



STEEL MILL COMBUSTION AND THERMAL SYSTEMS

5-7 NOVEMBER 2013 | HYATT REGENCY CLEVELAND AT THE ARCADE, CLEVELAND, OHIO, USA

TUESDAY 5 NOVEMBER 2013

4 p.m.
Registration

WEDNESDAY 6 NOVEMBER 2013

7 a.m.
Registration and Continental Breakfast

8 a.m. STEEL MILL COMBUSTION

Michael Binni, Bloom Engineering Co. Inc.

Introductory review of the fundamentals of combustion, including: requirements for combustion, flue gas relationship, effects of carbon monoxide, chemical equations, different fuels in steel mills, availability of heat in fuel, excess air and combustion efficiency.

9:15 a.m. BURNER FUNDAMENTALS

Ben Gatto, Hauck Manufacturing Co.

Basic properties of combustion will be reviewed. These properties drive the design features of the burners and vary depending on the process they are being applied to, fuel efficiency measures being taken, and limitations to emissions production.

10:15 a.m.
Break

10:45 a.m.

FLOW MEASUREMENT TECHNOLOGY

Ron Davis, FCX Performance Inc.

This is a discussion of all industrial flow technologies with emphasis on compensated mass flow for combustion air and natural gas. The session includes the measuring principle used in each product technology, advantages and limitations for use.

Noon
Lunch

1 p.m.

PIPE FLOW AND PIPING SYSTEMS

Jared Kaufman, Tenova Core

The basic aspects of pipe flow and piping systems as they relate to combustion systems will be discussed. Topics include the relationship between pressure and flow, fluid considerations, pressure losses, flow piping and distribution, and motive force.

2 p.m.
Break

2:30 p.m. FUEL/AIR RATIO SYSTEMS AND CONTROL

Dan Michael, Nucor Steel-Indiana

This presentation will provide fundamentals for fuel/air ratio systems in many industrial furnaces and preheaters.

3:30 p.m. COMBUSTION NO_x AND CO₂ EMISSIONS

Steve Pisano, Bloom Engineering Co. Inc.

This session will define and discuss NO_x as well as review the many factors that influence its generation. Current burner technologies that reduce these emissions in addition to process conditions that affect these emissions will be reviewed. Finally, the presenter will touch upon carbon dioxide and greenhouse gas emissions as they relate to steel reheating combustion systems.

5 p.m.
Reception

THURSDAY
7 NOVEMBER 2013

7 a.m.

Continental Breakfast

8 a.m.

**COMBUSTION SAFETY STANDARDS, BURNER
MANAGEMENT SYSTEMS**

Lew Ziller, Honeywell Corp.

An overview of the current combustion safety standards will be presented, with particular emphasis on the National Fire Protection Association (NFPA) Standard 86: Standard for Ovens and Furnaces and NFPA Standard 85: Boiler and Combustion Systems Hazards Code. Additionally, a description of the different types of flame safety will be discussed, along with applications guidelines. Types of flame safety include ultraviolet, infrared, flame rod and operator attendance.

9 a.m.

COMBUSTION SYSTEM MAINTENANCE

Mark Kampe, CEC Combustion Safety

Routine combustion equipment maintenance is required to ensure safe, reliable and efficient operations. This presentation will highlight some of the required maintenance and testing that is needed, along with the code requirements and minimum frequencies.

10 a.m.

Break

10:30 a.m.

TROUBLESHOOTING AND COMBUSTION SAFETY

Mark Kampe, CEC Combustion Safety

Safe and effective combustion system troubleshooting is essential for maximum equipment uptime and availability. This presentation will review common system and burner reliability issues, along with hazard recognition and safety precautions.

Noon

Lunch

1 p.m.

ENERGY EFFICIENCY AND ECONOMICS

Kurt Johnson, ArcelorMittal Global R&D

An overview of how to evaluate combustion system efficiency will be presented, including the use of software tools and other resources. Various methods to improve efficiency will be examined and compared using several case studies to illustrate viable approaches to identifying and justifying an improvement project. The session will include recuperation, regenerative systems, oxy-fuel applications and other heat recovery methods.

2 p.m.

APPLICATION OF CFD ON FURNACE SYSTEMS

Greg Kitko, GTK Flow Analysis

3 p.m.

Break

3:15 p.m.

INTRODUCTION TO E-SOLUTIONS

Brian Kelly, Hauck Manufacturing Co.

e-Solutions is a collection of programs and reference data to assist engineers, designers and operators in dealing with industrial combustion. This session will introduce the various programs and their practical application to everyday combustion and heat transfer problems. Examples will include basic combustion and heat transfer-type calculations, emissions conversions, and air and fuel piping calculations, among others.

5 p.m.

Conference Adjourn

