrix LLC

Noon
Lunch

1 p.m.
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.

1:45 p.m.
Break

2 p.m.
Ladle Burner, Technical and Controls
Dale Smith, Honeywell Process Solutions

3 p.m.
Break

3:15 p.m.
Tap-to-Cast Operations
Harriet Dutka, SANGRAF International
This presentation is a brief overview that focuses on answering the “why’s” of certain practices and procedures in steelmaking. If you are 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: Harriet Dutka, SANGRAF International; Helmut Oltmann, Nucor Steel–Berkeley; and Rob Doty, IMACRO Inc.

Thursday, 17 October 2019

7 a.m.
Breakfast

8 a.m.
Plant Tour of CMC Steel Texas

Noon
Return From Plant Tour and Adjourn