What You Will Learn

Meeting air emissions requirements in the steel industry is a challenging endeavor. Global changes in the steel market and evolving U.S. Environmental Protection Agency (EPA) regulations have made strategic planning, compliance, monitoring and operations more complex than ever. This conference will focus on technologies, equipment and strategies to help attendees navigate the all-encompassing demands of air emissions capture systems. Case studies highlighted will offer solutions and best practices for increased efficiency at all stages of air pollution control equipment life, including design, operation, maintenance, troubleshooting and upgrades/retrofits. Effective strategies for compliance, data monitoring, reporting and permitting will also be discussed. Equipping attendees with new tools to better evaluate the effectiveness of their systems will be a primary goal of the course.

Who You Will Meet

This course is aimed at engineers; environmental managers; health, safety and environment personnel; strategic planners; and operations/ maintenance personnel.

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

Hotel Information

A block of rooms has been reserved at the Wyndham Garden Lake Buena Vista Disney Springs Resort Area. Please call the hotel at +1.800.624.4109 by 3 October 2022 to secure the AIST discount rate of US$99 per night for single/ double occupancy plus a US$20 resort fee.

Upcoming Events

The Making, Shaping and Treating of Steel: 101
2–3 November 2022, Syracuse, NY, 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

Association for Iron & Steel Technology
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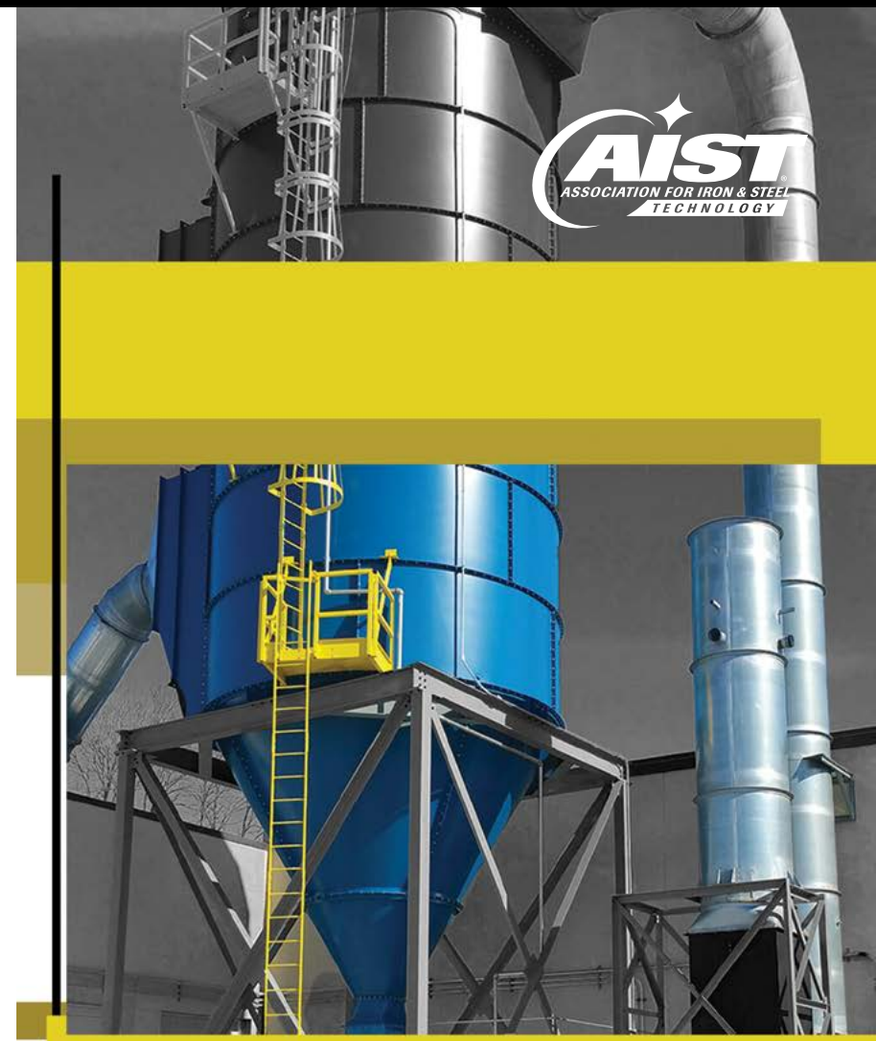
AIST Members
US$895 Before 12 September
US$995 After 12 September

Non-Members
US$1,140 Before 12 September
US$1,240 After 12 September t

SCAN FOR MORE INFORMATION



Environmental Solutions

Meeting EPA Air Emission Requirements

25–27 October 2022

Wyndham Garden Lake Buena Vista Disney Springs Resort Area
Orlando, Fla., USA

Plant Tour: Nucor Steel Florida Inc.

AIST.org

Tuesday, 25 October 2022

7 a.m. Breakfast

8 a.m. Introductions and Opening Remarks

8:15 a.m. Feasibility Evaluations of Potential Emission Control Measures, Lauren Dickerson, Barr Engineering Co.

This presentation will describe key site information that may be beneficial for use in evaluations of potential control measures required under current and future regulations toward setting stricter air quality standards and emission limits from process equipment. Topics covered include technical and economical feasibility parameters, potential measures of process improvements and end-of-pipe controls, and case studies.

9 a.m. Capture of Pollutants — Thermodynamics, Plume Behavior and Collection Hoods, Dejan Zrelec, Tenova Goodfellow Inc.

This presentation will clarify the applied science behind fumes, emissions generation and capture. Additionally, various collection hood designs and performance optimization steps will be discussed, using practical examples.

10 a.m. Advanced Simulation of Dust Behavior in Steel Mills, Brian Bakowski, SLR International Corp.

Submicron particles are generated during all phases of the steelmaking process. These particles are especially dangerous as they can become entrained in the lungs, causing many health issues. Therefore, understanding their behavior and how to capture these particles is essential. Utilizing advanced simulation, engineers can predict their behavior and develop methods to increase the capture efficiency. This paper examines the sources of these emissions, effects of poor capture efficiency and methods to increase the capture efficiency.

10:45 a.m. Optimization of the Meltshop Building Ventilation Using Physical Fluid Dynamic Modeling, Jim Belous, Bender Corp.

The expansion of existing emission control systems often results in disproportionate increases in cost to increases in efficiency. Often mere increase of the emission control capacity without proper analysis of the building ventilation concept does not bring the expected results. This paper shows how the Physical Fluid Dynamic Modeling technique allows for the identification of the cause of the building ventilation deficiencies.

11:30 a.m. Lunch

12:30 p.m. Overview of Control Techniques – What Is Used and Why?, Raymond Tedford, Schust

A review of air pollution control technology being used in the steel industry will be given. Discussion will include how to select the best designs to meet your environmental requirements and provide for energy savings.

1:15 p.m. Mechanical Conveyor Systems Maintenance and Best Practices, Trevin Berger, Martin Sprocket & Gear, Inc.

2:15 p.m. Exploring Filter Media Options for the Steel Industry, Larry Brown, BWF Envirotec

With the increased focus on lowering emissions, it's important to have a full understanding of the different filter media options available for applications within the steel industry.

3 p.m. Heat Transfer Considerations for EAF Fume Control Systems, Bill Allan, Ramboll Canada Inc.

Heat transfer considerations are a critical element in the design and operation of fume control systems for electric arc furnaces (EAFs). The fundamentals of relevant heat transfer concepts will be briefly reviewed and the implications of specific design requirements for EAF fume control systems discussed. Some of the related concepts will include water-cooled duct, radiant heat transfer, evaporative spray cooling and dilution air control. A brief discussion of process control considerations will also be included for complete system design and operations.

4 p.m An Assessment of State-of-the-Art Offgas Sensor Technology for Process Control in Steel Combustion Furnaces, Eric Huelson, OnPoint

This presentation will review the history and methodology of tunable diode laser absorption spectroscopy (TDLAS) measurements and provide considerations of use cases for both traditional sensors and TDLAS-based measurements. Installation requirements, heater conditions, accuracy, reliability, response speed, maintenance and calibration needs relative to deployment costs will be overviewed to help provide a landscape of the solutions available and where particular technologies may be more or less relevant for continuous process control.

4:45 p.m. Closing Remarks

5-6 p.m. Reception

Wednesday, 26 October 2022

7 a.m. Breakfast

8 a.m. Opening Remarks

8:15 a.m. Air Quality Pollution Control Compliance – Agency Inspections and Audit Considerations, Leah Blinn, Civil & Environmental Consultants Inc.

This presentation will detail the common compliance requirements for various air pollution control technologies. Additionally, recommendations will be given to help the audience prepare for regulatory agency inspections and third-party audits. Common audit findings, notice of violations and best management practices will be presented. Participants will understand air pollution control technology compliance requirements, how to prepare for an agency inspection or a third-party audit, and how to minimize deviations to air quality compliance requirements.

9 a.m. How to Navigate Failed Stack Emissions Tests – Technical and Legal Considerations Before, During and After the Test, Tim Russell, Barr Engineering Co. and Jennifer Tharp, Squire Patton Boggs

This presentation will discuss considerations and tactics for dealing with difficult compliance test situations that may result in a failed performance test as well as strategies to reduce the risk of failed performance tests through stack testing policies. Topics covered include the role and responsibilities of facility environmental and operations staff, and that of the stack test consultant and legal advisors.

10 a.m. Positive Pressure Baghouse Testing, Darryl Christy, Grace Consulting Inc.

Due to the unique environmental and physical conditions in positive pressure baghouses at steel plants, emissions testing at these locations is not for the faint of heart. This presentation will go through some steps that EHS and stack testers will need to keep in mind to ensure that proper safety measures, testing procedures, and report calculations are executed in order to conduct an incident-free and accurate test program. Several case studies and common pitfalls encountered when testing at these unique locations will be discussed.

10:45 a.m. Compliance Emissions Monitoring Systems and Process Optimization Measurement for the Steel Industry, Sean Myrick, M&C TechGroup North America

This presentation will discuss the various options for continuous emissions monitoring systems (CEMS) for regulatory compliance reporting to meet air permit requirements. Topics covered will include sample probe extraction, sample conditioning, gas analysis for both extractive and dilution CEMS designs, tunable diode laser analyzer technology.

11:30 a.m. Boxed Lunch and Depart for Plant Tour of Nucor Steel Florida Inc.

5 p.m. Return From Plant Tour and Adjourn

Thursday, 27 October 2022

7 a.m. Breakfast

8 a.m. System Design and Its Effect on Fan Performance, Matt Raymond and James Conway, New York Blower Co.

In an air handling system, fans usually constitute the highest initial and operating cost. Despite this fact, they are often treated as modular components that will behave as expected after installation. In addition to exercising caution in estimating the resistance that a fan must overcome to meet a required flow rate, the manner in which the fan is connected to the system at its inlet and outlet is crucial to proper operation and equipment longevity. This presentation will discuss the impact of improperly estimated system resistance on fan performance, how inlet and outlet connections differing from laboratory conditions change the characteristic fan curves, and general best practice to avoid these pitfalls.

8:45 a.m. Packed Bed Wet Scrubber Operation and Maintenance, Adam Pace, Monroe Environmental Corp.

Packed bed wet scrubbers are common air pollution control devices utilized to remove toxic gas emissions from a variety of metal production and treatment processes. However, because they are not typically a part of the larger air pollution control trains that exhaust steelmaking processes (which often utilize venturi scrubbers, baghouses, etc.), their operation and maintenance is less understood by plant engineers, operators and maintenance personnel. This presentation will clarify the design, operation, and maintenance of packed bed wet scrubbers and allow operators to better assess and optimize their existing scrubbers.

9:45 a.m. Cost-Effective Acid Gas Emissions Control in EAFs, Jerry Hunt, Lhoist Group

Hydrated lime dry sorbent injection (DSI) is being successfully applied in a multitude of industries to control acid gas (i.e., SO2, HCl, HF, SO3/H2SO4) and heavy metal (i.e., arsenic, selenium, mercury) emissions. Emissions from steel mills are starting to come under scrutiny, driven by local and federal regulations and environmental justice efforts. Electric arc furnaces present a challenge for emissions control due to the cyclical nature of charge and melt cycles, resulting in cyclical emissions profiles. Engineered hydrated lime sorbents and DSI offer a flexible and low-capital-cost approach to meeting acid gas and heavy metals emissions limits. Data from an emissions control trial conducted at an EAF in the U.S. will be presented. Background on DSI and performance drivers will also be discussed.

10:30 a.m. Minimizing Carbon and Water Footprint While Achieving Unpaved Roadway Dust Control, Christopher Gunville, Veolia Water Technologies & Solutions

Dust generation from vehicle traffic on unpaved roadways within iron and steel production facilities presents a significant challenge to achieving compliance with air emissions standards. Continuous or near-continuous utilization of water spray trucks on unpaved roads is one of the most common and universally employed methods for palliative road dust abatement. However, the high water consumption rate, increased CO2 emissions and labor costs associated with continuous water spray truck operations are substantial. Additionally, deleterious effects of ongoing water application to unpaved roadways relative to road condition deterioration and associated maintenance costs are frequently noted. This presentation will discuss the fundamentals of road dust generation and abatement, the relative benefits of implementing chemically assisted road dust suppressant programs compared to water-only approaches, and the ability of these programs to reduce the environmental footprint and operations and maintenance costs associated with unpaved roadway operation.

11:30 a.m. Fan Efficiency, Allen Ray, ProcessBarron

12:15 p.m. Adjourn Conference