



# 2024 FALL CONFERENCE

October 14 - 17  
St. Cloud, MN

**The Park Event Center**  
500 Division Street  
Waite Park, MN 56387

Thank you for joining the Ductile Iron Society and your industry peers for technical sessions, networking opportunities, and a tour of Grede's St. Cloud foundry.

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## Wi-Fi Connection Information

Password:  
**wpcn**  
(all lowercase)

# TUESDAY SCHEDULE OF EVENTS

*(Please note, attendees are responsible for their own breakfast and lunch.)*

TIMES ARE CDT

TUESDAY, OCTOBER 15

|                           |  |
|---------------------------|--|
| <b>9:00 AM – 12:00 PM</b> | <b>Research Committee Meeting</b><br>Grand Canyon Park Room  |
| <b>1:00 PM – 3:00 PM</b>  | <b>Marketing Committee Meeting</b><br>Rushmore Park Room<br><br><b>Membership Committee Meeting</b><br>Central Park Room<br><br><b>Program &amp; Publications Committee Meeting</b><br>Badlands Park Room<br><br><b>University Relations Committee Meeting</b><br>Grand Canyon Park Room |
| <b>3:15 PM – 5:15 PM</b>  | <b>Board Meeting</b><br>Rushmore Park Room   |
| <b>3:30 PM – 5:00 PM</b>  | <b>Metalcasting Forum</b><br>Grand Canyon Park Room  |
| <b>6:00 PM – 8:00 PM</b>  | <b>Reception</b><br><i>Drinks &amp; Hors d'oeuvres</i><br>Grand Canyon Park Room   |

# WEDNESDAY SCHEDULE OF EVENTS

*(Please note, attendees are responsible for their own breakfast.)*

**All Technical Sessions will be held in Grand Canyon Park.**

TIMES ARE CDT

WEDNESDAY, OCTOBER 16

|                           |  |
|---------------------------|--|
| <b>7:00 AM</b>            | <b>Registration Desk Opens</b><br><i>Grab your badge and drink tickets!</i>  |
| <b>8:00 AM - 9:15 AM</b>  | <b>THERMAL ANALYSIS PANEL</b>  |
|                           | Thermal Analysis and Developments<br>with David Gilson, Sintercast<br><br>Melt Quality using Thermal Analysis<br>with Leonard Winardi, Charlotte Pipe<br><br>Optimizing Production via Thermal Analysis<br>with Kevin Pilon, Carpenter Bros, Inc.  |
| <b>9:15 AM - 9:30 AM</b>  | <b>Break</b>   |
| <b>9:30 AM - 11:45 AM</b> | <b>AROUND THE FOUNDRY</b>  |
|                           | Case Study: Non Destructive Testing<br>with Jason Bush, Waupaca Foundry, Inc.<br><br>Case Study: Blow Defect in Exhaust Manifold<br>with Mary Schafer, Cadillac Casting<br><br>Enhancing Casting Finishing: A Practical Application<br>of A.I. in Grinding and Inspection<br>with Claude Massé, Poitras Foundry<br><br>Research Final Report: Ceramic Sands<br>with Scott Giese, University of Northern Iowa |



**All Technical Sessions will be held in Grand Canyon Park.**

TIMES ARE CDT

**WEDNESDAY, OCTOBER 16**

|                           |   |
|---------------------------|---|
| <b>11:45 AM – 1:00 PM</b> | <b>Lunch</b><br>Grand Canyon Park Room  |
| <b>1:00 PM – 3:00 PM</b>  | <b>CLAY ACTIVATION PANEL</b>  |
|                           | <p>Bentonite Clay Structure and Activation<br/>with Michelle Ring, Ductile Iron Society</p> <p>Causticized Lignite Effects on Clay Activation<br/>with Al Jacobson, American Colloid Co</p> <p>Utilizing a Water Surfactant to Improve Clay Activation<br/>with Matt Hall, REFCOTEC</p> <p>How Advanced Oxidation Effects Clay Activation<br/>with Dr. David Paulsen, Furness Newburge</p> <p>Mechanical Reclamation of Bentonite Clay from<br/>Baghouse Dust<br/>with Mark Pine, Sinto</p> |
| <b>3:00 PM – 3:15 PM</b>  | <b>Break</b>  |



**All Technical Sessions will be held in Grand Canyon Park.**

**TIMES ARE CDT**

**WEDNESDAY, OCTOBER 16**

|                          |   |
|--------------------------|---|
| <b>3:15 PM – 5:00 PM</b> | <b>TREATMENT PANEL</b>  |
|                          | <p>Ductile Iron Treatment Methods Overview<br/>and the MgFeSi Process<br/>with Rob Logan, Elkem</p> <p>Case Study: Fischer Converter<br/>with Robb Schmidt, Grede St. Cloud</p> <p>Case Study: Wire Treatment<br/>with William Gammill, John Deere</p> <p>Case Study: Converting a Cupola via Wire<br/>with Travis Hepfner, BCI Solutions</p> <p>Wrap Up: Treatment Simulations<br/>with Dan Coyle, Magma</p> |
| <b>6:00 PM – 7:00 PM</b> | <b>Reception</b><br>Grand Canyon Park Room  |
| <b>7:00 PM – 9:00 PM</b> | <b>Banquet Dinner</b><br>Grand Canyon Park Room   |



# THURSDAY FOUNDRY TOUR

Sign up for your tour group time slot  
at the registration desk.



THURSDAY, OCTOBER 17 (TIMES ARE CDT)

**10 people every 15 minutes**

8:00 AM, 8:15AM, 8:30AM, 8:45 AM

9:00 AM, 9:15 AM, 9:30 AM, 9:45 AM, 10:00 AM



## BYO PPE

**Please bring closed-toe shoes, pants down to ankle. Personal hard hat and side-shield glasses are recommended;** If you are unable to pack side shield glasses or a hard hat, Grede can provide these for the tour.

## ABOUT GREDE

As a historic American foundry, Grede is one of the longest-standing enterprises in producing highly engineered ductile, gray, and specialty iron castings.

Grede has provided more than 100 years of reliable and innovative iron castings to the industrial, commercial truck, and automotive markets that have built and transformed the world as we know it. Today, they lead the industry with 10 facilities across America and 3,000 team members, each an artist of their trade.

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# TECHNICAL SESSION DETAILS

## THERMAL ANALYSIS PANEL

### Thermal Analysis and Developments

with David Gilson, Sintercast

The first presentation will focus on the history of thermal analysis in cast iron production.

### Melt Quality using Thermal Analysis

with Leonard Winardi, Charlotte Pipe

Consistent base metal quality is important to obtain mechanical properties and to prevent defects such as shrinkage, machinability issues, and cold/short pour. We can predict these properties from the cooling curve measured during thermal analysis. Overviews of thermal analysis measurements and its important features will be presented. Correlations between these features and properties as well as defects will also be shown.

### Optimizing Production via Thermal Analysis

with Kevin Pilon Carpenter Bros, Inc.

This presentation will review common mistakes in data collection and emphasize how to avoid them for more accurate results. It will review how to pour a test correctly, comparing different pouring cup options. The presentation will also highlight the value of thermal analysis in driving continuous improvement.



# AROUND THE FOUNDRY

## Case Study: Non Destructive Testing

with Jason Bush, Waupaca Foundry, Inc.

The presentation will focus on how Waupaca Foundry has applied the acoustic resonant test method to inspect castings. This has led to an increased understanding of foundry process variation and how it may affect a casting's acoustic resonance. The application of the method has focused on correlating the microstructure or physical defects to the casting's acoustic resonance. By doing so, process improvements can be implemented to produce a more consistent casting for the end user.

## Case Study: Blow Defect in Exhaust Manifold

with Mary Schafer, Cadillac

Blow defects have consistently appeared on exhaust manifolds at CCI. To minimize scrap, they used various methods of data analysis to figure out the main factors attributing to the defect. Mary will share how they ran a design of experiments, implemented changes, and revisited the solutions when different issues arose.

## Enhancing Casting Finishing: A Practical Application of A.I. in Grinding and Inspection

with Claude Massé, Poitras Foundry

In this case study, we'll explore our practical approach to integrating A.I. technology into the finishing room, specifically focusing on the grinding process in an automotive ductile iron foundry. We'll discuss how we've leveraged A.I. to enhance precision, reduce defects, and streamline inspection, ultimately improving efficiency and product quality. This presentation will provide insights into the challenges we faced, the solutions implemented, and the measurable benefits realized, offering a real-world example of how A.I. can be effectively applied in a traditional manufacturing environment.

## Research Final Report: Ceramic Sands

with Scott Giese, University of Northern Iowa

Due to the OSHA Silica Rule under enforcement in the foundry industry today, many iron foundries have or are considering changing from silica sand to a ceramic aggregate to alleviate the issue. This research project was created to understand the impact of the change in the microstructure and associated mechanical properties on cast iron that might accompany the use of these ceramic molding media. Funded by AFS and DIS, a research project was performed to assess the mechanical properties of class 40 gray iron and 80-55-06 ductile iron castings using an experimental casting matrix of the three aggregates with two sand to metal ratios. Results indicated that ceramic aggregates have a noticeable influence on mechanical properties of gray and ductile iron but sand to metal ratio has an influence on the degree of properties variation.

# CLAY ACTIVATION PANEL

## Bentonite Clay Structure and Activation

with Michelle Ring, Ductile Iron Society

The presentation covers the fundamentals of bentonite clay, including its composition and structure. It explains the concept of clay activation and the role of water in clay activation. The importance in affecting clay selection and water addition is discussed.

## Causticized Lignite effects on Clay Activation

with Al Jacobson, American Colloid Co

Causticized Lignite - What is it? Mining, grading, and processing of causticized lignite. How does it work to improve green sand performance: 1. As a clay modifier and 2. As a clay dispersant. Presentation includes a case study detailing improved sand properties and reduced bond usage resulting from use of causticized lignite. Calculating addition rates based on level of sodium bentonite or percent of carbon addition will also be discussed.

## Utilizing a Water Surfactant to Improve Clay:

Activation with Matt Hall, REFCOTEC

This presentation will discuss surfactant uses and benefits on bentonite clays in a green sand setting. We will discuss surfactant characteristics and effects of use relative to time, quality, and desired outcomes.

## How Advanced Oxidation Effects Clay Activation

with Dr. David Paulsen, Furness Newburge

Advanced oxidation processes commonly are applied for air and water treatment and environment remediation. In metalcasting, advanced oxidation treatment of water used in green sand cooling and mulling in production has been employed for the past 30 years. This presentation will discuss the advanced oxidation treatment process, its application to treat water used in green sand processing, and its effects on clay activation. Specifically, how advanced oxidation reactions clean particle surfaces and pores, act as a wetting agent, and enable the introduction of recovered clay as a slurry in green sand cooling and mulling.

## Mechanical Reclamation of Bentonite Clay from Baghouse Dust

with Mark Pine, Sinto

This session discusses the improvements made to sand system properties through the addition of a liquid clay product at the muller, as well as other benefits to the foundry, including reduced transportation costs, reduced disposal costs, reduced energy costs, and reduced emissions.



# TREATMENT PANEL

## Ductile Iron Treatment Methods Overview and the MgFeSi Process

with Rob Logan, Elkem

This presentation provides a quick overview of DI treatment, and focus on the traditional MgFeSi Ladle as well as the In-mold process.

## Case Study: Fischer Converter

with Robb Schmidt, Grede St. Cloud

Prior to seeing the process at the Grede tour, Robb will review the Fischer conversion process for ductile iron. He will explore the strengths and weakness of the process as it pertains to nucleation. The presentation will review methods of inoculation and types of materials used. It will review methods they have used to trial new inoculant materials.

## Case Study: Wire Treatment

with William Gammill, John Deere

Explanation of wire treatment and its process.

## Case Study: Converting a Cupola via Wire

with Travis Hepfner, BCI Solutions

Details the process that BCI is going through to evaluate the conversion of gray base iron into ductile iron without the installation of a continuous desulfurization process. Current Ductile production methods using electric coreless induction furnaces have a significant demand charge cost to melt during the day. This cost makes it prohibitive to using them during on-peak hours to produce ductile iron. BCI began experimenting with Magnesium cored wire to both desulfurize and treat the iron. These efforts that have met success, however, may yet be cost prohibitive for larger scale production. We are now researching other ways to reduce sulfur in our iron including cupola charge adjustments and batch desulfurizing methods.

## Wrap Up: Treatment Simulations

with Dan Coyle, MAGMA Foundry Technologies, Inc.

Simulating iron mixing with inoculation and analyzing the costs and effectiveness of several different methods. Dan will focus on some of the different methods being covered by other presenters.

# ATTENDEE LIST



**Aalberts surface technologies** Joe Meurer

**AFS National** Travis Frush

**Allied Mineral Products, LLC** Tim Hoyt

**American Colloid Company** Kiel Krause

**Ariel Corporation** Matt Sharifi

**Badger Mining** Pete Gravunder

**BCI Solutions, Inc.** Travis Hepfner 

**Betz Industries** Trevor Beach

**Buck Company, Inc.** Anna Richter


**Cadillac Casting, Inc.** Chris Kelly

**Cadillac Casting, Inc.** Mary Schafer 

**Carpenter Brothers, Inc.** Chris Forster

**Carpenter Brothers, Inc.** Jay Morrison

**Carpenter Brothers, Inc.** Joe Kranz

**Carpenter Brothers, Inc.** Kevin L. Pilon 

**Charlotte Pipe and Foundry** Leonard Winardi 

**Charter Dura-Bar** Christopher Heczko

**Charter Dura-Bar - Arrowcast** James Olson

**Consolidated Mill Supply, Inc.** David Petry

**Cummins-Meritor** Steve Thelen

**Dotson Company, Inc.** Ashley Folden-Ecker

**Ductile Iron Society** Michelle Ring 

**Elkem** David Kesse

**Elkem** Mike Riabov

**Elkem** Rob Logan 

**Eric Nelson Consulting, LLC** Eric Nelson

**Ferroglobe** Andrew Dickey

**Furness-Newburge, Inc.** Dr. Paul David Paulsen 

**Great Lakes Castings** Keegan Lawler 

**Grede Foundries** Shawn Cefalu

**Grede - Liberty** Nicholas Dachelet

**Grede - St. Cloud** Brian Johnson

**Grede - St. Cloud** Jason Wahl

**Grede - St. Cloud** Michael Parker

**Grede - St. Cloud** Mike Pierce

**Grede - St. Cloud** Tyson Remy

**Grede - St. Cloud** Robb Schmidt 

**Green Packaging, Inc.** Wayne Siefert

**HA International, LLC** Svetlana Dodik-Pelja

**Hickman, Williams & Company** Brian Johnson

**Hickman, Williams & Company** Maxwell Ritchie

**Inductotherm Corporation** Mike Looby

**Inductotherm Corporation** Patrick O'Connor

**John Deere** Richard Lopez

**John Deere** William Gammill 

**Kent Foundry** Anthony Price

**Kent Foundry** Jerald Johnson

**Larpen Metallurgical Service** Mike Mutton

**Larpen Metallurgical Service** Sean Marek

**Lawton Standard** Lauren Innis 

**Lethbridge Iron Works Co., Ltd.** Timofey Zateyev

**MAGMA Foundry Technologies, Inc.** Dan Coyle 

**Metal Technologies, Inc. - Auburn** Kramer Pursell

**Metal Technologies, Inc. - Ravenna** Lenny Basaj

**Midvale Industries** Tim Gilbreath

**Miller and Company** Frederick Fudge

**Miller and Company** Gary McComas

**Minerals Technologies / American Colloid**  
Al Jacobson 

**Minéraux Mart Inc.** Martin Mandeville 

**Minéraux Mart Inc.** Steve Larose 

**Neenah Foundry Company** Epifani Keenan

**Oshkosh Corporation** Vladimir Vega-Valer

**Poitras Foundry Ltd.** Claude Massé 

**Poitras Foundry Ltd.** Nic Stephanian

**Primetrade, Inc.** Bobby Stone

**Primetrade, Inc.** Brandon Kacko

**Productora de Hierro Maleable, S.A. De C.V.**  
Gabriel Trujillo Martinez

**Profound Alloys** Luke Dix

**Progressive Foundry** Josh Magill

**Progressive Foundry** Trent Fellom

**REFCOTEC** Daniel Weaver

**REFCOTEC** Matthew Hall 

**Rochester Metal Products Corp.** Craig Sederholm

**Rochester Metal Products Corp.** Reed Ellis

**Romac Industries** Dave Aamold 

**Romac Industries** Tanja Parviainen 

**Saint Gobain** Morgan Kent

**SELEE Corporation** Michael Feldmeier

**Seneca Foundry, Inc.** James Johnson

**SinterCast, Inc.** David Gilson 

**Sinto** Mark Pine 

**St. Marys Foundry** Karl Warsinski

**TEAM, Inc.** Clair Stollfus

**TEAM, Inc.** Sean Dresden

**The Nugent Sand Company, Inc.** Anton Colon

**The Nugent Sand Company, Inc.** Dorthy Havlin

**The Nugent Sand Company, Inc.** Leslie Dahlke

**The Quality Castings Company** Steve Yonto

**TMS International** Annie Martin

**TMS International** Patrick Neenan

**University of Northern Iowa** Andrew James

**University of Northern Iowa** Scott Giese 

**Washington Mills Hennepin, Inc.** Chris DeRosa

**Washington Mills Hennepin, Inc.** Kevin Birdwell

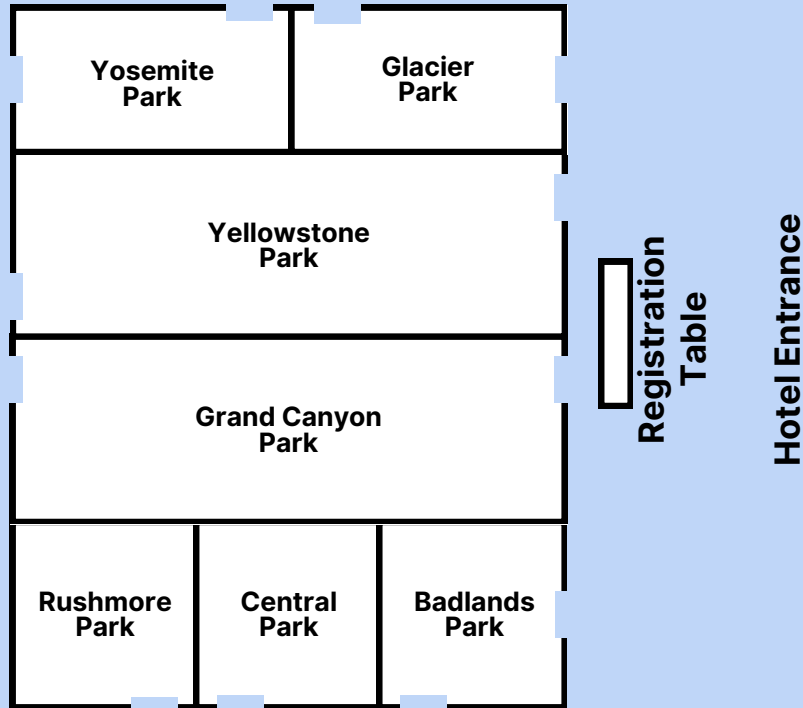
**Waupaca Foundry, Inc.** Jason Bush 

**Waupaca Foundry, Inc. - Marinette** Kassia Prystalski

**Waupaca Foundry, Inc. - Marinette** Samantha Proft

**Thank you to all our attendees!**

# CONFERENCE MAP



## SAVE THE DATES

### 2025 DUCTILE IRON PRODUCTION SEMINAR



**JANUARY 28 - 29**

Allied Mineral  
2700 Scioto Parkway  
Columbus, OH

**Low Cost to Foundry Members!**

### 2025 DIS SPRING CONFERENCE



**JUNE**

Waupaca, Tell City

# NOTES

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# THANK YOU SPONSORS



Want to be a sponsor at the Ductile Iron Production Seminar?

