

What You Will Learn

Developed and presented with the talented resources of the Continuous Casting Technology Committee, this informative program targets the heart of steelmaking: the frontline operator. The key focus of the program is to discuss the practical aspects of casting slabs, billets and blooms, while introducing the theoretical concepts. By achieving the proper teaching balance, attendee understanding of the process is ensured without the need for a technical background. This course is a must for the progressive, informed and educated steelmaker of the future!

Who You Will Meet

This training seminar has been designed for the frontline casting employee. It would also be beneficial to individuals newly assigned to work in the casting area, suppliers of casting consumables and services, as well as others wishing to review major variables that impact the quality of as-cast products. The presentations will be geared toward general casting principles, with all machine types represented.

Professional Development Hour (PDH) credits are available for this training course.

Hotel Information

A block of rooms has been reserved at the Embassy Suites by Hilton Fort Worth Downtown. Please call the hotel at +1.817.332.6900 and mention group code AIS by 23 September 2022 to secure the AIST discount rate of US\$189 per night for single/double occupancy.

Upcoming Events

Environmental Solutions: Meeting EPA Air Emission Requirements
25–27 October 2022 • Orlando, Fla., USA

Modern Electric Furnace Steelmaking — A Practical Training Seminar
20–24 February 2023 • San Antonio, Texas, USA

Scrap Supplements and Alternative Ironmaking 9
6–8 March 2023 • Orlando, Fla., USA

International Symposium on New Developments in Advanced High-Strength Sheet Steels
20–23 June 2023 • Vail, Colo., USA

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AIST Members
US\$895 Before 5 September
US\$995 After 5 September

Non-Members
US\$1,140 Before 5 September
US\$1,240 After 5 September



SCAN FOR MORE INFORMATION



Continuous Casting Practical Training Seminar 18–20 October 2022

Embassy Suites by Hilton Fort Worth Downtown
Fort Worth, Texas, USA

Plant Tour: Gerdau Long Steel North America Midlothian Mill

aist.org

Tuesday, 18 October 2022

7 a.m. **Registration and Breakfast**

8 a.m. **Historical Perspective of Continuous Casting With Design and Technology of Slab and Long Products, Dewey Humes, Primetals Technologies USA LLC**

An overview of the evolution of the continuous casting process and technology from its introduction to the current status.

9:15 a.m. **Break**

9:30 a.m. **Principles of Mold Flux Technology — An Operator's Guide to Continuous Casting Flux, Marc McClymonds, Calderys HTS USA**

This presentation will provide an overview of the functions of mold flux and the key physical properties that affect casting performance and steel quality. A description of the selection criteria used to determine optimal fluxes based on casting conditions, steel grades and quality requirements will be included, along with a review of recommended application practices to ensure proper flux performance.

10:15 a.m. **Break**

10:30 a.m. **Initial Solidification and Oscillation Mark Formation, Brian Thomas, Colorado School of Mines**

Fundamental mechanisms of the formation of oscillation marks, meniscus hooks and their associated defects are explained. The presentation includes visualizations of the phenomena during initial solidification, based on advanced computational models and plant measurements, and evaluation of the casting conditions that control them.

11:30 a.m. **Electromagnetic Braking (EMBR) Technology, Joel Hatfield, ABB Process Automation**

Noon **Lunch**

1 p.m. **Sources of Reoxidation and Why to Avoid, Ron O'Malley, Missouri University of Science and Technology**

To produce high-quality cast products, steel must be protected from reoxidation. Reoxidation can occur in the ladle, at secondary ladle metallurgy operation, and also in the transfer operations from ladle to tundish and tundish to the mold. Various techniques will be described that can be used to minimize reoxidation.

2 p.m. **Break**

2:15 p.m. **Caster Breakouts and Breakout Prevention, Andrew Gribben, SMS group Inc.**

This presentation will discuss the various causes for breakouts and methods to detect and/or prevent them.

3:15 p.m. **Break**

3:30 p.m. **Caster Quality Defects and Their Potential Causes, Ron O'Malley, Missouri University of Science and Technology**

The surface and internal quality of continuously cast slabs and billets is intimately linked to the caster design and to the operating and maintenance practices employed in the continuous casting process. Common causes for five classes of continuous casting defects (longitudinal cracking, transverse cracking, slivers and lamination defects, internal cracking, and segregation defects) will be reviewed and linked to these design and practice influences.

5 p.m. **Adjourn**

Wednesday, 19 October 2022

7 a.m. **Breakfast**

8 a.m. **Mold Copper Alloys, Design and Influence of Operating Factors on Performance, Ian Bakshi, KME Special Products & Solutions GmbH**

Information as to the requirements that molds must fulfill when used on a steel continuous casting machine, the copper alloys commonly used, details of their design, various operating factors that affect mold life, and typical mold problems will be presented.

9 a.m. **Break**

9:15 a.m. **Mold and Copper Maintenance and Coating Technologies, Chad Donovan, SMS group Inc.**

This presentation will cover caster mold types, equipment and maintenance, and mold coatings utilized on caster molds.

10:15 a.m. **Break**

10:30 a.m. **Caster Roll Maintenance and Overlay Technologies, Jeffrey Brower, Primetals Technologies USA LLC**

Caster roll and segment life can be significantly increased through the use of customized weld overlays and base materials. This session details the operational impact on caster rolls and technologies developed to improve roll performance.

11:30 a.m. **Lunch**

12:30 p.m. **Plant Tour of Gerdau Long Steel North America Midlothian Mill 🏭**

4–6 p.m. **Panel Discussion and Reception**

Panelists: Brian Thomas, Colorado School of Mines; Ron O'Malley, Missouri University of Science and Technology; and Bill Schlichting and Rudolf Moravec, United States Steel Corporation; Ian Deeks, Nucor Steel-Arkansas; and Robert Heil, Charter Steel – Saukville, Wisconsin

Thursday, 20 October 2022

7 a.m. **Breakfast**

8 a.m. **Billet and Bloom Caster Operations and Maintenance, Bill Schlichting, United States Steel Corporation and Ian Deeks, Nucor Steel-Arkansas**

This presentation is a review of the lessons learned over the last 25 years in billet and bloom casting from a safety and operational viewpoint.

9 a.m. **Break**

9:15 a.m. **Caster Hydraulics — Failure Modes and Preventive Maintenance, Mark Cook, Yates Industries Inc.**

This discussion will cover cylinders used in casters, failure modes, preventive maintenance and effective cylinder reconditioning programs.

9:30 a.m. **Principles of Mold Flux Technology — An Operator's Guide to Continuous Casting Flux, Marc McClymonds, Calderys HTS USA**

This presentation will provide an overview of the functions of mold flux and the key physical properties that affect casting performance and steel quality. A description of the selection criteria used to determine optimal fluxes based on casting conditions, steel grades and quality requirements will be included, along with a review of recommended application practices to ensure proper flux performance.

10:15 a.m. **Caster Secondary Cooling and Water Treatment, John Cioffi, NALCO Water, An Ecolab Company, and Stephen Swoope, Delavan Spray Technologies**

Overview of spray nozzles used in the casting processes with detailed technical support on selection and maintenance of products used for cooling steel. Using fluid dynamics and heat dispersion will ensure a quality product with the highest productivity. This presentation will review basic nozzle types and their function. It will also include a look at primary and secondary cooling water leading indicators and best practices for implementation of a successful treatment program.

11:15 a.m. **Caster Bearings — Types or Bearings, Failure Modes and Preventive Maintenance, Paul Brda, NSK Corp.**

This discussion will focus on types of bearings in continuous casters along with maintenance practices and common failure modes.

Noon **Conference Adjourn**