FNA 2020

Technical Education Sessions

SEPT 30 – PROCESSES & QUALITY
11:30 AM – 1:30 PM EST

TITLE: Single Piece Gas Quenching: A Solution to Distortion Failures in Hardening
PRESENTER: Don Marteeny - SECO/VACUUM Technologies, LLC

For decades, the batch vacuum furnace easily met the processing needs of industry. However, the importance of distortion control poses a new challenge to the batch furnace. A revolutionary new design centered around single piece processing has the potential to meet this and other demands of vacuum processing with ease.

TITLE: Auditee - Auditor Relations
PRESENTER: Doug Shuler– Pyro Consulting, LLC

Laying the foundation and building the relationship with external auditors. The success of external audits are greatly impacted by the relationship between the auditor and the auditee. This presentation will share, from the auditor's perspective, key characteristics of a good working relationship.

TITLE: New Pyrometry Changes AMS-2750F
PRESENTER: Andrew Bassett – Aerospace Testing & Pyrometry, Inc.

AMS-2750F is the latest Pyrometry Standard. Tune in to the major changes to the specification and what impact it will have to your Pyrometry requirements. AMS-2750F is recognized as the testing specification of thermal processing equipment for aerospace, medical, and nuclear industries.

TITLE: Effect of Pyrometry on Metallurgy
PRESENTER: Jason Schulze – Conrad Kacsik Instrument Systems

This presentation will explain how pyrometry may affect the microstructure of metals within a thermal process. The discussion will range from brazing to aluminum heat treating while stressing the importance of pyrometry for thermal processing equipment.

TITLE: Why CFC-Fixtures are a Must for Modern Heat Treaters
PRESENTER: Dr. Jorg Demmel - High Temperature Concept

Learn why Fixtures can revolutionize heat treatment. NASA®-developed material came into focus in the mid-1990's from an engineer in Germany. Then what happened? Through inspired pioneering, the material achieving the highest strength at temperatures greater 1,000 C was successfully introduced into heat treatment, and when compared to cast steel, specific strengths are 20x higher. Find out more!

TITLE: Thermal Management of Steel Annealing Furnaces
PRESENTER: Lenny Shaver – Advanced Energy

Thermal management during the steel manufacturing process is critical for optimizing the steel quality, energy efficiency, and productivity. A thermal imaging solution designed for the annealing furnace, where it is common to batch anneal high value parts, improves quality, provides trace-ability, improves efficiency, and increases throughput.

TITLE: The Importance and the Proper Way to Monitor Polymer Quenches
PRESENTER: Keisuke Kuroda - Idemitsu Lubricants America

The polymer quenches are used for induction hardening or soaking operation. The performances of polymer quenches are varied by the concentrations, so we should monitor their properties properly and periodically. Idemitsu Lubricants America Corporation suggests the proper way to monitor polymer quenches to maintain the performances.

TITLE: Keys to Managing and Controlling Distortion in Heat Treating
PRESENTER: Scott MacKenzie- Quaker Houghton

The many sources of distortion in heat treated parts will be discussed. Prior processing, including starting microstructure, hardenability, and effect of machining will all be discussed toward reducing residual stresses and distortion. Racking methods and heat treatment practice will also be discussed to reduce residual stress. Quenching methods, including the use of mar-tempering, will be illustrated.

TITLE: External Audit Best Practices
PRESENTER: Doug Shuler - Pyro Consulting, LLC

Learn and discuss the best practices before, during, and after 2nd and 3rd party audits.

SEPT 30 – OPERATIONS & PRODUCTIVITY
11:30 AM – 1:30 PM EST

TITLE: Reducing Furnace Operating Costs: IGBT/MFDC Technology Saves Energy
PRESENTER: David Pridmore – RoMan Manufacturing

This presentation will discuss the energy savings and other cost benefits for operation of furnaces through the integration of IGBT/MFDC technology with water-cooled transformers and rectifiers closely coupled to the heat source. A new way to improve power factor, reduce power demand, and eliminate expensive secondary cables and cable maintenance.

TITLE: Emissions Reductions that Matter: Advances in Combustion Technologies
PRESENTER: Brian Kelly - Honeywell Thermal Solutions

As we have seen in recent decades, the Heat Treating Industry desires to make combustion processes Eco-Friendly. This presentation demonstrates the giant strides made in clean air technologies. Engineering theory and case studies will be presented to provide the information needed to make responsible Eco-Friendly decisions in your plant.

TITLE: Vacuum Pumps to Cooling Blowers: How Ancillary Systems on Nitriding Equipment Can Impact the Bottom Line
PRESENTER: Mike Harrison - Gasbarre Thermal Processing Systems

Nitriding processes can be lengthy; while there are limited options to nitride faster, there are options to shorten other segments of the nitride cycle. This discussion will look at ancillary systems that can be added to a nitriding furnace and how the user can justify adding these to their furnace.

TITLE: On-site Gases Generation Eases Furnace Infrastructure for AM Operations
PRESENTER: David Wolff - Nel Hydrogen

Rapid adoption of metal additive manufacturing drives installation of 3D printing and sintering equipment into facilities lacking industrial gas infrastructure. Several gases can be made on-site, minimizing needed infrastructure and enabling faster facilitization. Will outline on-site generation of nitrogen and hydrogen to enable fastest possible startup of metal AM operations.

TITLE: Economics of Alloy Selection
PRESENTER: Marc Glasser – Rolled Alloys

There are many situations where the ideal alloy for a heat treating application costs significantly more than conventional alloys, which do not last long. This presentation will examine all cost benefit relationships including time to realize savings.

TITLE: Using Data Analytics to Improve Operational Efficiency and Customer Communications
PRESENTER: Doug Cogswell – Advizor Solutions

Learn how our clients have taken the data from their Shop Floor and ERP systems and put it into a form where teams now use it every day to make decisions that are improving operational performance, pricing, and customer communication.

TITLE: How a 3-Stage Methodology Saves Production Costs in Short-Time and Sustainability
PRESENTER: Dr. Jorg Demmel- Quattforce Consulting

How a 3-stage methodology saves production costs short-time and sustainability. As an Associate consultant at Fraunhofer Society I learned QFD as a complex, but successful development technic. During my time at Volkswagen I implemented a shopfloor PDCA-cycle which helped reduce waste up to 47% in 6 months. Let me introduce this strategy to you.

TITLE: COVID-19: An Update on Transmission, Control Methods, and Risk Communication
PRESENTER: Alex LeBeau, PhD, MPH, CIH – Exposure Assessment Consulting, LLC

The science around the SARS-CoV-2 virus and related COVID-19 disease is constantly being updated. This presentation will discuss the current science of disease transmission, practical ways of mitigating exposure in facilities, and ways to establish effective risk communication techniques so employees understand the exposure mitigation activity in the facility.

TITLE: Plant Cleanliness and Facility Risk Mitigation from Closure Due to COVID-19
PRESENTER: Alex LeBeau, PhD, MPH, CIH – Exposure Assessment Consulting, LLC

This presentation will cover ways of establishing a cleaning and disinfection program at facilities to prevent disease transmission via contaminated surfaces (e.g., COVID-19), methods that management can use to limit employee contact with those surfaces, and ways to assess a facility following closure to identify potential health hazards.

OCTOBER 1 – EMERGING TECHNOLOGIES
11:30 AM – 2:00 PM EST

TITLE: Will Additive Manufacturing Add or Take Away Heat Treating?
PRESENTER: Daniel H. Herring – The HERRING GROUP, Inc.

Planned preventative maintenance programs offer the opportunity to maximize profitability and improve your bottom line. This presentation will focus on how maintenance practices can maximize productivity while maintaining consistently high quality. Discussed will be the role maintenance programs play in achieving consistent and repeatable results: part-to-part, load-to-load, and furnace-to-furnace.

TITLE: Heat Treat Automation: What the Business Owner Needs to Know
PRESENTER: Alex Kominek – Surface Combustion, Inc.

Automation is a popular buzz word these days, but how do you know if it's right for your BIQ line? We'll compare the advantages of semi-automated batch, fully automated batch, and continuous furnace lines, focusing on productivity, flexibility, quality, safety, and staffing needs.

TITLE: Vacuum Furnaces Were Made for Additive Manufacturing
PRESENTER: Roger A. Jones - Solar Atmospheres

Additive Manufacturing and vacuum furnace processing go hand in glove in many applications. As the technology grows so does the acceptance of the modern day vacuum heat treating furnace. Materials processed and stories shared from actual R&D and production processing will be reviewed in this presentation.

TITLE: Nitriding and Ferritic Nitrocarburizing of Quenched and Tempered Martensitic Steels
PRESENTER: Richard D Sisson, Jr. and Mei Yang- Center for Heat Treating Excellence - Worcester Polytechnic Institute

A predictive software model is being developed at CHTE to predict the nitriding and ferritic nitrocarburizing (FNC) performance of quenched and tempered martensitic steels in terms of compound layer phase composition and thickness, as well as case depth. The results are verified by industrial experiments.

TITLE: Augmented Reality (AR) in Heat Treatment
PRESENTER: Peter Sherwin – Eurotherm by Schneider Electric

Expertise is retiring out of the Heat Treat Industry, and the competition for talented workers is increasing. Budgets and operations are under strain. Augmented Reality (AR) quickly captures expertise and provides information in a format that is very comfortable to the newer, younger, digitally native worker.

TITLE: Automation and Robotics to Improve Process Stability and Repeatability in Heat Treatment
PRESENTER: Vincent Esteve - ECM USA, Inc.

How can you use robotics and automation in your heat treat process? Let's review the latest developments to improve the tact-time of your furnace(s) and guarantee process stability by: automatically loading/unloading a variety of parts on fixtures, checking mechanical/dimensional property before/after heat treatment, automatically uploading recipes, and generating full reports.

TITLE: Post Processing of Additive Manufactured AISI 8620 Steel
PRESENTER: Richard D Sisson, Jr and Mei Yang - Center for Heat Treating Excellence - Worcester Polytechnic Institute

Additively manufactured (AM) parts have been formed from AISI 8620 powder by selective laser melting (SLM). The microstructure and mechanical properties of these AM parts are characterized along with AISI 8620 wrought parts to compare the carburization heat treating performance as well as normalized properties.

TITLE: Advanced Digital Quality Control of Heat Treatment Processes
PRESENTER: Dr. Volker Heuer - ALD Vacuum Technologies North America, Inc.

The digital integration of heat treatment into the process chain allows for new perspectives for efficient industrial production. The buzzword "Industry 4.0" summarizes new digital approaches to make the process chain more flexible, more efficient, and more transparent. Besides the digital integration of heat treatment with the process steps of soft- and hard-machining („smart factory"), predictive maintenance („condition monitoring") and improved transparency of manufacturing („traceability"), the topic of „Digital Quality Control" is shifting more and more into focus. This "Digital Quality Control" can be an important step towards a better defect prevention and thus more robust process chains.

OCT 1 – FURNACE EQUIPMENT & CONTROLS
11:30 AM – 2:00 PM EST

TITLE: New Heat Treatment Systems for Light Weighting Automotive Component Manufacturing
PRESENTER: Tim Donofrio - Can-Eng Furnaces International, Ltd.

This automotive and mobility market is in a state of flux which puts greater demands on the thermal processing and equipment providers. This presentation will outline new demands that the automotive and mobility equipment manufactures currently face. We will review the following: resultant new processes used to manufacture such components and the challenges associated with thermal processing, and the new heat treatment systems made available to commercial and captive processors and how these systems address the challenges which manufactures face in developing and processing new light weight automotive components.

TITLE:
PRESENTER: Bob Fincken- Super Systems, Inc.

With the onset of modern controls and software staying in touch and organizing systems for process control is an easy process. Not only will a system tell you what's in the furnace, but will also offer information regarding why the furnace isn't in use. Tablets and smart phones = information anywhere.

TITLE: The Evolution of Box Furnaces
PRESENTER: Bill St Thomas – Lindberg/Mph

Provide an overview of how the Box Furnace is used for Heat Treating. Illustrate the key features for: different temperature ranges and applications, gas fired and electrically heated, atmosphere usage, loading, door opening, special features, and controls system of the past 70 years.

TITLE: How to Improve the Performance and Longevity of Induction Tooling Components
PRESENTER: David Lynch – Induction Tooling, Inc.

This presentation will discuss the most common types of induction tooling failures and the best practices to improve the performance and longevity. We will discuss the often harsh environment, tooling design, water cooling, quenching, the induction machine, and how each one of these can affect performance and longevity.

TITLE: Making a Case for Continuous Furnaces
PRESENTER: Fred Dimock - BTU International

A continuous furnace is ideal for processes requiring high production volumes, process consistency, and precision control. This over view discusses the things to consider when changing from batch to continuous firing and describes many of the options available on continuous furnaces.

TITLE: Industry 4.0 and IoT Applied to Nitriding, Nitrocarburizing, and Vacuum Heat Treating Systems
PRESENTER: Jack Kalukci - Nitrex Metal, Inc.

This session will cover all of the specifics from, “Industry 4.0 Case Study: from Planning to Implementation as Applied to Nitriding, Nitrocarburizing, and Vacuum Heat Treating Systems.”

OCT 2 – FURNACE MAINTENANCE
11:30 AM – 1:30 PM EST

TITLE: Getting it Done Right: Manage Equipment Maintenance and Alarms with Integrated Software Solutions
PRESENTER: Jenna Alder – AFC-Holcroft

Learn strategies to improve and better monitor maintenance activities and alarms with the assistance of integrated software solutions for heat treat equipment lines. This session will address major issues interfering with the ability to manage maintenance tasks and how equipment diagnostics software keeps equipment and employees running at their best.

TITLE: Burner Control Schemes for Gas Fired Heat Treat Furnaces
PRESENTER: Scott Fogle – SCC, Inc.

Review the different combustion controls options for your burner. Need to meet a tight temperature uniformity? Do you have a tight budget for your furnace? Which control scheme is the most efficient? What technology is available to meet your combustion controls needs?

TITLE: The Future of Gas Heating in Industrial Furnaces
PRESENTER: Steven R. Mickey – WS Thermal Process Technology, Inc.

This presentation will cover the latest burner technology and will compare it with conventional equipment. It will discuss the latest efforts to increase efficiency, lower NOx emissions, and implement the usage of green fuels. Finally, it will discuss the economics of investing in this next generation of industrial burners.

TITLE: Vacuum Furnace Best Practices for Greater Reliability and Efficiency
PRESENTER: Matt Clinite - Ipsen USA

This presentation will go over five basic steps you can follow to keep your vacuum furnace running at peak performance for as long as possible. Learn how to identify and correct problems, set up a regular maintenance plan, and improve the reliability, efficiency, and performance of your vacuum furnace.

TITLE: How Predictive Maintenance will Increase Your Profit Margins
PRESENTER: Daniel H. Herring – The HERRING GROUP, Inc.

Many say we are on the cusp of the next industrial revolution, namely the decentralization of manufacturing heralded by the growth of additive manufacturing (AM) technology. If so, how will this effect manufacturing as we know it, and more importantly, how can commercial heat treaters satisfy both types of manufacturers.

TITLE: Efficiency Gains And Reductions In Furnace Maintenance Through The Use Of High Temperature Ceramic Coating Technology
PRESENTER: Greg Odenthal - ITC - International Technical Ceramics

Ceramic coatings for refractories are being used successfully in furnace applications to reduce energy consumption, improve temperature uniformity, reduce maintenance, and increase production all while improving product quality. Depending on the fuel being used, furnace operation, and furnace configuration, these specialized coatings can provide energy savings up to 25%.