

# **TMS** ALUMINUM **CAST SHOP** SCIENCE AND TECHNOLOGY

**May 10 – 15, 2015**

Tropicana Executive Conference Center  
Evansville, Indiana, USA

**Leading Experts Instruct How  
to Improve Casting Quality  
and Minimize Cost**

## **COURSE PREVIEW**

**Registration Deadline: April 10, 2015**

**Sponsored by:**

# **TMS**

The Minerals, Metals & Materials Society

the TMS Aluminum Committee  
and the Light Metals Division.

[www.tms.org/castshop15/ab](http://www.tms.org/castshop15/ab)

## REGISTER NOW!

**Learn from Experts in the Field How to Achieve Safe, Profitable Cast Shop Operations.**

The latest principles and operating practices for direct chill casting, remelt ingot casting, melt treatment, furnace practices, melt loss minimization, melting and alloying will be covered.

**Cast Shop 15** is designed for cast shop senior operations and technical personnel. Suppliers of cast shop equipment will also benefit from attending.

## COURSE SCHEDULE OVERVIEW

### Monday: Liquid into products safely

7:30–8:00	Registration
8:00–8:15	Welcome and Introduction
8:15–8:45	Cast shop safety, including molten metal hazards— <i>Grandfield</i>
8:45–9:45	Customers' products: Applications, alloys, formats, and downstream processes— <i>Grandfield</i>
9:45–10:00	Break
10:00–11:30	Cast shop economics— <i>Grandfield</i>
11:30–12:00	Metal supply - Primary Smelter— <i>Grandfield</i>
12:00–13:00	Lunch
13:00–15:00	Metal supply - Secondary: Furnace and refractory technology— <i>Peterson</i>
15:00–15:15	Break
15:15–16:15	Dross generation and processing— <i>Peterson</i>
16:15–17:00	Group work: Improvement case studies

### Tuesday: Preparing and Solidifying the Liquid

8:00–8:30	Trace elements and impurities: Sources and Effects— <i>Grandfield</i>
8:30–9:15	Furnace fluxing and alloying— <i>Grandfield</i>
9:15–9:45	Inclusion sources and measurement— <i>Grandfield</i>
9:45–10:00	Break
10:00–11:00	Inclusion Removal— <i>Grandfield</i>
11:00–12:00	Degassing— <i>Peterson</i>
12:00–13:00	Lunch

13:00–14:00	Al solidification fundamentals— <i>Schumacher</i>
14:00–15:00	Grain refinement theory— <i>Schumacher</i>
15:00–15:15	Break
15:15–15:45	Grain refinement practice— <i>Grandfield</i>
15:45–17:00	DC casting heat flow— <i>Grandfield</i>

### Wednesday: DC casting

8:00–9:00	Macrosegregation in DC casting— <i>Eskin</i>
9:00–9:45	Billet casting mold technology— <i>Grandfield</i>
9:45–10:00	Break
10:00–11:00	Hot tearing defects— <i>Eskin</i>
11:00–12:00	DC surface defects— <i>Grandfield</i>
12:00–13:00	Lunch
13:00	Plant tour

### Thursday: More DC Casting

8:00–9:00	Water cooling and water Systems— <i>Grandfield</i>
9:00–9:45	Rolling slab mold technology— <i>Grandfield</i>
9:45–10:00	Break
10:00–11:00	Slab casting - Shape control— <i>Grandfield</i>
11:00–12:00	Slab cracking defects— <i>Eskin</i>
12:00–13:00	Lunch
13:00–14:00	Q&A: What's my defect?
14:00–15:00	DC casting productivity— <i>Grandfield</i>
15:00–15:15	Break
15:15–16:00	Casting engineering and maintenance— <i>Grandfield</i>
16:00–17:00	DC casting variants - HDC, EMC, etc.— <i>Grandfield</i>
18:00–21:00	Course dinner

### Friday: Remelt Ingot Casting & Homogenization

8:00–9:45	Sow and chain conveyor ingot casting— <i>Grandfield</i>
9:45–10:00	Break
10:00–11:00	Homogenization: Principles, practice, problems, and productivity— <i>Grandfield</i>
11:00–12:00	Q&A: Putting it all together: Safe and profitable casting
12:00–13:00	Lunch

## ABOUT THE INSTRUCTORS



**John Grandfield** is director of Grandfield Technology Pty Ltd., (a consulting and technology firm) and Adjunct Professor at Swinburne University of Technology in the High Temperature Processing Group. He has a Bachelor of Applied Science in metallurgy (RMIT University), an M.Sc. in mathematical modelling (Monash University) and a Ph.D. in materials science (University of Queensland). He is also Chair of the TMS Aluminum Committee and editor of *Light Metals 2014*.



**Ray D. Peterson** is Technology Director for The Recycling Division of Aleris International. Peterson received his Ph.D. in metallurgy from the University of Utah in 1984. He has served in many areas of TMS, including as Chair of the Aluminum Committee, Light Metals Division Chair, and President of the Society (2009).



**Peter Schumacher** obtained his Diplom Ingenieur in mechanical engineering at the University of Braunschweig (Germany) and a Ph.D. at the Department of Metallurgy and Materials Science at the University of Cambridge (UK). Since 2002, Schumacher has been managing director of the Austrian Foundry Research Institute (ÖGI) and holds the Chair of Casting Research at the Montanuniversität Leoben, Austria.



**Dmitry G. Eskin** received his Engineering and Ph.D. degrees from Moscow Institute of Steel and Alloys (Technical University, Russia) in 1985 and 1988, respectively. After working in academia in Russia and the Netherlands, he joined Brunel University (UK) in 2011 as a professor. Eskin has been a member of TMS since 2000 and is a regular speaker at TMS annual meetings.

## SPECIAL EVENTS

**Cast Shop 15 registration** will open on Sunday, May 10 at 6 p.m. Lectures will begin daily at 8 a.m. The course will conclude on Friday, May 15 at 1 p.m.

The following events and activities are included with course registration:

### Sunday, May 10 • 6–8 p.m. • Welcome Reception

Tropicana Executive Conference Center

### Wednesday, May 13 • 1:30–4:30 p.m. • Plant Tour

A tour of **Century Aluminum's Sebree Plant** will include the cast shop melting facility and rolling mill and additional areas of interest. Personal protective equipment will be provided; all attendees are required to wear cotton clothing (jeans, knit shirts, etc.). *Shuttles will depart the Tropicana Executive Conference Center at 12:45 p.m.*

### Thursday, May 14 • 6–9 p.m. • Graduation Dinner

Shuttles will depart from the Tropicana Executive Conference Center at 5:30 p.m. *Graduation dinner sponsored by Century Aluminum.*

## REGISTRATION

Course registration is required to attend the lectures and special events.

The \$2,250 registration fee includes: Sunday evening welcome reception, morning and afternoon refreshment breaks, daily lunch, lectures, course notes, industry tours, and graduation dinner.

### Registration Deadline: April 10, 2015

To register, visit [www.tms.org/castshop15/ab](http://www.tms.org/castshop15/ab).

## HOUSING & TRAVEL

### Course Location:

<b>Tropicana Executive Conference Center</b>
421 NW Riverside Drive Evansville, IN 47708 Phone: 812-433-4000 Fax: 812-433-4384

<b>Hotel/Overnight: Le Merigot at Tropicana</b>
615 NW Riverside Drive Evansville, IN 47708 Phone: 812-433-4700 Fax: 812-433-4713

### Room Rate: \$139 Single/Double.

*Use group code **TMS Cast Shop** when making a reservation.*

### Cutoff: April 14, 2015

*Please note that when making reservations for Le Merigot you will be directed to the Tropicana reservation desk. The group code provided will confirm your reservation at Le Merigot.*

The Le Merigot hotel is next door to the Tropicana Executive Conference Center and is accessible via sidewalk.

**Century** ALUMINUM  
Sebree



For additional course information,  
visit [www.tms.org/castshop15/ab](http://www.tms.org/castshop15/ab).

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Make the most of your cast shop operations.  
Hear from the experts on how to increase  
skills to:

- Reduce costs
- Scrap defects
- Improve casting quality
- Increase cast house throughput
- Maintaining safety and  
environmental performance

Registration Deadline: April 10, 2015

**REGISTRATION  
IS NOW OPEN**