

THE DUCTILE IRON SOCIETY

DIPS

DUCTILE IRON PRODUCTION SEMINAR

2024

SCHEDULE OF EVENTS

MONDAY, JANUARY 29

12:00 PM **Registration Opens**

12:30 PM **Basic Metallurgy & Mechanical Properties** *with Kevin Pilon*

Brief history of ductile iron, and what preceded it, malleable iron. What makes ductile iron unique, and how does it compare and differ from other iron, gray, white, and malleable iron. Review various microstructures, nodularity, nodule count, perlite, ferrite, and carbides, as well as mechanical properties, UTS, yield, and elongation.

1:30 PM **Production Refractories** *with Tim Hoyt*

This session will discuss refractory types, technologies and practices that are used to increase performance, extend lining life, and could reduce valuable downtime. Best refractory practices, along with melting, holding and transfer applications within the melt shop will be discussed.

2:15 PM **Break**

2:30 PM **Melting Practices & Charge Materials** *with Kevin Pilon*

Overview of different melting methods, advantages and disadvantages. Review a variety of charge materials, pros and cons of each, what to watch for and what to avoid. Determining a proper charge, how to calculate final chemistry based on recoveries/loses.

3:45 PM **Break**

4:00 PM **Treatment & Inoculation Methods** *with Jeremy McLimans*

All quality Ductile Iron is produced using these two important steps. We will explore the methods, materials, and controls of Treatment and Inoculation. This segment will cover: What treatment is and why we do it, the role of Magnesium in the treatment process, treatment practices and processes, treatment alloy design, the basics of inoculation mechanisms, inoculant/treatment alloy production methods, inoculant options in the industry, inoculant resin, and inoculant methods and practices.

5:00 PM **Adjourn**

6:30 PM **Dinner at Tre Mori**



TUESDAY, JANUARY 30

8:00 AM **DI Gating & Riserling Basics** *with Josh Gammariello*

Attendees will be introduced to the core principles governing the design and implementation of gating and risering systems, emphasizing their critical role in the production of high-quality ductile iron castings. From understanding the intricacies of metal flow to the mitigation of common defects, this presentation will explore practical guidelines, leverage of simulation tools, formulaic methodologies, and other best practices aimed at enhancing efficiency and minimizing casting issues in ductile iron foundries.

10:00 AM **Break**

10:15 AM **Metal Filtration** *with Jason Lachance*

You will learn about the sources of inclusion material that are detrimental to finished castings, how filters work to remove those inclusions, the advantages and disadvantages of the various types of filters and strainers available, and other benefits of using filters in your gating system.

10:45 AM **Heat Treatment of Ductile Iron** *with Jeremy Lipshaw*

After casting ductile iron, its microstructure and associated mechanical properties are not locked in. With heat treatment, the microstructure of ductile iron can be transformed to satisfy a large variety of engineering requirements that may have been previously unobtainable through casting alone. This presentation provides an overview of the common heat treatments for ductile iron.

12:00 PM **Lunch**

12:45 PM **Austempered Ductile Iron** *with Jeremy Lipshaw*

In classical Materials Science, one cannot increase the strength of a material without reducing its ductility. Austempered ductile iron, a heat-treated variation of ductile iron, breaks this trade-off by effectively doubling the strength of the as-cast product while retaining its ductility. This presentation introduces austempered ductile iron and discusses how it is made and its expected properties.

1:30 PM **QC Procedures** *with Brad Steinkamp*

What defines quality of a ductile iron casting? What variables must be controlled to ensure quality of a ductile iron casting? How do we control these variables to ensure quality and consistency of our products? Once our castings are produced, how do we ensure the desired quality has been achieved?

2:15 PM **Casting Defects** *with Jay Morrison*

3:00 PM **Adjourn**

WEDNESDAY, JANUARY 31

9:00 AM - 12:00 PM **Research Committee Meeting**

ATTENDEE LIST

Aalberts Surface Technologies Jeremy Lipshaw
Allied Mineral Products, LLC Tim Hoyt
American Colloid Company Kiel Krause
ASK Chemicals Sean Harmon
Astech, Inc Chris Sweatland
BCI Solutions Travis Hepfner
Betz Industries Tedd Sheets
Buck Company Anna Richter
Cadillac Casting Inc. Zach Grogan
Cadillac Casting Inc. Eric Phillips
Cadillac Casting Inc. Mary Schafer
Cadillac Casting Inc Brian Herndon
Carpenter Brothers, Inc. Drew Clawson
Carpenter Brothers, Inc. Jay Morrison
Carpenter Brothers, Inc. Kevin Pilon
Carpenter Brothers, Inc. William Johnson
Caterpillar Trevor Larson
Caterpillar Richard Messer
Caterpillar Ibrahim Khouri
Charter Dura Bar Enrique Hernandez
Charter Dura-Bar Brad Steinkamp
Ductile Iron Society Michelle Ring
Dotson Company, Inc. Josiah Dahlgren
Dotson Company, Inc. Kylee Rothenburger
Dotson Company, Inc. Vernon Willson
Ferroloy Adam Van Gieson
Ferroloy Daniel Willis
Foseco Josh Gammariello
Georgia State University Evan Carter
Georgia State University Noah Brack

Green Packaging, Inc. Wayne Siefert
Hickman, Williams & Co. Jeremy McLimans
Hickman, Williams & Co. Tim McCarthy
Hickman, Williams & Co. Maxwell Ritchie
ID Castings Doug Williams
Lethbridge Iron Works Cole Smith
Lethbridge Iron Works Chris Miechkota
Midvale Manuel Soto
Miller and Company Peter Kim
Neenah Foundry Caitlyn Dickson
Purdue University Donovan Stumpf
Rochester Metals Brady Manning
Rochester Metals Bobbie DeFranco
Rochester Metals Joe Kindig
Rochester Metals Mike Stull
Rochester Metals Tyler Garrard
Rochester Metals Will Nestel
Rochester Metals Zach Smith
SELEE Corporation Jason Lachance
SELEE Corporation Michael Feldmeier
Seneca Foundry, Inc. James Johnson
St Mary's Foundry Jake Krites
St Mary's Foundry Mike Ginter
Washington Mills Hennepin Adam Epperson
Washington Mills Hennepin Kevin Birdwell

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