

# Brewing Summit 2014

*A perfect  
pairing of  
science and  
technology*

---



**ASBC Annual Meeting, June 4–6**  
**MBAA Annual Conference, June 5–7**

---

*Joint Exhibition and Programming June 5 & 6*

**Palmer House Hilton Hotel**  
**Chicago, Illinois, U.S.A.**

# Brewers Clarex®



## Beer that's always crystal clear We make it happen

Brewers Clarex® is a one-of-kind beer stabilization technology that can eliminate the costly and environmentally damaging cold stabilization process. Efficient, simple and cost-effective, this brewing enzyme offers a natural way to increase your maturation production capacity and shorten your processing time. Result: typical savings can reach around 100,000 euros per million hectoliters of beer produced with up to an 8% reduction in carbon emissions.

For more information contact us at:  
[info.food@dsm.com](mailto:info.food@dsm.com) | [www.dsm.com/food](http://www.dsm.com/food)

Visit us at the **Brewing Summit 2014, Chicago, IL June 5-7 – Booth-0128**



*Our latest scientific research shows that Brewers Clarex® is also suitable for the production of gluten free barley-based beer without influencing the sensory profile of the beer.*

HEALTH • NUTRITION • MATERIALS







(Top to Bottom): Courtesy of Choose Chicago, ©City of Chicago – Adler Planetarium Chicago; Riverboat cruise through the city and past Willis Tower; Ferris Wheel at Night Navy Pier;

# Welcome to Brewing Summit 2014!

Welcome from ASBC and MBAA to Brewing Summit 2014, where you will have the opportunity to participate in both the ASBC Annual Meeting and the MBAA Annual Conference. ASBC and MBAA have joined together to bring you more programming, more exhibits, and more chances to network with peers from around the world! We think you will agree that the Brewing Summit is an inspiring combination of events that pairs the science of brewing with technology along with discourse and learning in one of the country’s most renowned cities: Chicago.

ASBC and MBAA have developed a special two-part workshop on food safety taking place Thursday, June 5, and Friday, June 6. This comprehensive workshop will be presented by industry experts and will help you prepare for the requirements of the Food Safety Modernization Act (FSMA) as well as give you guidance for food safety audits. You will walk away from the workshop with the right tools to build a successful food safety program in your brewery.

On Thursday evening, don’t miss out on the chance to connect with your colleagues from both ASBC and MBAA at the Joint Party at The Rivers, one of Chicago Loop’s most popular restaurants. Have a beer outside on their deck, soaking up the sights of this amazing city. Street performers will give the party an urban feel as you enjoy the wonderful food from the city’s most popular ethnic neighborhoods. Be sure to stop by the “Irish neighborhood” where you can sing along with Peter Miletic as he rocks the Brewing Summit Irish Pub.

We thank you for joining us and look forward to two programs packed with learning and networking. From ASBC and MBAA, welcome to Chicago and Brewing Summit 2014!

Christine White  
ASBC Program Committee Chair

Susan Welch  
MBAA Technical Committee Chair

## Thank you to the following volunteers who created the Brewing Summit program.

### ASBC Program Committee

- Christine White, Chair  
Molson Coors Brewing Co.
- Patricia Aron  
MillerCoors
- Kimberly Bacigalupo  
Sierra Nevada Brewing Co.
- Scott Britton  
Brewery Ommegang/Duvel  
Moortgat USA Ltd.
- Rob Christiansen  
Avery Brewing Co.
- Jeffery Cornell  
MillerCoors
- John Engel  
MillerCoors
- Cecil Giarratano  
MillerCoors
- Christine Hansen  
Cornell University

- Scott Helstad  
Cargill Inc.
- Cindy-Lou Lakenburgers  
Anheuser-Busch, LLC
- Karl Lakenburgers  
Anheuser-Busch, LLC
- Mary-Jane Maurice  
Malteurop North America Inc.
- Christina Schoenberger  
Barth Innovations
- Fred Strachan  
Sierra Nevada Brewing Co.
- Kelly Tretter  
New Belgium Brewing Co.
- Sylvie Van Zandycke  
DSM
- Daniel Vollmer  
Oregon State University
- Steven Wright  
Spiritech Solutions

### MBAA Technical Committee

- Susan E. Welch, Chair  
Malteurop North America Inc.
- Fred M. Scheer, Vice Chair  
Krones Inc.
- Tom Eplett, Liaison  
MillerCoors
- Patricia M. Aron  
MillerCoors
- Brian D. Bishop  
Stone Brewing Co.
- Matthew R. Brynildson  
Firestone Walker Brewing Co.
- Vincent M. Coonce  
MillerCoors
- Leon W. Fyfe  
Craft Brew Alliance
- Darren L. Goodlin  
Anheuser-Busch InBev

- Takeo Imai  
Kirin Company, Ltd.
- John A. Mallett  
Bell’s Brewery, Inc.
- Mitch A. Steele  
Stone Brewing Co.
- Jennifer J. Talley  
Russian River Brewing Co.
- Johannes Tippmann  
Technische Universität München
- Andrew W. Tveekrem  
Market Garden Brewery
- Jens Voigt  
Trier University of Applied Sciences
- Karl F. Ockert, Ex-officio  
MBAA

# Table of Contents

- Schedule-at-a-Glance ..... 4
- General Information ..... 7
- Schedule and Highlights
  - Tuesday ..... 8
  - Wednesday ..... 8
  - Thursday ..... 12
  - Friday ..... 19
  - Saturday ..... 22
- Palmer House Floor Plans ..... 25
- Exhibitors
  - Hours and Floor Plan ..... 29
  - Exhibitor Numerical Listing..... 30
  - Exhibitor Descriptions ..... 31
- Posters
  - ASBC Poster Presentations ..... 41
  - ASBC Vendor Poster Presentations ..... 41
  - MBAA Poster Presentations ..... 42
- Author Index ..... 45
- Advertiser's Index ..... 46

# Thank You Sponsors

## PLATINUM



## GOLD



## SILVER



## BRONZE



## SUPPORTING



## MEDIA SPONSOR



Excellent grinding of malt and unmalted grain. The universal grist mill Maltomat™ III is the latest innovation by Bühler: a highly modern grinding system for malt and unmalted grain with maximum yield, optimum husk volume and high throughput. The machine size, configuration as well as the number of grinding passages can be adjusted to the specific grinding requirements. The powerful roll pack with its direct drive motor, automatic grinding gap adjustment and sampling after each grinding passage ensure precision and reliability.

Visit us at booth 124

Bühler Inc., 763-847-9900, buhler.minneapolis@buhlergroup.com, www.buhlergroup.com



### **Universal Grist Mill Maltomat™ III**

#### **Configurations for every brewery**

Available as a two, four or six-roller mill with throughputs of up to 16 t/h.

#### **Optimal lautering**

Short lautering times due to excellent husk separation.

#### **Maximum brewhouse efficiency**

The roll pack's direct drive motor allows for energy-efficient and powerful grinding.

#### **Simplified maintenance**

Easy machine access allows for fast roll and sieve change as well as efficient cleaning.

Innovations for a better world.

**BUHLER**

# Schedule-at-a-Glance

<b>Tuesday, June 3 — Pre-Summit Activities</b>			
8:00 a.m.–12:00 p.m.	MBAA Executive Committee Meeting • <i>Level 3, Kimball Room</i>		
8:00 a.m.–5:00 p.m.	ASBC Board of Directors Meeting • <i>Level 3, Cresthill Room</i>		
1:00–5:00 p.m.	MBAA Board of Governors Meeting • <i>Level 3, Crystal Room</i>		
3:30–6:00 p.m.	Registration • <i>Level 4, Registration Bays</i>		
5:15–6:15 p.m.	ASBC Meet and Greet • <i>Level 3, Salon 12</i>		
<b>Wednesday, June 4 — ASBC Annual Meeting</b>			
7:00–8:00 a.m.	ASBC Speakers Breakfast • <i>Level 4, State Ballroom</i>		
7:30 a.m.–5:00 p.m.	Registration • <i>Level 4, Registration Bays</i>		
8:00–9:45 a.m.	ASBC Opening Session • <i>Level 4, Red Lacquer Ballroom</i>		
10:00–11:45 a.m.	ASBC Technical Session: Sensory I • <i>Level 4, Red Lacquer Ballroom</i>	ASBC Technical Session: Fermentation • <i>Level 3, Crystal Room</i>	ASBC Workshop: Packaging Quality • <i>Lobby Level, Empire Ballroom</i>
11:45 a.m.–1:00 p.m.	Lunch Break	ASBC Technical Subcommittee Meetings • <i>See Wednesday schedule for locations</i>	
1:00–2:45 p.m.	ASBC Technical Session: Regulations and Guidelines • <i>Level 4, Red Lacquer Ballroom</i>	ASBC Technical Session: Quality • <i>Level 3, Crystal Room</i>	ASBC Workshop: Malt Analytical Laboratories • <i>Lobby Level, Empire Ballroom</i>
3:00–4:45 p.m.	ASBC Technical Session: Malt • <i>Level 4, Red Lacquer Ballroom</i>	ASBC Technical Session: Stability • <i>Level 3, Crystal Room</i>	ASBC Workshop: Sensory—How to Get to the Next Level • <i>Lobby Level, Empire Ballroom</i>
4:45–6:15 p.m.	ASBC Happy Hour* • <i>Mezzanine Level</i>		
<b>Thursday, June 5 — ASBC and MBAA Shared Programming</b>			
7:00–8:00 a.m.	MBAA Speaker Breakfast • <i>Level 3, Crystal Room</i>		
7:30 a.m.–5:30 p.m.	Registration • <i>Level 4, Registration Bays</i>		
8:00–9:45 a.m.	MBAA Opening Session • <i>Level 4, Grand Ballroom</i>	ASBC Technical Session: Yeast • <i>Level 4, Red Lacquer Ballroom</i>	ASBC Analytical Forum: Wort Contamination by Hydrophobins • <i>Lobby Level, Empire Ballroom</i>
10:00–11:45 a.m.	Joint Workshop: Food Safety I • <i>Level 4, Grand Ballroom</i>	MBAA Technical Session: Yeast, Fermentation, and Microbiology • <i>Level 4, Red Lacquer Ballroom</i>	ASBC Technical Session: Sensory II • <i>Lobby Level, Empire Ballroom</i>
11:45 a.m.–2:00 p.m.	Exhibits and Lunch • <i>Level 4, Exhibit Hall</i>	Posters • <i>Level 4, State Ballroom</i>	
2:00–3:45 p.m.	MBAA Brewing Fundamentals: Hops I • <i>Level 4, Grand Ballroom</i>	ASBC Technical Session: Raw Materials • <i>Level 4, Red Lacquer Ballroom</i>	ASBC Workshop: Turning Data into Information to Make Decisions • <i>Lobby Level, Empire Ballroom</i>
4:00–5:45 p.m.	MBAA Technical Session: Engineering • <i>Level 4, Grand Ballroom</i>	ASBC Pearls of Wisdom: Hops • <i>Level 4, Red Lacquer Ballroom</i>	MBAA Workshop: Beer Stability and Hazing • <i>Lobby Level, Empire Ballroom</i>
6:30–9:30 p.m.	Brewing Summit Joint Party** • <i>The Rivers (off-site venue)</i>		
9:30–11:00 p.m.	Afterglow Party • <i>Lobby Level, Honore Ballroom</i>		

<b>Friday, June 6 — ASBC and MBAA Shared Programming</b>			
7:00–8:00 a.m.	MBAA Speaker Breakfast • <i>Level 3, Crystal Room</i>		
8:00–9:45 a.m.	Joint Workshop: Food Safety II • <i>Level 4, Grand Ballroom</i>	ASBC Technical Session: Hops • <i>Level 4, Red Lacquer Ballroom</i>	MBAA Workshop: Achieving Beer Characteristics through Yeast Strain Selection and Fermentation Management • <i>Lobby Level, Empire Ballroom</i>
8:00 a.m.–5:30 p.m.	Registration • <i>Level 4, Registration Bays</i>		
10:00–11:45 a.m.	MBAA Workshop: Growing Pains of a Successful Brewery I • <i>Level 4, Grand Ballroom</i>	ASBC Special Session: Emerging Issues/ New and Alternate Methods of Analysis • <i>Level 4, Red Lacquer Ballroom</i>	MBAA Workshop: The Truth about Bitterness Units • <i>Lobby Level, Empire Ballroom</i>
11:45 a.m.–2:00 p.m.	Exhibits and Lunch • <i>Level 4, Exhibit Hall</i>	Posters • <i>Level 4, State Ballroom</i>	
2:00–3:45 p.m.	MBAA Technical Session: Sustainability I • <i>Level 4, Grand Ballroom</i>	ASBC Technical Session: Analytical • <i>Level 4, Red Lacquer Ballroom</i>	MBAA Brewing Fundamentals: Hops II • <i>Lobby Level, Empire Ballroom</i>
4:00–5:45 p.m.	MBAA Technical Session: Raw Materials I • <i>Level 4, Grand Ballroom</i>	ASBC Closing Session • <i>Level 4, Red Lacquer Ballroom</i>	MBAA Workshop: Brewing Engineering • <i>Lobby Level, Empire Ballroom</i>
5:45–7:00 p.m.	MBAA Happy Hour*** • <i>Level 4, State Ballroom</i>		
<b>Saturday, June 7 — MBAA Annual Conference</b>			
7:00–8:00 a.m.	MBAA Speaker Breakfast • <i>Lobby Level, Honore Ballroom</i>		
8:00–9:45 a.m.	MBAA Technical Session: Finishing and Stability • <i>Level 4, Grand Ballroom</i>	MBAA Technical Session: Brewery Safety/WCM • <i>Level 3, Crystal Room</i>	MBAA Workshop: Sustainability • <i>Level 4, State Ballroom</i>
8:00 a.m.–3:00 p.m.	Registration • <i>Level 4, Registration Bays</i>		
10:00–11:45 a.m.	MBAA Technical Session: Brewhouse Operations • <i>Level 4, Grand Ballroom</i>	MBAA Technical Session: Sustainability II • <i>Level 3, Crystal Room</i>	MBAA Technical Session: Raw Materials II • <i>Level 4, State Ballroom</i>
11:45 a.m.–1:00 p.m.	Lunch Break	MBAA Committee Meetings • <i>Level 4, Red Lacquer Ballroom</i>	
1:00–2:45 p.m.	MBAA Workshop: Growing Pains of a Successful Brewery II • <i>Level 4, Grand Ballroom</i>	MBAA Technical Session: Sensory • <i>Level 3, Crystal Room</i>	MBAA Technical Session: Packaging (Bottles, Draft and Cans) • <i>Level 4, State Ballroom</i>
3:00–4:45 p.m.	MBAA Closing Session • <i>Level 4, Grand Ballroom</i>		

\* Exhibitors, Guests, Single Day, and MBAA-only attendees must purchase a ticket to attend

\*\* Guests and Single Day attendees must purchase a ticket to attend

\*\*\* Exhibitors, Guests, Single Day, and ASBC-only attendees must purchase a ticket to attend

# Perfect Beer Deserves the Perfect Container

Petainer 15L-30L PET 'one trip' kegs are supplied pre-blown or as pre-forms to blow on site. They can be filled by hand or on automatic filling lines (using either Classic or USD kegs).

Requiring less energy to produce, they are environmentally responsible and **100% recyclable** - ending the cost of returns completely. Lighter than metal kegs, they are often more profitable and less costly to transport - And with class leading barrier technologies built-in, guarantee **100% quality and taste** from brewery to glass.

Available with high impact, branded packaging and a choice of low-cost flat or well-type fittings, Petainer 'one trip' kegs cut costs, reduce environmental impact, increase profits and deliver **100% perfect beer every time.**



 **Petainer**

Innovating for a sustainable future. Find out more at [www.petainer.com](http://www.petainer.com)



# General Information

## Registration Desk

Registration is in the 4<sup>th</sup> Level Registration Bays at the Palmer House. Registration is open at the following times:

Tuesday, June 3	3:30–6:00 p.m.
Wednesday, June 4	7:30 a.m.–5:00 p.m.
Thursday, June 5	7:30 a.m.–5:30 p.m.
Friday, June 6	8:00 a.m.–5:30 p.m.
Saturday, June 7	8:00 a.m.–3:00 p.m.

**Please have your name badge with you at all times to ensure access to sessions and events.**

## Brewing Summit 2014 Mobile App

Keep connected with the Brewing Summit mobile app. Download the **Brew Sum 2014** app to access the schedule, abstracts, exhibitor descriptions, announcements, and more, all at your fingertips!

*The Brewing Summit mobile app is sponsored by*



## Abstracts

Brewing Summit abstracts for ASBC and MBAA can be accessed in three ways:

- Brew Sum 2014 Mobile App: The mobile app will be available for download on the ASBC and MBAA website shortly before the Brewing Summit begins.
- ASBC and MBAA websites: For ASBC abstracts, go to <http://meeting.asbcnet.org>, and for MBAA, go to <http://meeting.mbaa.com>.
- Printing station: Brewing Summit has provided a printing station near the Registration Desk.

## Proceedings

Electronic proceedings are available to purchase for \$65 at the Registration Desk. The proceedings will be available online following the meeting to all who purchased them.

## Guests

Guests wishing to attend the ASBC Happy Hour, Brewing Summit Joint Party, or the MBAA Happy Hour must purchase a ticket for each event they will attend. Guests do not have access to technical sessions, workshops, or the exhibit hall, and they must register and have a name badge to gain access to the hospitality room. Coworkers and business associates are not considered guests and must pay the appropriate registration fees.

## Hospitality Rooms

Join your peers for conversation and refreshments on Level 6.

Tuesday, June 3	4:00–11:00 p.m.	Adams Room
Wednesday, June 4	4:00–11:00 p.m.	Monroe Room
Thursday, June 5	5:30–6:30 p.m.	Monroe Room
	9:30–11:30 p.m.	Monroe Room
Friday, June 6	5:30–11:30 p.m.	Monroe Room
Saturday, June 7	4:30–11:00 p.m.	Lobby Level, Honore Ballroom

## Speaker Kiosk

The speaker kiosk will be available for speakers to review their presentations the day before their scheduled session. The kiosk is located next to the Registration Desk.

## Support the Foundations

### Silent Auction

The Brewing Summit Silent Auction will be located in the 4<sup>th</sup> Level Foyer near the Registration Desk and begins Thursday, June 5, at 9:00 a.m. Proceeds will go to the ASBC and MBAA foundations to help students of the brewing sciences. The Silent Auction will close at 1:45 p.m. on Friday, June 6.

### Wristbands

Wristbands are for sale for \$5 each at the Registration Desk and at the ASBC and MBAA booths. All proceeds go to ASBC and MBAA foundations.

- MBAA: Educating brewers since 1887 – orange
- Beer is my passion – green
- Beauty & the Yeast – purple
- Beer Geek (ASBC Logo) – blue

## ASBC Quilt Raffle



Don't miss your chance to own one of this year's three brewery quilts created by Mary and Cecil Giarratano. Tickets can be purchased at the Registration Desk for \$5 each or 5 tickets for \$20. Winners will be announced at the ASBC Closing Session on Friday. You need not be present to win. Proceeds go toward supporting the ASBC Foundation student scholarships.

## Photo Release

Photographs will be taken at Brewing Summit 2014 for use in promotional materials after the meeting has concluded. By registering for this meeting, you agree to allow ASBC/MBAA to use your likeness in said promotional materials.

# Schedule: Day-by-Day

## Tuesday, June 3

8:00 a.m.–12:00 p.m.	MBAA Executive Committee Meeting	Level 3, Kimball Room
8:00 a.m.–5:00 p.m.	ASBC Board of Directors Meeting	Level 3, Cresthill Room
1:00–5:00 p.m.	MBAA Board of Governors Meeting	Level 3, Crystal Room
3:30–6:00 p.m.	Registration	Level 4, Registration Bays
4:00–11:00 p.m.	Hospitality Room	Level 6, Adams Room
5:15–6:15 p.m.	ASBC Meet and Greet	Level 3, Salon 12

## Wednesday, June 4

7:00–8:00 a.m.	ASBC Speakers Breakfast	Level 4, State Ballroom
7:30 a.m.–5:00 p.m.	Registration	Level 4, Registration Bays
8:00–9:45 a.m.	<b>ASBC Opening Session</b>	Level 4, Red Lacquer Ballroom
10:00–11:45 a.m.	<p><b>ASBC Technical Session: Fermentation</b>  <i>Moderator: Kimberly Bacigalupo</i></p> <p>10:00 a.m. A-1. Chris Powell. The relationship between very high-gravity fermentations, yeast stress, and key performance indicators</p> <p>10:25 a.m. A-2. Chris Boulton. Proposals for improvements in the design and operation of high-capacity cylindroconical fermentation and conditioning vessels</p> <p>10:50 a.m. A-3. Chunfeng Liu. Biogenic amines during brewing process</p> <p>11:15 a.m. A-4. Mekonnen Gebremariam. Optimization of fermentation conditions for teff (<i>Eragrostis tef</i>) malt wort using response surface methodology</p>	Level 3, Crystal Room
10:00–11:45 a.m.	<p><b>ASBC Technical Session: Sensory I</b>  <i>Moderator: Cindy-Lou Lakenburgs</i></p> <p>10:00 a.m. A-5. Karl Siebert. Chemesthesis: The third part of flavor perception</p> <p>10:25 a.m. A-6. Masaaki Habara. Accelerated test and quality assessment of tastes by using e-tongue</p> <p>10:50 a.m. A-7. Joanne Hort. Beyond bubbles: The contribution of carbonation to flavor perception in beer and variation in individual response</p> <p>11:15 a.m. A-8. Curtis Eaton. Happiness from hoppiness? Comparing emotional response to sensory properties of beer between the U.K. and Spain</p>	Level 4, Red Lacquer Ballroom
10:00–11:45 a.m.	<b>ASBC Workshop: Packaging Quality</b>	Lobby Level, Empire Ballroom
11:45 a.m.–1:00 p.m.	Lunch Break	(Lunch on your own)
11:45 a.m.–1:00 p.m.	ASBC Technical Subcommittee Meetings	See description for locations.
1:00–2:45 p.m.	<p><b>ASBC Technical Session: Quality</b>  <i>Moderator: Brad Rush</i></p> <p>1:00 p.m. A-9. Christoph Neugrodda. Comparison of foam analysis methods and the impact of beer components</p> <p>1:25 p.m. A-10. Guy Derdelinckx. Primary gushing of beer under the magnifying glass of “exact science”</p> <p>1:50 p.m. A-11. Alicia Munoz Insa. Lightstruck flavor reduction by increasing polyphenol content in beer</p> <p>2:15 p.m. A-12. Norio Doi. Mechanism of dimethyl trisulfide formation in stored beer</p>	Level 3, Crystal Room

## Wednesday, June 4 (continued)

1:00–2:45 p.m.	<p><b>ASBC Technical Session: Regulations and Guidelines</b>  <i>Moderator: Grant Ruehle</i></p> <p>1:00 p.m. A-13. Patricia Pratt. Food Safety Modernization Act—Potential implications for the brewing industry</p> <p>1:25 p.m. A-14. Johannes Tippmann. Standards on draught beer in Germany</p> <p>1:50 p.m. A-15. Crispin Howitt. Development of ultra-low-gluten barley for brewing and food applications for subjects with gluten intolerance or coeliac disease</p> <p>2:15 p.m. A-16. Brett Taubman. Determination of prolamin concentrations in malt beverages using the RIDASCREEN gliadin competitive enzyme immunoassay</p>	Level 4, Red Lacquer Ballroom
1:00–2:45 p.m.	<b>ASBC Workshop: Malt Analytical Laboratories</b>	Lobby Level, Empire Ballroom
2:00–4:00 p.m.	Exhibit Setup	Level 4, Exhibit Hall
3:00–4:45 p.m.	<p><b>ASBC Technical Session: Malt</b>  <i>Moderator: Mont Stuart</i></p> <p>3:00 p.m. A-17. Evan Evans. Malt screening for premature yeast flocculation (PYF) based on QPCR detection of the microbial genera associated with or cause of PYF</p> <p>3:25 p.m. A-18. Aaron MacLeod. Levels of starch degrading enzymes in new malting barley varieties grown in western Canada and their relationship with grain protein</p> <p>3:50 p.m. A-19. Jean Titze. Sour wort concentrate as an efficient alternative to traditional biological acidification or the use of acidified malt</p> <p>4:15 p.m. A-20. Yueshu Li. What can we expect from newer Canadian malting barley varieties?</p>	Level 4, Red Lacquer Ballroom
3:00–4:45 p.m.	<p><b>ASBC Technical Session: Stability</b>  <i>Moderator: Patricia Aron</i></p> <p>3:00 p.m. A-21. Leif-Alexander Garbe. The occurrence of trihydroxy fatty acids in beer—Myths, facts, recent findings, and future trends</p> <p>3:25 p.m. A-22. Jörg Maxminer. A comparison of electron spin resonance (ESR) spectroscopy with other staling indices to assess the impacts of brewhouse gallotannin addition on beer flavor stability</p> <p>3:50 p.m. A-23. Marianne Lund. What is the fate of 1-hydroxyethyl radicals in beer? Do thiol-containing proteins and peptides play an antioxidative role?</p> <p>4:15 p.m. A-24. Ruslan Hofmann. Turbidity identification: Approach to differentiate the nature of beer deposits</p>	Level 3, Crystal Room
3:00–4:45 p.m.	<b>ASBC Workshop: Sensory—How to Get to the Next Level</b>	Lobby Level, Empire Ballroom
4:00–11:00 p.m.	Hospitality Room	Level 6, Monroe Room
4:45–6:15 p.m.	ASBC Happy Hour	Mezzanine Level

### ASBC Opening Session and Keynote The Ups and Downs in Brewing Technology

8:00–9:45 a.m. • Level 4, Red Lacquer Ballroom



Professor Ludwig  
Narziss

Brewers in the United States and Europe are needlessly disposing of excellent qualities of barley malt, a wide range of hop varieties, adjustable composition of brewing liquor, and a great many yeast strains, both bottom- and top-fermenting. Modern brewery equipment allows a considerable reduction of former process times. More favorable yet, different conditions demand corrections, like the composition of the malt grist, and adaptation of individual processes to meet in modern times the character of classical beers as well as to pursue innovative developments.

Professor Ludwig Narziss is an internationally recognized authority in brewing science. He has authored a number of definitive books on brewing. From 1958 to 1964 he was the first brewmaster of Munich's Löwenbräu AG. In 1962 he was appointed Chair of Brewing Technology at Weihenstephan. He retired as a professor in 1992. In 2007, he received the German Federal Cross of Merit.

The Opening Keynote is sponsored in part by



### ASBC Workshop Packaging Quality

10:00–11:45 a.m. • Lobby Level, Empire Ballroom

Rob Fraser, Sierra Nevada Brewing Co.; Chaz Benedict, Hach Company; Shawn Theriot, Deschutes Brewing Co.; Rebecca Newman, Dogfish Head Brewing Co.

Current packaging quality methods of analysis are out-of-date due to time and new technologies both in the lab and in production. Also, evolving raw materials give quality and production personnel many challenges to ensure package integrity and quality. This workshop will focus on sharing current packaging quality challenges as well as reviewing and sharing current best practices for quality analysis of packaging materials, finished products, and processes ranging from receiving to palletizing for bottling, canning, and kegging. Technical speakers will share insights and best approaches for packaged gas measurements. The workshop will provide participants insight, learning, and awareness of approaches to packaging quality.

### ASBC Technical Subcommittee Meetings

11:45 a.m.–1:00 p.m.

Attend any of the ASBC Technical Subcommittee meetings held throughout the annual meeting. Each is specific to a technical subcommittee run from 2013 to 2014 and will provide an overview of the subcommittee's results and recommendations. The meetings are open to all, and your feedback and participation are essential to ensuring the quality of the methods being tested.

Craft Brew  
Sensory Science

Red Lacquer Ballroom

Glucan Test for Beta Glucan in Beer  
Immunoassay Method for DON in Barley  
International Hop Standards

Empire Ballroom

Microbiology  
Packaging  
VDK Analysis by GC-ECD

Crystal Room

Craft Brewers Glass Quality

Salon 12

### ASBC Workshop

#### Malt Analytical Laboratories Discussion and Workshop

1:00–2:45 p.m. • Lobby Level, Empire Ballroom

Organizer: Scott Heisel, American Malting Barley Association

Xiang Yin, Cargill Malt; Yueshu Li, Canadian Malting Barley Technical Center; Bruno Vachon, Malterie Frontenac Inc.; Paul Schwarz, North Dakota State University

This workshop will cover the current state of malt analysis in North America. It will focus on the requirements of a growing craft brewing and malting industry and whether existing technologies and facilities meet the needs. Invited speakers related to these different areas of expertise will share their knowledge in what we expect to be a very interactive discussion. Participants will be asked to get creative and share their ideas and experiences with malt analysis. The workshop's primary purpose is to gauge the interest in having such a service and what types of tests are of interest.

### ASBC Workshop

#### Sensory Workshop—How to Get to the Next Level

3:00–4:45 p.m. • Lobby Level, Empire Ballroom

Lindsay Guerdrum, New Belgium Brewing Co.; Sue Thompson, MillerCoors; Ian McLaughlin, Craft Brew Alliance; Teri Horner, MillerCoors

This workshop is designed for those who already have their feet wet in running a sensory program. Experts in the field will discuss the next steps one can take when growing a taste panel. Topics will include advanced techniques like descriptive analysis in relation to shelf life, raw material sensory analysis, threshold testing, and running a sensory program in a multi-facility brewery.

### ASBC Happy Hour

4:45–6:15 p.m. • Mezzanine Level

Before you head out to dinner in the Windy City on Wednesday evening, enjoy a beer and snacks with your ASBC colleagues.

Sponsored in part by **ASHLAND**



# Why settle for less than the best?



More capacity with fewer tanks? It's reality with an Alfa Laval BREW 250 hermetic, bottom feed separation module.

Improve beer clarification and polishing with the compact, easy-to-use BREW 250 separator module, and optimize your brewing process:

- 20-30% higher filtration and fermentation capacity
- Greater than 1% more beer produced due to minimal beer loss
- Minimum of 20% lower tank investment for the same annual production
- One day or more savings in tank turn over time
- Up to 35% less energy consumed compared to conventional drive, top feed machines
- No oxygen pick up or losses of CO<sub>2</sub> or aroma due to fully hermetic design
- No or less kieselguhr (DE) needed

Learn more at [www.alfalaval.us](http://www.alfalaval.us).



[www.alfalaval.us](http://www.alfalaval.us)

## Thursday, June 5

7:00–8:00 a.m.	MBAA Speaker Breakfast	Level 3, Crystal Room
7:30 a.m.–5:30 p.m.	Registration	Level 4, Registration Bays
8:00–9:45 a.m.	<b>MBAA Opening Session</b>	Level 4, Grand Ballroom
8:00–9:45 a.m.	<b>ASBC Technical Session: Yeast</b> <i>Moderator: Nikita Penn</i> 8:00 a.m. A-25. Johnathon Layfield. What brewers should know about viability, vitality, and overall brewing fitness: A mini-review 8:25 a.m. A-26. Konrad Müller-Auffermann. An alternative method for determining yeast vitality 8:50 a.m. A-27. Dan Driscoll. Leveraging next generation sequencing in brewing quality control 9:15 a.m. A-28. Kei Asada. Characteristic analyses of a special bottom-fermenting yeast with a fruity elegant flavor	Level 4, Red Lacquer Ballroom
8:00–9:45 a.m.	<b>ASBC Analytical Forum: Wort Contamination by Hydrophobins: How to Detect and What to Do</b>	Lobby Level, Empire Ballroom
8:00–11:00 a.m.	Exhibit Setup	Level 4, Exhibit Hall
8:00–11:00 a.m.	Poster Setup	Level 4, State Ballroom
9:00 a.m.–5:00 p.m.	Silent Auction	Level 4, Foyer
10:00–11:45 a.m.	<b>Joint Workshop: Food Safety I</b>	Level 4, Grand Ballroom
10:00–11:45 a.m.	<b>ASBC Technical Session: Sensory II</b> <i>Moderator: Suzanne Thompson</i> 10:00 a.m. A-29. Luis Castro. Correlation between sensory analysis and volatile composition of beer using multivariate analysis: Effect of the beer matrix on the sensory perception and volatile fraction behavior 10:25 a.m. A-30. Laura Marques. The use of electron paramagnetic resonance (EPR) technology for advancing sensory beer flavor stability predictions and brewery improvements 10:50 a.m. A-31. Qi Li. Hydrogen bonding associations in dilution beer with high-gravity brewing 11:15 a.m. A-32. Konrad Neumann. Tracking oxidative degradation of linoleic acid by incorporation of isotope labels in aroma active products <i>cis</i> - and <i>trans</i> -4,5-epoxy-2E-decenal	Lobby Level, Empire Ballroom
10:00–11:45 a.m.	<b>MBAA Technical Session: Yeast, Fermentation, and Microbiology</b> <i>Moderator: Kara Taylor</i> 10:00 a.m. M-1. Hiroki Fujiwara. Development of fed-batch culture method of brewing yeast 10:25 a.m. M-2. Henry Maca. A unique system for propagating high fermentative capacity yeast, enhanced with “yeast propagation management” capabilities 10:50 a.m. M-3. Graham Stewart. The concept of nature–nurture applied to brewer’s yeast and wort fermentation 11:15 a.m. M-4. Yosuke Tajika. The control of higher alcohol and ester production in high-temperature fermentation	Level 4, Red Lacquer Ballroom
11:45 a.m.–2:00 p.m.	Exhibits and Lunch	Level 4, Exhibit Hall
11:45 a.m.–2:00 p.m.	Posters (authors present: even numbers: 12:30–1:00 p.m.; odd numbers 1:00–1:30 p.m.)	Level 4, State Ballroom
2:00–3:45 p.m.	<b>ASBC Technical Session: Raw Materials</b> <i>Moderator: Aaron MacLeod</i> 2:00 p.m. A-33. Brad Rush. Understanding raw materials and their impact on the finished product 2:25 p.m. A-34. Katrina Christiansen. Playing second fiddle: Making wheat malt user-friendly 2:50 p.m. A-35. Konrad Müller-Auffermann. Characterization of the fermentation performances and properties of bottom-fermenting, industrial relevant yeast stems 3:15 p.m. A-36. Rachel Hotchko. A survey of common lactones found in commercially produced dry-hopped beers	Level 4, Red Lacquer Ballroom
2:00–3:45 p.m.	<b>ASBC Workshop: Turning Data into Information to Make Decisions</b>	Lobby Level, Empire Ballroom

2:00–3:45 p.m.	<b>MBAA Brewing Fundamentals: Hops I</b>	Level 4, Grand Ballroom
4:00–5:45 p.m.	<b>ASBC Pearls of Wisdom: Hops</b>	Level 4, Red Lacquer Ballroom
4:00–5:45 p.m.	<b>MBAA Technical Session: Engineering</b> <i>Moderator: Tim Hawn</i> 4:00 p.m. M-5. Eric Gore. Corrosion of process piping and equipment in breweries 4:25 p.m. M-6. Ashton Lewis. Vacuum really does suck 4:50 p.m. M-7. Kevin McEnery. Considerations for brewery automation 5:15 p.m. M-8. Iain Whitehead. Yeast production and multivariate statistical process control: Utilization of on-line data for statistical control of yeast propagation as a batch-wise process	Level 4, Grand Ballroom
4:00–5:45 p.m.	<b>MBAA Workshop: Beer Stability and Hazing</b>	Lobby Level, Empire Ballroom
5:30–6:30 p.m.	Hospitality Room	Level 6, Monroe Room
6:30–9:30 p.m.	Brewing Summit Joint Party	The Rivers (off-site venue)
9:30–11:00 p.m.	Afterglow Party	Lobby Level, Honore Ballroom
9:30–11:30 p.m.	Hospitality Room	Level 6, Monroe Room

## Thursday, June 5

### MBAA Opening Session

8:00–9:45 a.m. • Level 4, Grand Ballroom

*Panelists: Alex Barth, John I Haas, Inc.; Louis Gimbel, S.S. Steiner, Inc.; Jeff Milligan, Cargill Malt; Dale West, Malteurop North America, Inc.; Thomas Kraus-Weyermann, Weyermann Specialty Malts*

*Moderator: Dan Carey, New Glarus Brewing Co.*

Opening remarks will be followed by a moderated panel of leaders from both the malt and hops industries, who will provide global perspectives on the question: “Targeting 2020—Where will beer take us and how will suppliers help brewers get there?”

### ASBC Analytical Forum Wort Contamination by Hydrophobins: How to Detect and What to Do

8:00–9:45 a.m. • Lobby Level, Empire Ballroom

*Christina Schoenberger, Barth-Haas Innovation & GTF (Gushing Task Force); Guy Derdelinckx, KU Leuven; Martina Gastl, TU Munchen; Daniel Hagmeyer, Microtrac-Europe GmbH; Roland Pahl, VLBerlin; Jean Titze, Döhler GmbH; Tuija Sarlin, VTT Technical Research Centre of Finland*

It is now understood that primary gushing is linked to physico-chemical properties of CO<sub>2</sub> that are expressed in the presence of typical amphiphilic proteins. Therefore, after a period of more or less 40 years of searching, the time has come to adopt a Cartesian attitude towards lots of malts susceptible to contamination by class II hydrophobins and to analyze them with rigor and appropriate methods. If the use of wort and beers contaminated by hydrophobins is not desirable in production, the evolution of scientific knowledge allows responsible and dynamic management of such lots. Indeed, preventive treatments of wort and curative treatment as conditioning in appropriate containers can help to solve the problem. A panel of experts from the scientific and industrial world will present the latest insights and newest results that are available to make the right decisions in case of primary gushing risk.

### Joint Workshop

#### Food Safety I

10:00–11:45 a.m. • Level 4, Grand Ballroom

*Patrick Staggs, Crown Beverage Packaging; Patricia Pratt, MillerCoors; Rob Fraser, Sierra Nevada Brewing Co.; Chuck Eckermann, MillerCoors; Johannes Tippmann, TU Munchen*

With the recent passage of the Food Safety Modernization Act (FSMA), food manufacturing facilities, including those in the brewing industry, will be required to comply with applicable food laws. Seven Proposed Rules have been published within the Regulatory Framework of FSMA. All seven will be published in final form by the end of June 2015. Being prepared is not only important for compliance but is also good due diligence. As brewers, we have an obligation to our consumers to ensure that the beers we produce are safe and within the guidelines of food safety and regulatory requirements.

The goal of this two-part workshop is to help you prepare to meet this obligation. It will provide an update on the first, second, and fourth proposed FSMA law, “Rules for Current Good Manufacturing Practice and Hazard Analysis and Risk-Based Preventive Controls for Human Food,” specifically its inclusion of spent grains from brewers, as well as “Current Good Manufacturing Practice and Hazard Analysis and Risk-Based Preventive Controls for Food for Animals.”

In this first part of two, the workshop will cover the overall state of the industry, FDA regulations, shifting cultural behaviors, and mastering a cleaning schedule. This workshop will outline important components of a food safety program for brewers. Do not miss Part II on Friday for more!

*continued*



Thursday continued

## ASBC Workshop

### Turning Data into Information to Make Decisions—The Science of Beer in an Information Age

2:00–3:45 p.m. • Lobby Level, Empire Ballroom

Fred Strachan, Sierra Nevada Brewing Co.; John Engel, MillerCoors; Gina Shellhammer, GSJ Consulting

Is your brewery drowning in data yet starved for information? In an ever-changing world of data and information within our breweries and throughout our supply chains, the speed of data conversion into actionable information and knowledge is critical to our businesses. This interactive workshop will explore the use of various types of data generated within the brewing process to enhance quality programs. In addition, the theory and practical use of Statistical Process Control will be examined as a quality tool in various areas of the brewery. There will be plenty of time for Q&A with your colleagues as this workshop promises to provide practical instruction and discussion on a subject that is top-of-mind for brewing scientists around the world.

## MBAA Brewing Fundamentals Hops I

2:00–3:45 p.m. • Level 4, Grand Ballroom

John Paul Maye, S.S. Steiner; Daniel Sharp, Oregon State University; Mitch Steele, Stone Brewing Co.

Every year, the MBAA Brewing Fundamentals track covers a topic in brewing in-depth through multiple sessions. This year, MBAA will

present you with a thorough look at hops. At the beginning of this first session of two, John Paul Maye from S.S. Steiner will present a detailed investigation of hop chemistry, including antioxidant and antibacterial properties of hop compounds and an analysis of hop acids. Then, Daniel Sharp from Oregon State University will go over definitions, measurements, and factors of hop quality. To finish this first session, Mitch Steele of Stone Brewing Co. will discuss recent trends in hops, ranging from bursting to new varieties to evaluation processes, and more. Do not forget to come back on Friday for Brewing Fundamentals: Hops II!

## ASBC Pearls of Wisdom

### The Great Hop Debate: Myths and Revelations

4:00–5:45 p.m. • Level 4, Red Lacquer Ballroom

Tom Shellhammer, Oregon State University; Patrick Ting, HopTing Resources; Matthew Brynildson, Firestone Walker Brewing Co.; John Mallett, Bell's Brewery

Holy Hops! We've got a great panel of experts, from researchers to front-line brewers just waiting to converse about their favorite subject—hops. Tom Shellhammer, professor of brewing science at Oregon State University, and Patrick Ting, world-renowned hop chemist, will team together for a lively, friendly, somewhat controversial debate against a team of not one but two recipients of the Russell Schehrer Award for Innovation in Brewing—Matthew Brynildson, brewmaster at Firestone Walker Brewing Co., and John Mallett, director of operations at Bell's Brewery. Come one, come all! This year's Pearls of Wisdom is sure to entertain!

continued

## Mark Your Calendar

2015 ASBC Annual Meeting  
June 13-17  
La Quinta, California, U.S.A.



Courtesy of La Quinta Resort







DANISCO.

## WE SHARE YOUR PASSION FOR BREWING

### Max your beer flow with LAMINEX® MaxFlow 4G

For brewers who want to increase beer volumes and reduce costs without added complexity.

LAMINEX® MaxFlow 4G significantly improves mash separation and beer filtration. LAMINEX® MaxFlow 4G has a high selectivity for water soluble arabinoxylans and delivers the lowest  $\beta$ -glucan content on the market.

The result: A consistently high throughput with minimum risk of filter bed collapse and off-flavor formation in the finished product. With optimized mash separation and superb filtration characteristics, LAMINEX® MaxFlow 4G offers a robust and sustainable solution, independent of raw material quality. Especially in high gravity brewing, LAMINEX® MaxFlow 4G ensures consistency and maximization of cellar capacities.

Your success begins with DuPont. Call us at **800-255-6837** or visit **[www.danisco.com](http://www.danisco.com)**

Thursday continued

### **MBAA Workshop**

#### **Beer Stability and Hazing**

4:00–5:45 p.m. • Lobby Level, Empire Ballroom

Martina Gastl, Technische Universität München; Frank-Jürgen Methner, Technische Universität Berlin; John Guzman, Brewers Supply Group; Benjamin Bailey, Troegs Brewing Company

Beer stability and hazing can ruin a brewer's day, not to mention his or her beer. Join panelists from TU Berlin, TU Munich, and BSG as they share the latest research findings on the problem of haze formation from both transition metals and protein. The workshop will also provide analytics for brewers to determine quantity and types of haze as well as the tool kit of products available to address them. Ben Bailey, quality director of Troegs Brewing Company, will tell his brewery's tale of coping with growth-related challenges, specifically around hazing issues.

### **Brewing Summit Joint Party**

6:30–9:30 p.m. • The Rivers

Join your colleagues from ASBC and MBAA on Thursday evening to celebrate Brewing Summit 2014. The Brewing Summit Joint Party will take place at The Rivers, one of Chicago Loop's most popular restaurants. Grab a beer and sit on the outside deck overlooking the river. Enjoy ethnic delicacies from the cultural neighborhoods of Chicago and finish up with entertainment in the Brewing Summit Irish Pub at The Rivers. Located one mile from the Palmer House, walk over and absorb the energy from this vibrant city or take the complimentary Brewing Summit trolley.

Single Day attendees and Guests must purchase a ticket to attend this event.

The Brewing Summit Joint Party is sponsored in part by



### **Afterglow Party**

9:30–11:00 p.m. • Lobby Level, Honore Ballroom

Wind down after the Joint Party by joining your colleagues for a relaxing night with Irish coffee and networking. This event is included with registration to the Brewing Summit Joint Party.

The Afterglow Party is sponsored by 

# Save the Date!

## 2015 MBAA Annual Conference

Oct. 7–10  
Jacksonville, Florida, U.S.A.  
Hyatt Regency Jacksonville



Photos courtesy of Visit Jacksonville. Top & bottom photo © Ryan Ketterman photographer.



Ad#1-2014

Master Brewers Association of the Americas

# GET YOUR YEAST VIABILITY COUNT IN SECONDS

## ACCURATE AND REPEATABLE RESULTS

Yeast cells can be challenging to count due to their broad size distribution and high cell concentration. They can also be difficult to stain and may contain debris from the fermentation process. Monitoring the yeast performance requires accurate cell counts and cellular viability.

Now you can improve product quality through repeatable and rapid analysis with the **Vi-CELL XR Cell Viability Analyzer** from Beckman Coulter. The Vi-CELL XR combines state-of-the-art imaging technology, proprietary algorithm and fluidics management to automate the manual method of yeast viability measurements that are routinely performed during the fermentation process. You get the high resolution necessary for accurate and precise cell viability and concentration results on yeast and other small cells. The easy to use software includes the optimum parameter for a Yeast Cell Type.

For more information, visit our website or call the toll-free number shown below:

**1-800-866-7889**

**[www.particle.com/cell-counter/vi-cell-xr](http://www.particle.com/cell-counter/vi-cell-xr)**

Vi-CELL is For Laboratory Use Only. Not for use in diagnostic procedures.  
Beckman Coulter, the stylized logo and Vi-CELL are trademarks of  
Beckman Coulter, Inc. and are registered with the USPTO.  
© 2014 Beckman Coulter, Inc.



## Vi-CELL XR

Cell Viability, Counting and Sizing



**Life Sciences**



SPECIALTY MALTS FROM CARGILL

# ICH LIEBE BIER

## IREK'S MEUSSDOERFFER

**About Me:** I call Bavaria home – an area famous for bratwurst & fine malts.

**My Style:** In Germany, I'm strictly Reinheitsgebot. Elsewhere, I love to try new things!

**My Ideal Match:** Typically attracted to traditional Germans, but I'm open-minded.

**For a great malt,  
call 1.800.669.MALT**

## At Cargill, we're as passionate about craft beer as you are.

We've searched the globe to find and create exclusive and unique malts to spark your signature craft brews – including Ireks Meussdoerffer, a premium-quality German malt produced according to the strict traditions of Bavarian purity law since 1852.

Add to that Cargill's hands-on brewing expertise, exceptional quality and reliable supply, and you have a match made in heaven.

**Find your ideal match with specialty malts from Cargill.**

1.800.669.MALT | [specialtymalts.com](http://specialtymalts.com)



## Friday, June 6

7:00–8:00 a.m.	MBAA Speaker Breakfast	Level 3, Crystal Room
8:00–9:15 a.m.	<b>ASBC Technical Session: Hops</b> <i>Moderator: Tom Nielsen</i> 8:00 a.m. A-37. Victor Algazzali. Bitterness intensity of hop acid oxidation products—Humulinones and hulupones 8:25 a.m. A-39. Thomas Shellhammer. Varietal dependency of hop-derived water-soluble flavor precursors in beer 8:50 a.m. A-40. Mark Zunkel. Characterization of Hallertau Mittelfrüh, Citra, and Topaz hops and their impact on the aroma properties of three single-hopped beers using whirlpool hopping	Level 4, Red Lacquer Ballroom
8:00–9:45 a.m.	<b>Joint Workshop: Food Safety II</b>	Level 4, Grand Ballroom
8:00–9:45 a.m.	<b>MBAA Workshop: Achieving Beer Characteristics through Yeast Strain Selection and Fermentation Management</b>	Lobby Level, Empire Ballroom
8:00 a.m.–5:30 p.m.	Registration	Level 4, Registration Bays
9:00 a.m.–1:45 p.m.	Silent Auction	Level 4, Foyer
10:00–11:45 a.m.	<b>ASBC Special Session: Emerging Issues/New and Alternate Methods of Analysis</b>	Level 4, Red Lacquer Ballroom
10:00–11:45 a.m.	<b>MBAA Workshop: Growing Pains of a Successful Brewery, Part I</b>	Level 4, Grand Ballroom
10:00–11:45 a.m.	<b>MBAA Workshop: The Truth about Bitterness Units</b>	Lobby Level, Empire Ballroom
11:45 a.m.–2:00 p.m.	Exhibits and Lunch	Level 4, Exhibit Hall
11:45 a.m.–2:00 p.m.	Posters (authors present: odd numbers 12:30–1:00 p.m.; even numbers 1:00–1:30 p.m.)	Level 4, State Ballroom
2:00–3:45 p.m.	<b>ASBC Technical Session: Analytical</b> <i>Moderator: Joe Palausky</i> 2:00 p.m. A-41. Matthew Farber. Biotechnology, biosensors, and beer: The measurement of proteases relevant to brewing 2:25 p.m. A-42. Kei Saeki. Analysis of beer foam stability-affecting vacuolar protease PrA and its relevant protein 2:50 p.m. A-43. Christopher Holtz. Turbidity-causing substances fatty acids and starch: Investigations in synthetic wort 3:15 p.m. A-44. Nils Rettberg. Lipid analysis in brewing—A case study	Level 4, Red Lacquer Ballroom
2:00–3:45 p.m.	<b>MBAA Technical Session: Sustainability I</b> <i>Moderator: Fred Scheer</i> 2:00 a.m. M-72. Tom Bachman. Waste-to-energy—Biomass benefits at Sierra Nevada Brewing Company 2:25 a.m. M-10. Marlon Cabrera. The true history of Cervecera de Puerto Rico winner of Uptime Awards 2013 Best Green Reliability Program 2:50 a.m. M-11. Manaf Farhan. Optimizing performance of existing brewery anaerobic digester systems for organic content removal, biogas production, and electricity generation 3:15 a.m. M-12. Jeff Hutchison. Identifying hidden opportunities in your operations: Benefits of a total plant approach	Level 4, Grand Ballroom
2:00–3:45 p.m.	<b>MBAA Brewing Fundamentals: Hops II</b>	Lobby Level, Empire Ballroom
2:00–2:30 p.m.	Poster Take-down	Level 4, State Ballroom
2:00–4:00 p.m.	Exhibit Take-down	Level 4, Exhibit Hall
4:00–5:45 p.m.	<b>ASBC Closing Session – What’s the Buzz?</b>	Level 4, Red Lacquer Ballroom
4:00–5:45 p.m.	<b>MBAA Technical Session: Raw Materials I</b> <i>Moderator: Roy Johnson</i> 4:00 p.m. M-20. Graeme Walker. Faba beer? Potential of Faba bean starch as a brewing adjunct 4:25 p.m. M-17. Steve Gonzalez. Bourbon barrel aging optimization 4:50 p.m. M-18. Val Peacock. Brewing trials with the new Alsatian hop varieties Aramis and Triskel 5:15 p.m. M-19. Tatiana Praet. The hunt for “hoppy” compounds: Formation and flavor-activity of hop-derived sesquiterpene oxidation products	Level 4, Grand Ballroom
4:00–5:45 p.m.	<b>MBAA Workshop: Brewing Engineering</b>	Lobby Level, Empire Ballroom
5:30–11:30 p.m.	Hospitality Room	Level 6, Monroe Room
5:45–7:00 p.m.	MBAA Happy Hour	Level 4, State Ballroom

### **Joint Workshop**

#### **Food Safety II**

8:00–9:45 a.m. • Level 4, Grand Ballroom

*Ron Vail, AIB; Shawn Theriot, Deschutes Brewery; Tatiana Lorca, Ecolab, Inc.*

The goal of this two-part workshop is to help you prepare to meet the obligation of the FSMA. We will cover “Current Good Manufacturing Practice and Hazard Analysis and Risk-Based Preventive Controls for Human Food,” specifically its inclusion of spent grains from brewers, as well as “Current Good Manufacturing Practice and Hazard Analysis and Risk-Based Preventive Controls for Food for Animals.”

In this second part of two, the workshop will cover HACCP, verification vs. validation, and business cases and auditing. In addition, a lively discussion with a brewery food safety expert will guide you through preparing for a successful food safety audit from the U.S. Food and Drug Administration (FDA).

You will walk away from this workshop knowing the components of an effective food safety program that you can put into action immediately. Join us as we share the key to how you can change your brewery culture to enable a successful food safety program.

### **MBAA Workshop**

#### **Achieving Beer Characteristics through Yeast Strain Selection and Fermentation Management**

8:00–9:45 a.m. • Lobby Level, Empire Ballroom

*Presenters: Neva Parker, White Labs, Inc.; David S. Ryder, PhD, MillerCoors; Katherine A. Smart, SABMiller PLC; Yosuke Tajika, Asahi Breweries, Ltd.*

*Moderators: Leon Fyfe, Craft Brew Alliance; Vincent M. Coonce, MillerCoors*

A simple living organism, brewer’s yeast is far from simple and brings to life a brewer’s vision. The uniqueness of every beer is directly tied to the brewer’s selection and management of yeast. Whether you utilize your house strain and manipulate your process to produce a variety of beers, or you wish to diversify and exploit specific attributes of different strains, this workshop is for you. Yeast typing and associated beer qualities will be presented in conjunction with the influence of different fermentation parameters such as: temperature, pitch rate, DO, gravity, and pH. Join this workshop and gain insight into producing different beers with the same yeast, or the same beer with different yeasts.

### **ASBC Special Session**

#### **Emerging Issues/New and Alternate Methods of Analysis**

10:00–11:45 a.m. • Level 4, Red Lacquer Ballroom

*Joe Palausky, Boulevard Brewing Company; Dave Maradyn, Novozymes North America, Inc.*

We want your opinions! Join us for questions and concerns related to emerging issues in the brewing industry. Do you have a need for a new method that has not been published in the *ASBC Methods of Analysis*? Do you have a best practice in performing a method that you want to have validated and published? This is your chance to be involved with

the core of what ASBC provides to its members: science that is proven, vetted, tested, peer reviewed, and endorsed by the brewing community. This session will present results of the 2014 online poll and give you the chance to make your voice heard on the technical direction of ASBC. This is time specifically set aside in the ASBC program for you to come and provide your opinion and requests for the ASBC Technical Committee’s priorities. Don’t miss this opportunity!

### **MBAA Workshop**

#### **Growing Pains of a Successful Brewery, Part I**

10:00–11:45 a.m. • Level 4, Grand Ballroom

*Presenters: Gregg Norris, GEA Process Engineering, Inc.; Tim Matthews, Oskar Blues Brewery; Eric Baumann, Oskar Blues Brewery; Jeremy Marshall, Lagunitas Brewing Co.; Larry Sidor, Crux Fermentation Project*

*Moderator: Mitch Steele, Stone Brewing Co.*

What does it take to grow from a 5-barrel to a 20-barrel brewhouse or from a 50-barrel brewhouse to a 100-barrel brewhouse? From kegs to bottles and cans and multi-state distribution? Join this workshop to hear from brewers who have been there—and from suppliers who are part of those transitions. In the first part of this two-session workshop, a panel will discuss scaling up of an existing brewery, covering topics such as equipment additions, packaging changes, engineering, and flavor matching.

### **MBAA Workshop**

#### **The Truth about Bitterness Units**

10:00–11:45 a.m. • Lobby Level, Empire Ballroom

*Presenters: Val Peacock, Hop Solutions, Inc.; Tom Nielsen, Sierra Nevada Brewing Company; Tom Shellhammer, Oregon State University; Patti Aron, MillerCoors*

*Moderator: Matt Brynildson, Firestone Walker Brewing Company*

A panel of brewers and industry experts evaluate the venerable and often misquoted bitterness units (BU) measurement. How did the BU develop as a measure of hop flavor in beer and what exactly does it detect? How does dry hopping influence the BU measurement and what are some of the alternative detection methods evolving in the lab? What are factors downstream in the process that affect BUs in the final beer? Using tasting samples, the workshop will also look at how other variables (i.e., pH and gravity) can affect the perceived bitterness in beer at the same BU measurement.

### **MBAA Brewing Fundamentals**

#### **Hops II**

2:00–3:45 p.m. • Lobby Level, Empire Ballroom

*Zach Turner, Hopunion LLC; Tim Kostecky, John I. Haas, Inc.*

In this second of two sessions in the Hops Brewing Fundamentals track, MBAA concludes its in-depth look at hopping. Zach Turner of Hopunion will discuss hop beers in an agricultural context and tell the hops story. He will also present on aroma additions after boiling. Then, Tim Kostecky from John I. Haas will take a thorough look at hops and beer flavor, including oil composition, aroma compounds, bitterness, and more.

## ASBC Closing Session—What's the Buzz?

4:00–5:45 p.m. • Level 4, Red Lacquer Ballroom

The closing session is an excellent capstone to the ASBC Annual Meeting. Your feedback during this interactive session will shape ASBC's strategies for addressing industry issues, solving scientific and technical challenges, and building a better ASBC. Live polling will help turn your responses into actions. This is a great forum to share your thoughts, ideas, and criticisms, and its success is dependent on your participation. It's one of the easiest ways to get involved in the ASBC community, focused on the Science of Beer.

### **MBAA Workshop**

#### **Brewing Engineering**

4:00–5:45 p.m. • Lobby Level, Empire Ballroom

Tobias Ziemann, Ziemann International GmbH; Ulrich Walk, Kronen AG Germany; Ashton Lewis, Paul Mueller Co.; Fred Scheer, Kronen Inc.

Industry experts from Kronen, Ziemann, and Paul Mueller Co. will provide in-depth reviews of mash kettle, lauter tun, and boil kettle layouts and characteristics, as well as the broader topic of thermodynamics in brewing.

### **MBAA Happy Hour**

5:45–7:00 p.m. • Level 4, State Ballroom

Join your MBAA colleagues for snacks, beer, and networking before you head out to spend Friday night on the town.

Sponsored in part by



## Upcoming ASBC Sensory Series Webinars

### Validating and Choosing Panelists

July 15

### Maintaining a Well-tuned Sensory Panel

August 12



ASBC members receive access to webinars as a benefit of membership. Join online at [asbcnet.org](http://asbcnet.org)

Beer 4/11 Chaochu/Shutterstock.com

# Are you Brewing Ozone?



**Look to McClain's On Demand Ozone System to Improve your Sanitation**

**Find the Ozone people during the conference, get a ticket and you may go home \$100 richer!!!!**



**McCLAIN OZONE**  
THE LEADER IN NATURAL SANITATION SOLUTIONS

**WADDEE Inc., your authorized distributor of McClain Ozone**  
**2745 B Leisch's Bridge Road, Reading, PA 19605**  
**1-800-355-8267 - sales@zeemedrdg.com**

## Saturday, June 7

7:00–8:00 a.m.	MBAA Speaker Breakfast	Lobby Level, Honore Ballroom
8:00–9:45 a.m.	<p><b>MBAA Technical Session: Brewery Safety/WCM</b>  <i>Moderator: Susan Welch</i></p> <p>8:00 a.m. M-21. Dirk Loeffler. Chemical safety and hazardous interactions between products and equipment</p> <p>8:25 a.m. M-22. Dale Rothenberger. Is there trouble brewing for craft brewers? Workplace and environmental safety are areas of your business you need to address</p> <p>8:50 a.m. M-23. Virgil McDonald. Meeting the challenge of establishing a research brewery</p> <p>9:15 a.m. M-24. Brad Rush. Building a better tomorrow: What today's brewery employees need to know to be successful</p>	Level 3, Crystal Room
8:00–9:45 a.m.	<p><b>MBAA Technical Session: Finishing and Stability</b>  <i>Moderator: Walter Heeb</i></p> <p>8:00 a.m. M-25. Jeroen Baert. A springboard to understanding beer flavor stability: The role of bound-state aldehydes.</p> <p>8:25 a.m. M-26. Henri Fischer. Flash pasteurization—Advantages, weak points, remarkable points</p> <p>8:50 a.m. M-27. Frank-Jurgen Methner. Practical aspects to minimize the risk of oxidation and haze formation during beer production</p> <p>9:15 a.m. M-28. Daniel Weber. Controlling yeast and priming parameters for bottle conditioning</p>	Level 4, Grand Ballroom
8:00–9:45 a.m.	<b>MBAA Workshop: Sustainability: Zeroing in on Zero Waste</b>	Level 4, State Ballroom
8:00 a.m.–3:00 p.m.	Registration	Level 4, Registration Bays
10:00–11:45 a.m.	<p><b>MBAA Technical Session: Brewhouse Operations</b>  <i>Moderator: John Palmer</i></p> <p>10:00 a.m. M-29. Thomas Becher. Experience-based simplification of the lautering process—Scientific results of a flow optimization at the lauter tun</p> <p>10:25 a.m. M-30. Jörg Engstle. Characterization of horizontal layers of the lautering filter cake</p> <p>10:50 a.m. M-31. Matthias Kern. Development of a combined mashing and lautering system using direct steam and inert gas</p> <p>11:15 a.m. M-32. Eric Samp. A practical approach to controlling the formation of <i>trans</i>-2 nonenal and sensory perception of papery off-notes in packaged beer, a six sigma approach</p>	Level 4, Grand Ballroom
10:00–11:45 a.m.	<p><b>MBAA Technical Session: Raw Materials II</b>  <i>Moderator: Doug Wilson</i></p> <p>10:00 a.m. M-14. Martina Gastl. Open up a new era in evaluation of spring barley varieties</p> <p>10:25 a.m. M-13. Michael Davis. Biotechnology and malting barley variety development—GM barley?</p> <p>10:50 a.m. M-15. Yusuke Ishizuka. The influence of protein characteristics of malt on beer quality</p> <p>11:15 a.m. M-16. Junya Yamadera. A novel malting method for improvement in bitter quality of beer</p>	Level 4, State Ballroom
10:00–11:45 a.m.	<p><b>MBAA Technical Session: Sustainability II</b>  <i>Moderator: Nolan Michael</i></p> <p>10:00 a.m. M-33. Stephen O'Sullivan. Sustainability—From an equipment manufacturer's standpoint</p> <p>10:25 a.m. M-34. Timothy Rynders. A New Belgium case study: Anaerobic membranes for process waste treatment?—Are breweries ready for membranes? Can they really save you money?</p> <p>10:50 a.m. M-35. Andrew Welford. Diatomaceous earth spent filter cake recycling: Waste or a resource?</p> <p>11:15 a.m. M-36. Mark Wilson. Exploring energy efficiencies in scaling up to a larger brewhouse</p>	Level 3, Crystal Room
11:45 a.m.–1:00 p.m.	Lunch Break	(Lunch on your own)
11:45 a.m.–1:00 p.m.	MBAA Committee Meetings	Level 4, Red Lacquer Ballroom



1:00–2:45 p.m.	<b>MBAA Technical Session: Packaging (Bottles, Draft and Cans)</b> <i>Moderator: Michael Skroblin</i> 1:00 p.m. M-37. Chris Baugh. Bottle finish design and its effect on sheared finish package failure 1:25 p.m. M-38. David Duff. An explanation for corrosion in highly efficient stainless-steel tunnel pasteurizers and the options for reducing the corrosive environment and protecting the stainless steel 1:50 p.m. M-39. Johannes Tippmann. Investigations on draught hopping 2:15 p.m. M-40. Ken Grantham. Proper maintenance of keg spears with regards to safety of personnel and equipment	Level 4, State Ballroom
1:00–2:45 p.m.	<b>MBAA Technical Session: Sensory</b> <i>Moderator: Richard Michaels</i> 1:00 p.m. M-41. Javier Gomez-Lopez. Astringent: A case study in product development 1:25 p.m. M-42. Yarong Huang. A kinetic study on the formation of Strecker aldehydes during beer aging 1:50 p.m. M-43. Magdalena Muller. A review on the characterization of important aroma components of alcohol-free beer produced by thermal dealcoholization 2:15 p.m. M-44. Andres Tipler. A novel gas chromatographic system to characterize volatile components in beer and its ingredients	Level 3, Crystal Room
1:00–2:45 p.m.	<b>MBAA Workshop: Growing Pains of a Successful Brewery, Part II</b>	Level 4, Grand Ballroom
3:00–4:45 p.m.	<b>MBAA Closing Session</b>	Level 4, Grand Ballroom
4:30–11:00 p.m.	Hospitality Room	Lobby Level, Honore Ballroom

## Saturday, June 7

### MBAA Workshop

#### Sustainability: Zeroing in on Zero Waste

8:00–9:45 a.m. • Level 4, State Ballroom

*Cheri Chastain, Sierra Nevada Brewing Co.; Ian Hughes, Goose Island Beer Company; Eric Larkin, Allagash Brewing Company*

Are you thinking about the waste leaving your brewery and wondering what to do about it? Did you know that you can significantly cut your utilities costs by reducing the material you send to the landfill? Learn from three breweries of various sizes on how they are working toward zero waste within their breweries and why it is an important part of their overall operations. Sierra Nevada Brewing Co. recently achieved Platinum Zero Waste Certification through the U.S. Zero Waste Business Council and they will share their journey and how they were able to achieve this certification—it's really not as hard as you might think! Allagash Brewing Co. and Goose Island will join Sierra Nevada in sharing how to get started, the mechanics of doing a waste audit, how to track your progress, and solutions for effective communication with employees.

### MBAA Workshop

#### Growing Pains of a Successful Brewery, Part II

1:00–2:45 p.m. • Level 4, Grand Ballroom

*Presenters: Ruth Martin, Sierra Nevada Brewing Co.; Mary Rait, Craft Brewers Alliance; Connie Green, Stone Brewing Co.; Josh Deth, Revolution Brewing*

*Moderator: Andy Tveekrem, Market Garden Brewery*

In the second part of the two-session workshop on building a successful brewery, the panel will discuss the business side of growth, including human resources, implementation of a safety program, cash flow management, distribution, and raw material supply.

### MBAA Closing Session

3:00–4:45 p.m. • Level 4, Grand Ballroom

*Panelists: Karl Butzmann, Ziemann International GmbH Brewing Systems, Inc.; Ashton Lewis, Paul Mueller Co.; Roland Schlenker, GEA Brewery Systems; Fred Scheer, Kronos Inc.*

*Moderator: Jaime Jurado, Abita Brewing Co.*

Closing remarks will be followed by a moderated panel of leaders from the global industries of brewing and packaging equipment. They will put the current state of the U.S. brewing industry in an international perspective and will provide insight into the opportunities and challenges they expect to embrace in the years ahead.

# A REVOLUTION IN BREWING



**ESAU & HUEBER SYSTEM NERB BREWHOUSE  
JOHN I. HAAS - YAKIMA, WA**



**EMD MILLIPORE  
MICROBIAL MONITORING**



**GUSMER ENTERPRISES  
KICK CARRAGEENAN**



**HAMILTON  
DISSOLVED O2 MONITORING**

At Gusmer, we know the beer you create is just as unique as you are.

That's why for over 90 years, Gusmer has offered a full range of innovative tools that allow for your creative expression through unique and interesting brews.

Equipment, analytical instrumentation and processing aids, brought to you by leading suppliers – and all backed by strong technical support. The options for expression have never been greater and the tools never better, so go ahead, be unique, and create your own revolution. Contact Gusmer today for more information.



Gusmer Enterprises, Inc.®

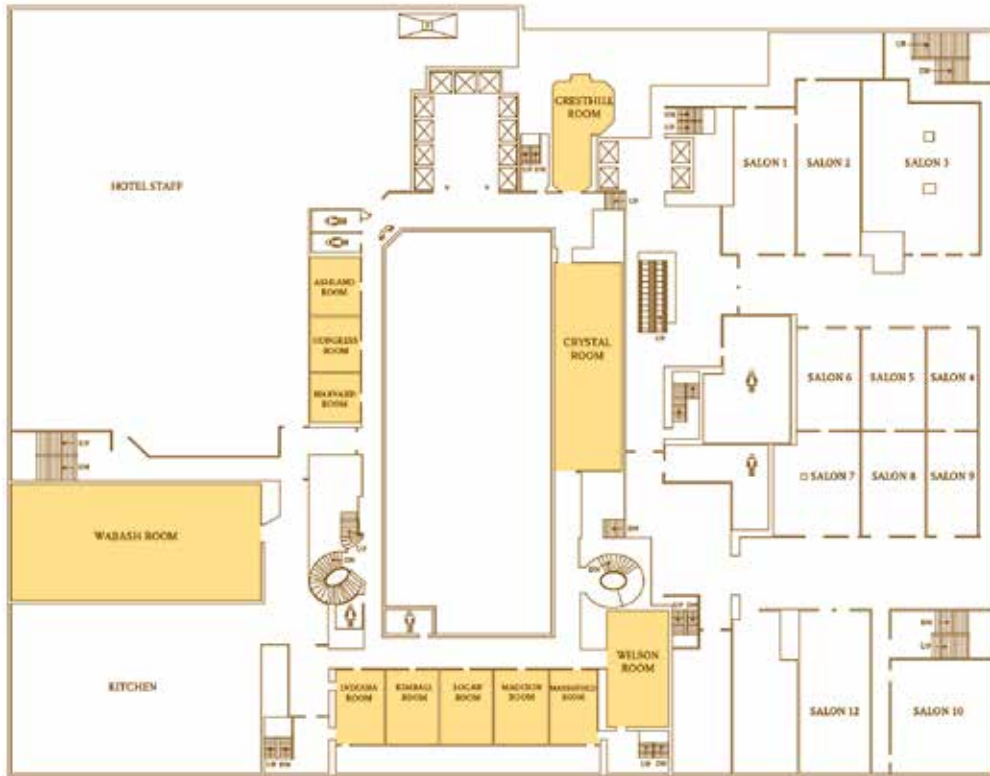
www.gusmerbeer.com  
sales@gusmerenterprises.com

West Coast:  
81 M Street  
Fresno, CA 93721  
Tel: 559.485.2692

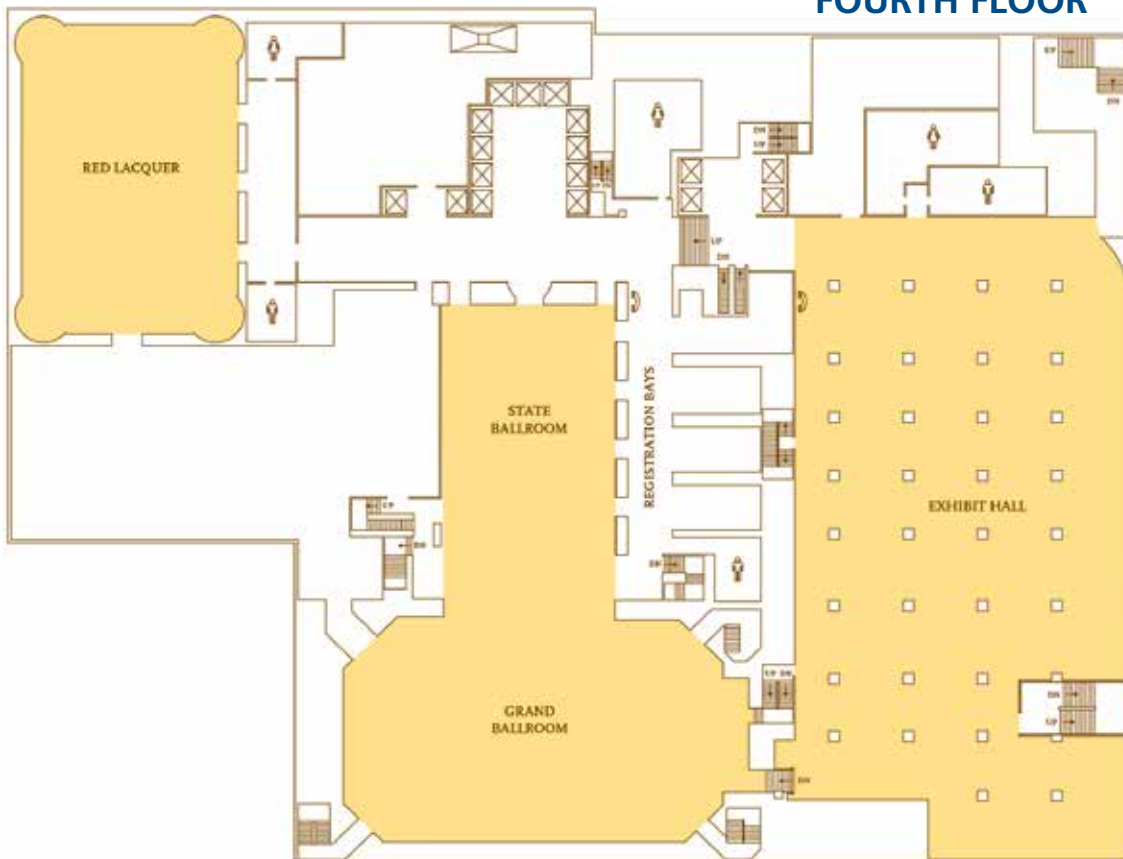
East Coast:  
1165 Globe Avenue  
Mountainside, NJ 07092  
Tel: 908.301.1811

# PALMER HOUSE FLOOR PLANS

## THIRD FLOOR

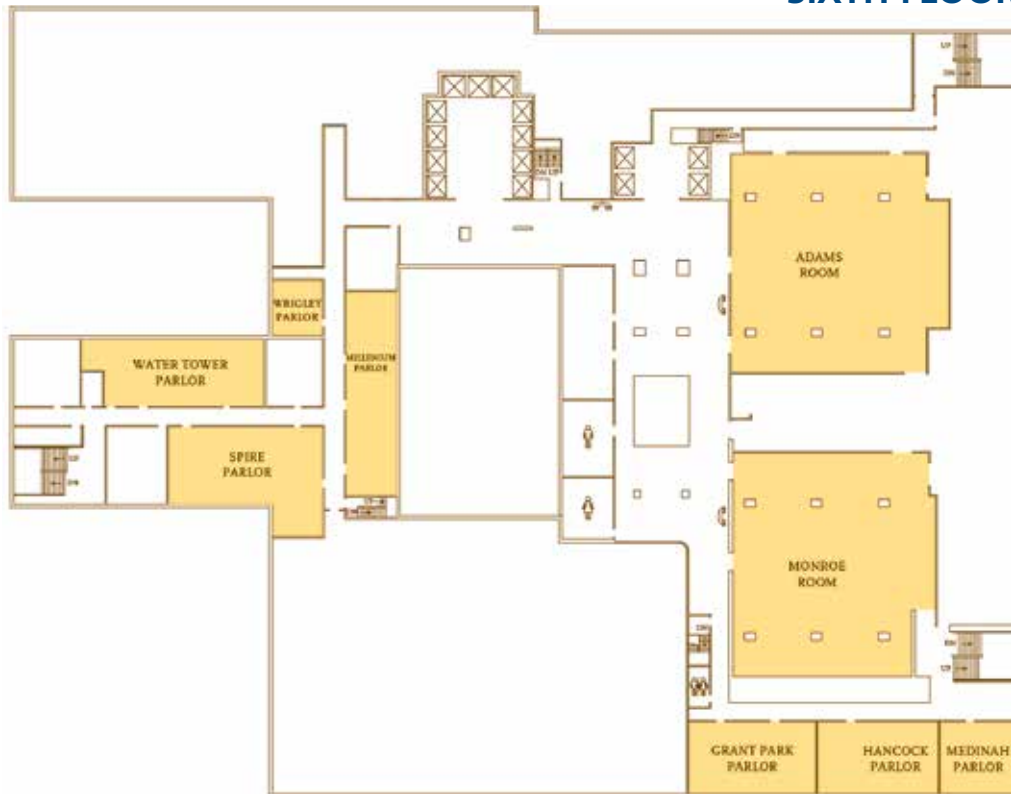


## FOURTH FLOOR



# PALMER HOUSE FLOOR PLANS

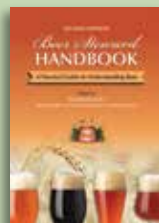
## SIXTH FLOOR



## Packaging is a Brewery's Biggest Investment.

Protect it with the most comprehensive packaging book ever written!

Order this book and other MBAA titles  
**ON SALE** in the registration area...



Master Brewers Association  
of the Americas

Ad#4-2014



**novozymes**  
Food & Beverages



Quality



Insight



Technical  
service

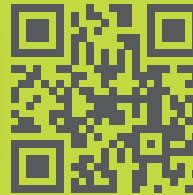
## QUALITY YOU CAN TRUST

At Novozymes, we're 100% committed to bringing you safe and high-quality products on time. And if you need our help, we're ready to give you the best support.

When you work with Novozymes, you plug into a unique network of experts who have the technical insight to be able to work as part of your business. Together, we can find the hidden opportunities in your brewing business.

That's quality you can trust.

Calculate your brewing potential –  
[www.brewingwithenzymes.com](http://www.brewingwithenzymes.com)





Institute of Brewing & Distilling

[www.ibd.org.uk](http://www.ibd.org.uk)

# IBD Convention dates for your diary...

**8-11 September 2014**  
**GLASGOW, SCOTLAND**

## WORLDWIDE DISTILLED SPIRITS CONFERENCE

*Future Challenges, New Solutions*

**The IBD Scottish Section invites you to register now for the Worldwide Distilled Spirits Conference.**

Taking place at the Hilton Hotel, Glasgow, from the 8-11 September 2014, the conference will build on the success of the four previous events. The technical programme is dedicated to promoting the application of science and technology to distilled spirits production and is attended by international representatives from the distilled spirits industry, its suppliers, academia and research institutions.

Key topics:

- Distilling Industry Resources
- Yeast and Fermentation
- Distillation and Maturation
- Energy
- Environmental Impact
- Consumer Perception
- Flavour Science

### Accommodation

The Hilton Hotel Glasgow is within easy reach of all popular Glasgow sights and attractions.

All information regarding the conference is available via the conference website:

[www.wdsc2014.org](http://www.wdsc2014.org)

**28-30 October 2014**  
**GHENT, BELGIUM**

## Young Scientists Symposium

on  
Malting, Brewing and Distilling

**The 4th YSS meeting takes place at KU Leuven Technology Campus, KAHO Sint-Lieven, Ghent, Belgium.**

Student: €350  
Non-Student: €600

For more information, E-mail:  
[Guido.Aerts@kuleuven.be](mailto:Guido.Aerts@kuleuven.be)

Applications to present lectures and posters are currently being accepted. Abstracts of up to 3000 characters should be submitted by e-mail to:  
[YSS2014Abstracts@ibd.org.uk](mailto:YSS2014Abstracts@ibd.org.uk)  
before 14 June 2014.

Sponsorship opportunities are available to support this event.  
For details contact:  
[Gert.DeRouck@kuleuven.be](mailto:Gert.DeRouck@kuleuven.be)

### Accommodation

A special 3-night package will soon be available at IBIS hotels in Ghent city centre.



[www.ibd.org.uk](http://www.ibd.org.uk)

**2-5 March 2015**  
**MOZAMBIQUE, AFRICA**



## IBD Africa Section Convention

The IBD Africa Section is delighted to invite brewers and distillers worldwide to join them at their 15th Convention to be held in the city of Maputo in Mozambique from 2-5 March 2015.

The last few years have been unprecedented in terms of investment into Africa and now it is time to deliver on the promise and to show that the growth during this period was not a one-off event.

Join us to discuss and learn how people and companies are delivering on their promises. Meet up with old and new friends and enjoy the wonderful Mozambique hospitality.

Convention Organiser: Tracey Whittle:  
+27 82 444 0770 E:  
[tracey@icesolution.co.za](mailto:tracey@icesolution.co.za)



[www.ibdafrica.co.za](http://www.ibdafrica.co.za)

# Exhibitors

## Exhibit Hall Hours

### Wednesday, June 4

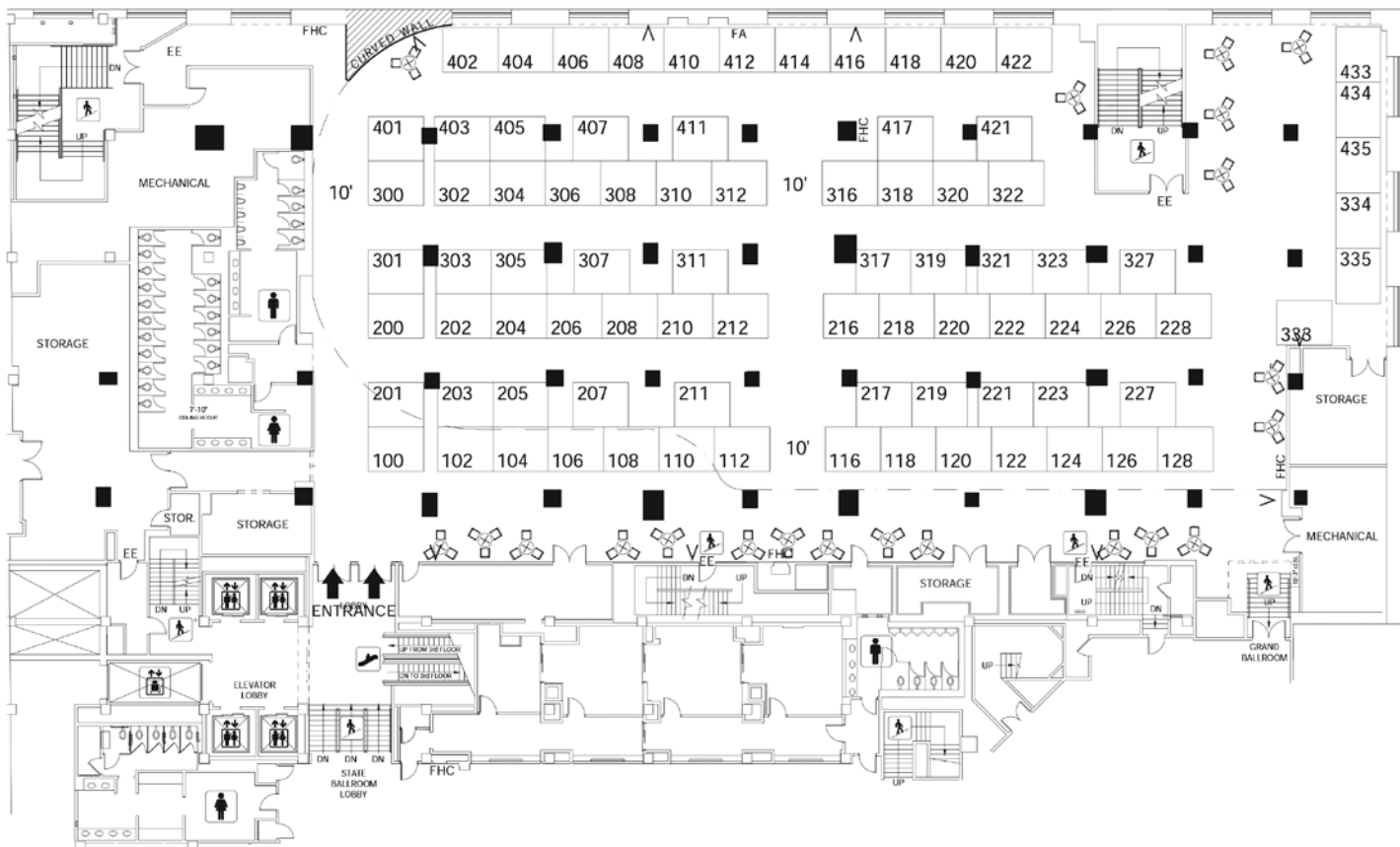
2:00–4:00 p.m. Exhibit Setup

### Thursday, June 5

8:00–11:00 a.m. Exhibit Setup  
11:45 a.m.–2:00 p.m. Lunch and Exhibits

### Friday, June 6

11:45 a.m.–2:00 p.m. Lunch and Exhibits  
2:00–4:00 p.m. Exhibit Take-down



## Poster Hours

Level 4, State Ballroom

### Thursday, June 5

8:00–11:00 a.m. Poster Setup  
11:45 a.m.–2:00 p.m. Poster Viewing  
*Authors Present:*  
12:30–1:00 p.m. *Even Numbers*  
1:00–1:30 p.m. *Odd Numbers*

### Friday, June 6

11:45 a.m.–2:00 p.m. Poster Viewing  
*Authors Present:*  
12:30–1:00 p.m. *Odd Numbers*  
1:00–1:30 p.m. *Even Numbers*  
2:00–2:30 p.m. Poster Take-down\*

\*Posters **MUST** be removed from the State Ballroom by 2:30 p.m. on Friday. Any posters remaining after this time will be destroyed.

# Technical Training for Brewery Professionals

**NEW** **Brewery Engineering and Utilities Course**

September 7–19, 2014 • Portland, Oregon  
*Available in One-Week Modules*

## Brewing and Malting Science Course

November 2–13, 2014 • Madison, Wisconsin  
*This Offering Will Sell Out Fast!*

Tuition Includes Accommodations

[www.mbaa.com](http://www.mbaa.com)



## Numerical Exhibitor Listing

100	BSG CraftBrewing	305	Albert Handtmann
102	ANDRITZ Separation, Inc.		Armaturenfabrik GmbH & Co. KG
104	Bruker BioSpin Corp.	306	ProLeiT Corp.
106	Kagetec Industrial Flooring	307	Institute of Brewing & Distilling
108	Miura North America, Inc.	308	GEA Brewery Systems
		310	GEA Westfalia Separator
110/112	Cargill Malt		Briggs of Burton, Inc.
116	DuPont Nutrition & Health	311	GEA Tuchenhausen
		312	Gusmer Enterprises, Inc.
118	ChemTreat, Inc.	316	Ecolab, Inc.
120	Malteurop North America, Inc.	317	Esau & Hueber GmbH
		318	Symbiont
122	Micro Matic USA, Inc.	319	Krones, Inc.
124	Bühler Inc.	320	Haynes Lubricants
126	PerkinElmer, Inc.	321	Anton Paar USA
128	DSM Food Specialties	322	PQ Corporation
200	University of Nottingham—Brewing Science	323	Petainer Manufacturing USA, Inc.
201	Weyermann Specialty Malts	327	Skalar, Inc.
202	Flottweg Separation Technology, Inc.	333	CE Elantech, Inc.
		334	Argelith Ceramic Tiles, Inc.
203	DCI, Inc.	335	American Tartaric Products, Inc.
204	Mettler Toledo		KHS USA, Inc.
205	Pall Corporation	401	Heuft USA, Inc.
206	Spraying Systems Co.	402	Enerquip, LLC
207	EMG International, LLC	402	LECO Corp.
208	Thermo Scientific	403	Sealed Air Corp.
210	International Ceramic Construction LLC	404	optek-Danulat, Inc.
		405	Airborne Labs International, Inc.
211	Pentair Haffmans	406	SPX
212	Siemens Industry, Inc.	407	Hamilton Co.
216/218	Hach Company	408	FleetwoodGoldcoWyard
217/219	Hopsteiner		BeerRun Software
220	Weber Scientific	410	Therma-Stor LLC
221	Siebel Institute and World Brewing Academy	411	Micromeritics Instrument Corp.
		412	VLB Berlin
222	Commodity Specialists Co.	414	STATCO dsi
		416	OrbiJet Technologies, Inc.
223	Lallemand Brewing	417	Life Technologies
224	Lechler Inc.	418	Nexcelom Bioscience, LLC
226	Hansen-Rice, Inc.	420	BEGNEAUD
227	Cloud-Sellers	421	OrchestratedBEER
228	3M Purification, Inc.		
300	VitalSensors Technologies LLC	422	
		433	
301	BIOTECON Diagnostics	434	
302	Profamo, Inc.	435	
303	Roche Applied Science		
304	BMT USA, LLC		

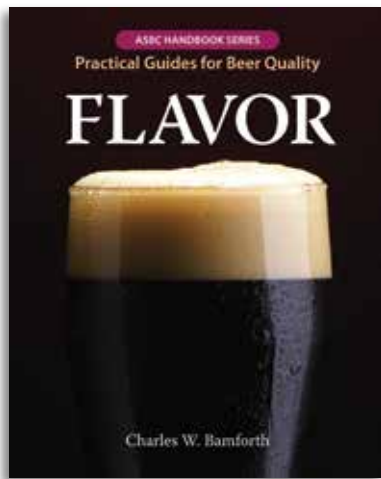


## 2014 Brewing Summit Exhibitor Descriptions

- 228 3M Purification, Inc.** 400 Research Parkway; Meriden, CT 06450; +1.203.237.5541, alt phone 1.800.243.6894; Fax: +1.203.238.8857; Web: WWW.3MPurification.com. 3M Purification Inc. provides economical solutions for clarification, sterile filtration, DE trap filtration, water filtration, and air & gas filtration in breweries around the world.
- 408 Airborne Labs International, Inc.**, 22C World's Fair Drive, Somerset, NJ 08873; +1.732.302.1950; Fax: +1.732.302.3035; Web: www.airbornelabs.com; E-mail: sales@airbornelabs.com. ALI provides certified CO<sub>2</sub> purity lab-testing services, rugged, turn-key CO<sub>2</sub> purity monitoring systems, technical training, R&M support, discount supplies, and quality solutions to the international brewing industry. Our services and products allow brewers to quickly check the quality of a CO<sub>2</sub> intended for in-house use or outside ISBT-grade sale.
- 305 Albert Handtmann Armaturenfabrik GmbH & Co. KG**, Arthur- Handtmann- Straße 11, Biberach D 88400, Germany; +49(0) 7351 342 4157; Web: www.handtmann.de. One of the leading suppliers of fittings, valves, and process plants to the beverage industry worldwide. Our safety and vacuum valves ensure an effective protection of tanks, often combined as Cleaning-Air-Valve Combinations and Tank Dome Tops. Our yeast management systems VERSAflex (automatic) and Yeast Wrangler (semi-automatic) unite viability and vitality of your yeast to the fullest.
- 401 American Tartaric Products, Inc.**, 1865 Palmer Ave., Larchmont, NY 10538; +1.914.834.1881, alt phone +1.815.357.1778; Fax: +1.914.834.4661; Web: www.americantartaric.com; E-mail: rolf@americantartaric.com. ATP is proud to present a range of products that includes brewing process aids, anti-foams, cleaning chemicals, clarifiers, DE, enzymes, filtration aids, stabilizers, filter sheets, cartridges, filtration equipment, keg lines, pasteurizers, packaging equipment, and analytical equipment. ATP represents well-respected and established companies such as Alfatek, Eaton/Begerow, Birko Corp, E-P Minerals, Ashland, Dextens, Lambrechts, Padovan, WeissBiotech, and others.
- 102 ANDRITZ Separation, Inc.**, 1010 Commercial Blvd. South, Arlington, TX 76001; +1.817.465.5611; Fax: +1.817. 468.3961; Web: <http://www.andritz.com/products-and-services/pf-detail.htm?industryid=1195559&applicationid=1195727&productgroupid=1196362&pid=5111>; E-mail: separation.us@andritz.com. ANDRITZ beer clarifier concepts are especially developed for the craft brewing industry. Our stainless steel skid-mounted clarifier systems are custom designed to clarify beer at any stage efficiently, reliably, and in an operator-friendly way at capacities to 600 bbl/h. Compare us with the competition on price, innovative design, and support.
- 322 Anton Paar USA**, 10215 Timber Ridge Dr., Ashland, VA 23005; +1.804.550.1051; Fax: +1.804.550.1057; Web: www.anton-paar.com; E-mail: INFO.US@ANTON-PAAR.COM; Facebook: <http://www.facebook.com/AntonPaarUSA>; Twitter: <http://www.twitter.com/WhatsAPNews>. Anton Paar develops, produces, and distributes highly accurate laboratory instruments and process measuring systems and provides custom-tailored automation and robotic solutions. It is the world leader in the measurement of density, concentration, and CO<sub>2</sub> and in the field of rheometry.
- 335 Argelith Ceramic Tiles, Inc.**, 103 N. 11th Avenue, Suite 204, Saint Charles, IL 60174; +1.630.444.0665; Fax: +1.630.444.0667; Web: www.argelithus.com; E-mail: info@argelithus.com; Facebook: <https://www.facebook.com/ArgelithUS>. Supplier of ceramic floor covering for lifetime use. Argelith's high quality tiles are slip-resistant, hygienic, permanently stain-resistant, and easy to clean due to very low water absorption. Hexagonal tiles can be installed in funnel shapes to fit almost any slope leading towards drainage systems or channels without over lipping.
- 414 BeerRun Software**, SWK Technology, Inc., 5 Regent Street, Suite 520, Livingston, NJ 07039; 1.877.979.5462; Web: www.beerrunsoftware.com. BeerRun is a cloud-based brewery management system, providing craft brewers with a turnkey solution capable of managing their operations with efficiency, productivity, and cost reduction. Among other features, BeerRun posts to QuickBooks, or any accounting software, and enables batch planning, sales forecasting, brew house operations, keg tracking, and TTB reporting.
- 434 BEGNEAUD**, 306 E. Amedee, Scott, LA 70583; +1.337.769.2402; Web: www.begno.com; E-mail: lauriea@begno.com. BEGNEAUD is a precision sheet metal manufacturer and industry innovator, specializing in precision sheet metal cutting, bending, perforation, forming, laser welding, and assembly. Through custom fabrication, CNC laser and punch cutting services, BEGNEAUD transforms stainless steel, aluminum, and exotic metal alloys into unparalleled quality products for its diverse range of clients.
- 301 BIOTECON Diagnostics**, Hermannswerder 17, Potsdam 14473, Germany; +49(0) 331 2300 200; Fax: +49(0) 331 2300-299; Web: <http://www.bc-diagnostics.com>; E-mail: bcd@bc-diagnostics.com; Facebook: BIOTECON Diagnostics. BIOTECON Diagnostics is a German company with over 15 years of experience in the development and marketing of rapid and innovative detection systems of highest quality for beverage spoilage organisms and food-borne pathogens based on real-time PCR. For better beer and safer food—BIOTECON Diagnostics: simply builds up trust.
- 304 BMT USA, LLC**, 14532 169th Dr. SE, Ste. 142, Monroe, WA 98290; +1.360.863.2252; Fax: +1.360.863.2366; Web: www.bmtus.com. BMT USA is located in Seattle, WA, and manufactures process and laboratory equipment. Our equipment includes electric and steam-to-steam clean steam generators for the sterilization of kegs on filling lines. In addition we also manufacture steam sterilizers and stability chambers for the QC lab.
- 311 Briggs of Burton, Inc.**, 400 Airpark Drive Suite 40, Rochester, NY 14624; +1.585.426.2460; Fax: +1.585.426-0250; Web: www.briggspc.co.uk; E-mail: sales@briggsusa.com. Briggs, with a history going back over 270 years, is one of the most experienced brewing and distilling process engineers anywhere. Developing world-class facilities in terms of efficiency and output is the norm for us. We welcome the opportunity to put this knowledge and experience to work for you.

- 100 BSG CraftBrewing**, 800 West First Street, Shakopee, MN 55379; 1.800.374.2739, alt phone +1.707.252.2550; Web: www.bsgcraftbrewing.com. BSG CraftBrewing: The select ingredients, industry experience, and dedicated customer service you need to help create outstanding beers.
- 104 Bruker BioSpin Corporation**, 15 Fortune Drive, Billerica, MA 01821; +1.978.667.9580; Web: www.bruker.com. Bruker BioSpin Corporation manufactures EPR spectrometers for use in flavor-stability applications and also offers contract analytical services. Bruker's e-scan bench-top EPR spectrometer has been optimized for measuring and predicting oxidative flavor stability throughout the entire brewing process. With over 10 years in the field, Bruker EPR remains the gold standard for maximizing the shelf life of your beer.
- 124 Buhler Inc.**, PO Box 9497, Minneapolis, MN 55440; +1.763.847.9900; Web: www.buhlergroup.com; E-mail: buhler.minneapolis@buhlergroup.com; Facebook: www.facebook.com/buhlergroup. Bühler specializes in every stage of the grist production process: from malt and grain intake, grain storage, transport, cleaning, and classification, through to preparation of grain. In close cooperation with our customers, we can provide solutions that can address a variety of needs.
- 110/112 Cargill Malt**, 15407 McGinty Road West, MS# 135, Wayzata, MN 55391; 1.800.669.MALT; Web: www.specialtymalts.com; E-mail: specialty\_malt@cargill.com. This is our craft. Cargill Malt specializes in producing a wide assortment of the highest-quality, most consistent malts. With responsive service and decades of experience and expertise, we will help you consistently deliver the high-quality flavor expected of your beer.
- 334 CE Elantech, Inc.**, 170 Oberlin Ave. North, Suite 5, Lakewood, NJ 08701; +1.732.370.5559; Fax: +1.732.370.3888; Web: www.ceelantech.com. CE Elantech is the U.S. distributor for Thermo Scientific Combustion Elemental Analyzers and Next Instruments. Featured instruments: Thermo Flash 2000 Combustion Elemental Analyzer is also available in a wide range of configurations: N/Protein through CHNS/O for solid and liquid samples. Next Instruments Near Infrared Transmission, NutriScan and SeedCount Image Analyzers.
- 118 ChemTreat, Inc.**, 5640 Cox Road, Glen Allen, VA 23060; +1.804.935.2000; E-mail: stacyf@chemtreat.com. ChemTreat, a division of Danaher, is one of the world's largest providers of water treatment products & services. We provide sustainable solutions with improved operating efficiencies, minimized expenditures, reduced carbon footprints, and improved energy and water management delivered through the most experienced sales and service team in the industry.
- 227 Cloud-Sellers**, 4855 Morabito Place, San Luis Obispo, CA 93401; +1.805.549.8093, alt phone +1.805.602.2356; Fax: +1.805.549.0131; Web: www.cloudinc.com; E-mail: mkemp@cloudinc.com. Cloud-Sellers has been the leading designer, manufacturer, and distributor of a high quality and complete line of Rotary Impingement Cleaning Machines (i.e., Jumbo, Tankman, Model 360, Troll Balls). American owned and American made!
- 222 Commodity Specialists Company**, 10733n Sunset Office Drive, Suite 260, St. Louis, MO 63038; 1.800.767.4092. CSC is a national marketer of processed feed by-products and for 35 years has been the largest in tonnage sales of wet brewer's grains in the U.S. serving large and craft brewers. We have experienced personnel nationwide who understand feed values to farmers and logistic needs of breweries, ensuring maximum returns.
- 203 DCI, Inc.**, 600 North 54th Avenue, Saint Cloud, MN 56303; +1.320.252.8200; Fax: +1.320.252.0866; Web: www.dciinc.com. DCI, Inc. has been a leader in design and fabrication of stainless steel storage and processing vessels since 1955. We offer a full range of brewing equipment including Fermenter, Bright Beer Tanks, Hot/Cold Liquor Tanks, Mash & Lauter Tuns, Brew Kettles, and Whirlpools.
- 128 DSM Food Specialties**, 3502 N Olive Road, South Bend, IN 46628; +1.574.210.9979; Web: www.dsm.com; E-mail: sylvie.zandycke-van@dsm.com. DSM is a global science-based company active in health nutrition and materials. DSM Food Specialties is a global manufacturer of food enzymes, cultures, savory ingredients, and other specialties for the food and beverage industries. DSM is the producer of Brewers Clarex®, the innovation product for stabilization and gluten-free beer.
- 116 DuPont Nutrition & Health**, Four New Century Parkway, New Century, KS 66031; 1.800.255.6837, alt phone +1.913.764.8100; Fax: +1.913.764.9157; Web: www.danisco.com; E-mail: info@danisco.com. DuPont Danisco has developed a specialized range of enzymes that maximize brewing efficiency and create stable, high quality beer with great mouthfeel. Supported by a unique knowledge base and hands-on industry specialists, these solutions are able to improve your business. Imagine doing better business...visit our booth for more information.
- 317 Ecolab, Inc.**, 370 Wabasha Street North, St. Paul, MN 55102; +1.651.293.2233; Fax: +1.651.293.2260; Web: http://ecolab.com/; E-mail: matthew.carlson@ecolab.com. Ecolab is the global leader in water, hygiene, and energy technologies and services, protecting people and vital resources. Ecolab delivers comprehensive solutions and on-site service to help ensure safe food, maintain clean environments, optimize water and energy use, and improve operational efficiencies for customers in the food and beverage industries.
- 207 EMG International, LLC**, 2 New Road, P.O. Box 1600, Media, PA 19063; +1.484.574.7668, alt phone +1.484.840.0800; Fax: +1.484.840.1996; Web: www.emgint.com; E-mail: bguarini@emgint.com. Since 1996, EMG International, LLC (EMG), has been dedicated to providing environmental science and engineering services to breweries, with a focus on wastewater treatment and renewable energy generation. EMG's full-service environmental capabilities consistently deliver timely, creative, high-quality, scientifically-based services to our clients cost effectively.
- 404 Enerquip, LLC**, 611 North Road, Medford, WI 54451; +1.715.748.5888; Fax: +1.715.748.6484; Web: www.enerquip.com; E-mail: sales@enerquip.com. Enerquip is a leading designer and fabricator of stainless steel shell and tube heat exchangers and custom components. Our reputation for high quality and fast delivery has earned us a preferred supplier status with leading companies in the sanitary and industrial markets. Make Enerquip your preferred supplier "when schedule counts".

# ASBC Book Signing Events



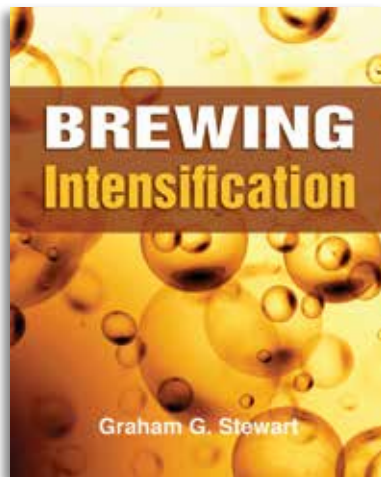
*Supplies are limited!*

*Charles W. Bamforth*



**Thursday, June 5  
1:00 – 2:00 p.m.  
at the ASBC booth near registration**

Buy the new *FLAVOR* book during the book signing, and receive a **FREE Beer Flavor Wheel!**



*Pre-order!*  
*Book will deliver Aug./Sept. 2014.*

*Graham G. Stewart*



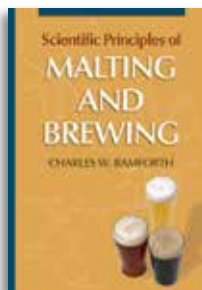
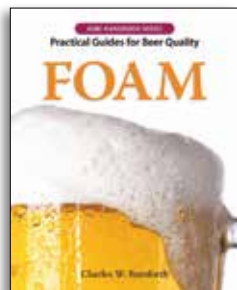
**Friday, June 6  
1:00 – 2:00 p.m.  
at the ASBC booth near registration**

Pre-order *Brewing Intensification* during the book signing, and receive a free **book plate**, plus a **FREE ASBC book light!** Supplies are limited.



**And make sure to check out other ASBC books in the registration area.**

**All titles are **ON SALE!****





**318 Esau & Hueber GmbH**, Kapellenweg 10, Postfach 1330, Schrobenhausen, Bavaria D-86529, Germany; +49 8352 8985 0, alt phone +49 171 9762140; Fax: +49 8252 8985 85; Web: www.esau-hueber.de; E-mail: info@esau-hueber.de. Esau & Hueber is now acting after acquisition of NERB as a global full-range supplier of brewhouses up to 150 bbl and complete process technology for the cold block area. The formidable range includes specialist systems like VarioBoil wort boiling, Turbo Jet wort-aeration, carbonation, nitrogenation, Flexiprop yeast-management, and Winbrew controls.

**412 FleetwoodGoldcoWyard**, 1305 Lakeview Drive, Romeoville, IL 60446; +1.314.616.1051; Web: www.fgwa.com; E-mail: dave.duff@fgwa.com. FleetwoodGoldcoWyard, part of the Barry-Wehmiller Group, has three locations in the U.S. and one location in the U.K. For more than half a century, FleetwoodGoldcoWyard has been providing advanced conveyance technology, palletizers, depalletizers, automated can end and product handling equipment, unwrappers, destrappers, coolers, pasteurizers, and brewery process equipment.

**202 Flottweg Separation Technology, Inc.**, 10700 Toeben Drive, Independence, KY 41051; +1.859.448.2300; Fax: +1.859.448.2333; Web: www.flottweg.com; E-mail: sales@flottweg.net. Located in Independence, KY, and headquartered in Vilsbiburg, Germany, Flottweg specializes in the manufacturing of a wide range of separation equipment. This includes Sedicanter for beer recovery from spent yeast, High Speed Separators for Green beer clarification, Decanters for hot wort separation from trub, and Belt Presses for spent grain dewatering.

**308 GEA Brewery Systems**, 1600 O'Keefe Road, Hudson, WI 54016; +1.715.386.9371; Fax: +1.715.386.9376 Web: http://www.geabrewery.com/; E-mail: gea-pe.us@gea.com. GEA Brewery Systems is a world-leading supplier of complete breweries. We develop innovative solutions that are specifically tailored to your unique requirements. Our scope of supply includes individual units, complete brewhouses and cellars, process automation or utilities, training and consulting, and complete plants. Engineering for a better world.

**312 GEA Tuchenhagen**, 90 Evergreen Drive, Portland, ME 04103; +1.207.797.9500; Fax: +1.207.878.7914; Web: www.gea.com; E-mail: info.TNA@gea.com. GEA Tuchenhagen is a global leader in manufacturing and supplying a wide range of sanitary flow components for the brewing and food/beverage industries. Products include process valves, valve manifolds, in-line measurement and control equipment, cleaning devices, and CIP manifolds. We also offer concept design engineering, manifold prefabrication, and plant service.

**310 GEA Westfalia Separator**, 100 Fairway Ct., Northvale, NJ 07647; +1.201.767.3900, alt phone 1.800.722.6622; Fax: +1.201.767.3901; Web: www.wsus.com; E-mail: info.wsus@gea.com. GEA Westfalia Separator is a leading manufacturer and distributor of high quality separators, decanters, and ceramic membrane systems used in beer production. With full-service repair facilities on the east and west coasts, GEA Westfalia Separator offers a complete maintenance, testing, engineering, training, repair, and spare parts capability.

**316 Gusmer Enterprises, Inc.**, 1165 Globe Ave., Mountainside, NJ 07092; +1.908.301.1811; Fax: +1.908.301.1812; Web: www.gusmerbeer.com; E-mail: sales@gusmerenterprises.com; Facebook: https://www.facebook.com/pages/Gusmer-Enterprises-Inc/297966976981310; Twitter: @gusmerbeer. For 90 years, Gusmer has taken a revolutionary approach to serving the brewer's vision. It's why Gusmer offers a full line of solutions for the brewing industry including fermentation and processing aids, filtration media and equipment, analytical products and instrumentation, processing equipment, and analytical laboratory services.

**216/218 Hach Company**, 5600 Lindbergh Dr., Loveland, CO 80538; +1.970.663.1377, alt phone +1.970.663.1377; Web: www.Hach.com. Since 1947, Hach Company has designed, manufactured, and distributed world-class instrumentation, test kits, and reagents for testing water and product quality in a variety of beverage industry applications, including influent, inline, and at-line product analysis, Clean-In-Place (CIP), and effluent water treatment.

**411 Hamilton Company**, 4970 Energy Way, Reno, NV 89502; 1.800.648.5950; Fax: +1.775.858.3026; Website: www.hamiltoncompany.com/sensors; E-mail: sensors@hamiltoncompany.com. Hamilton Company is a global leader in the design and manufacture of sterilizable dissolved oxygen, conductivity, pH, and ORP sensors. Our Beverly portable monitor with the VisiFerm™ optical sensor is designed for quick and reliable at-line control of DO in brewing applications. Stop by the booth to see its easy-to-use and maintenance-friendly design.

**226 Hansen-Rice, Inc.**, 1717 E. Chisholm Dr., Nampa, ID 83687; +1.208.465.0200; Fax: +1.208.465.0272, Web: www.hansen-rice.com. Hansen-Rice, Inc. is a national construction firm with 31 years of expertise as a Design-Build General Contractor. Our capabilities include site design and master planning, in-house

Quality brewing starts here.

New in 2014

ASBC Membership  
Now Includes

- ASBC Methods of Analysis
- Fishbone References
- Webinars



Join online at  
[asbcnet.org](http://asbcnet.org)

Courtesy of Shutterstock.com / Webinar ©Mathias R. / iStockphoto.com with grain ©Chris M. / iStockphoto.com



architectural design and engineering, refrigeration, structural steel buildings, roof sheeting, and insulated metal panels.

- 321 Haynes Lubricants**, 24142 Detroit Road, Westlake, OH 44145; +1.440.871.2188, alt phone 1.800.992.2166; Fax: +1.440.871.0855; Web: [www.haynesmfg.com](http://www.haynesmfg.com); E-mail: [sales@haynesmfg.com](mailto:sales@haynesmfg.com). Haynes Manufacturing Company is the world's leading manufacturer of premium food-grade lubricants serving the brewery, food, and related industries. Haynes food-grade lubricants can be safely used in the following applications: keg couplers, party pumps, o-rings, gaskets, seals, pump/valve assembly, threads/connections, bottling equipment, and many more.
- 403 Heuft USA, Inc.**, 2820 Thatcher Road, Downers Grove, IL 60151; +1.630.968.9011; Fax: +1.630.968.8767; Web: [www.heuft.com](http://www.heuft.com); E-mail: [laura.quid@heuft.com](mailto:laura.quid@heuft.com). Heuft is an industry leader providing online inspection systems specific to the beer industry. Visit Heuft and learn more about brand protection and quality compliance.
- 217/219 Hopsteiner**, 1 West Washington Avenue, Yakima, WA 98903; 1.800.339.8410, alt phone +1.509.453.4731; Fax: +1.509.457.4638; Web: [www.hopsteiner.com](http://www.hopsteiner.com); E-mail: [sales@hopsteiner.com](mailto:sales@hopsteiner.com). Facebook: Hopsteiner/Yakima. For 169 years Hopsteiner has been a leader in the growing and processing of hops worldwide. Working individually with brewers of all sizes to meet your needs for hops, pellets, extracts, and oils, we would be pleased to discuss your needs with you. U.S. hops are processed and shipped from Yakima, Washington, allowing for quick shipment to you. We source our hops from company ranches in the Yakima Valley, as well as long-established family farms in Washington, Oregon, and Idaho. Ask us about our hop breeding program and new hop varieties—see what our new flavors and aromas are all about. Hopsteiner Quality... the Proof is in the Pour.
- 307 Institute of Brewing & Distilling**, 44A Curlew Street, London, SE1 2ND, United Kingdom; +44(0) 207 499 8144; Web: [www.ibd.org.uk](http://www.ibd.org.uk); E-mail: [enquiries@ibd.org.uk](mailto:enquiries@ibd.org.uk); Twitter: @IBDHQ. The Institute of Brewing & Distilling (IBD) is a members' organization, also providing worldwide examinations and training for the brewing and distilling industry. The IBD publishes the *Brewer & Distiller International* and *The Journal of the Institute of Brewing*.
- 210 International Ceramic Construction LLC**, 2905 Westinghouse Blvd., Ste. 100, Charlotte, NC 28273; +1.704.504.5544; Fax: +1.704.504.9222; Web: [www.icc-tileconstruction.com](http://www.icc-tileconstruction.com); E-mail: [tom.jaggard@icc-tileconstruction.com](mailto:tom.jaggard@icc-tileconstruction.com); Facebook: [www.facebook.com/Internationalceramicconstruction](https://www.facebook.com/Internationalceramicconstruction). We install chemical resistant floor tile systems, sloping to drains, and stainless steel drainage systems for the brewing industry.
- 106 Kagetec Industrial Flooring**, 24631 Saint Benedict Road, Jordan, MN 55352; +1.612.435.7640; Web: [www.kagetecusa.com](http://www.kagetecusa.com); E-mail: [sha@kagetecusa.com](mailto:sha@kagetecusa.com); Facebook: [www.facebook.com/kagetec](https://www.facebook.com/kagetec). Kagetec provides chemical resistant, hygienic, industrial flooring systems consisting of slip resistant ceramic tile and integrated stainless steel drains. We have more than 25 years of experience in the food and beverage industry. Let Kagetec help you with one of the most critical areas of your facility.
- 402 KHS USA, Inc.**, 880 Bahcall Court, Waukesha, WI 53186; +1.262.797.7200; Web: [www.khs.com](http://www.khs.com). KHS is a global leader and preferred supplier to the packaging industry with a focus on beverage applications and turnkey lines systems and solutions. KHS designs and manufactures: kegging equipment, fillers, rinsers, cappers, labelers, pasteurizers, process systems, inspection equipment, conveyors, palletizers, and secondary packaging such as tray/case packers and multipackers.
- 320 Krones, Inc.**, 9600 South 58th Street, P.O. Box 321801, Franklin, WI 53132-6241; +1.414.409.4000; Fax: +1.414.490.4100; Web: [www.krones.com](http://www.krones.com); E-mail: [salesusa@kronesusa.com](mailto:salesusa@kronesusa.com). Krones is a leading global manufacturer of integrated brew-houses, bottling lines, IT systems, and automated warehouse management solutions. Krones will feature its brewing process systems that cover all aspects of brewing, from malt intake to filtered beer, including brewhouse and filter plants, as well as fermentation and storage cellars.
- 223 Lallemand Brewing**, 900 N. North Branch Ave., Suite 1N, Chicago, IL 60642; +1.312.255.0705; Fax: +1.312.255.1312; Web: [www.lallemandbrewing.com](http://www.lallemandbrewing.com); E-mail: [info@siebelinstitute.com](mailto:info@siebelinstitute.com). Lallemand Brewing offers products for a wide range of brewing applications including a growing selection of high-performance dry yeast products that cover a complete cross-section of popular brewing styles. Lallemand also offers yeast nutrients to help maximize your fermentation performance and beer quality.
- 224 Lechler, Inc.**, Address: 445 Kautz Road, St. Charles, IL 60174; +1.630.377.6611; Fax: +1.630.377.6657; Web: [www.LechlerUSA.com](http://www.LechlerUSA.com). Lechler is a leader in spray technology with manufacturing facilities around the world. We offer a proven and acclaimed line of tank cleaning products to effectively clean your diverse tanks, vessels, kegs, drums, barrels, and machines. At Lechler, we offer a broad product line, unmatched quality, and international engineering expertise.
- 405 LECO Corporation**, 3000 Lakeview Avenue, St Joseph, MI 49085; +1.269.985.5496; Web: [www.leco.com](http://www.leco.com). Since 1936, scientists have trusted LECO to deliver technologically advanced products and solutions for analytical science. Today's technologies for separation science resolve complex samples and pioneer high-sample throughput using GCxGC, GCxGC-TOFMS, and GC-TOFMS. A unique combination of easy-to-use software and advanced instrumentation provide innovative solutions for the most demanding applications.
- 422 Life Technologies**, 2130 Woodward, Austin, TX 78744; +1.512.983.8362; Web: <http://www.lifetechnologies.com/beer>. E-mail: [joseph.d'alessandro@thermofisher.com](mailto:joseph.d'alessandro@thermofisher.com). Life Technologies, a premier brand of Thermo Fisher Scientific, provides innovate testing solutions that ensure food safety, preserve beverage quality, and improve human health. From fast, accurate, intuitive tools built on open-design platforms to dedicated global support, we deliver solutions that help businesses protect their product, brand, and bottom line.
- 120 Malteurop North America, Inc.**, 3830 West Grant Street, Milwaukee, WI 53215; +1.414.671.1166, alt phone +1.414.649.0205; Fax: +1.414.671.1385; Web: [www.malteurop.com](http://www.malteurop.com); E-mail: [contact.northamerica@malteurop.com](mailto:contact.northamerica@malteurop.com). Manufacturers of barley and wheat malt and specialty malt products.
- 204 Mettler-Toledo**, 900 Middlesex Turnpike, Building 8, Billerica, MA 01821; +1.781.301.8800; Fax: +1.781.301.8701; Web: [www.mt.com/pro](http://www.mt.com/pro). Mettler-Toledo Ingold is the leading producer of in-line process analytics worldwide. We offer solutions

in pH, dissolved oxygen, gaseous oxygen, conductivity, and turbidity measurements.

- 122 Micro Matic USA, Inc.**, 2386 Simon Ct., Brooksville, FL 34604; +1.817.403.1502. Micro Matic is the company that cares the most about the quality of draught beer. We are the market leader in beer dispense products, including keg spears for breweries.
- 417 Micromeritics Instrument Corp.**, 4356 Communications Drive, Norcross, GA 30093; +1.770.662.3636; Fax: +1.770.662.3696; Web: <http://www.micromeritics.com>. Micromeritics manufactures automated analytical laboratory instruments that measure the physical characteristics of powder and solids for fundamental research, product development, quality assurance/control, production, and process control applications. Measurements obtained include particle size, nano particle size, particle shape, zeta potential, surface area, porosity, material density, catalytic activity, temperature-programmed reactions, and more.
- 108 Miura North America, Inc.**, 1900 The Exchange, Suite 330, Atlanta, GA 30339; +1.770.916.1695, alt phone +1.770.916.1695; Web: [www.miuraboiler.com](http://www.miuraboiler.com); E-mail: [leslie.adebayo@miuraz.com](mailto:leslie.adebayo@miuraz.com). In over 100 breweries across America, Miura is known for its commitment to protecting the environment and our innovative and efficient boiler designs. Our low NOx steam boilers provide “On-Demand” steam and innovative controls resulting in more beer and less BTU’s!
- 433 Nexcelom Bioscience, LLC**, 360 Merrimack St., Building 9, 2nd Floor, Lawrence, MA 01843; +1.978.327.5340, alt phone +1.978.327.5340; Fax: +1.978.327.5341; Web: [www.nexcelom.com](http://www.nexcelom.com); E-mail: [smarquis@nexcelom.com](mailto:smarquis@nexcelom.com); Facebook: [www.facebook.com/nexcelom](http://www.facebook.com/nexcelom). Twitter: [twitter.com/Nexcelom](https://twitter.com/Nexcelom). Nexcelom’s Cellometer line of simple-to-use cell counters automate manual cell counting procedures by obtaining accurate counts, viability, and cell sizes in less than 30 seconds and only 20uL of sample. Fluorescence detection capabilities enable fast and simple determination of GFP transfection rates, PI-viability, and direct counting of WBCs without lysing.
- 407 optek-Danulat, Inc.**, N118W18748 Bunsen Dr., Germantown, WI 53022; Phone: 1.888.837.4288; Web: [www.optek.com](http://www.optek.com); E-mail: [brew@optek.com](mailto:brew@optek.com); Twitter: <https://twitter.com/optek>. Precise control of color, haze, yeast, and solids concentration. Optek’s inline photometers and insertion probes control fermentation, filtration, separation, yeast pitching, wort color, and clarity, DE and PVPP dosing and more. Achieve uninterrupted processing of your best possible product with reduced product loss, improved profitability, and greater efficiency.
- 421 OrbiJet Technologies, Inc.**, 15200 Middlebrook Drive, Suite E, Houston, TX 77058; +1.281.218.9400; Fax: +1.713.513.5884; Web: [www.orbijet.com](http://www.orbijet.com); E-mail: [jah@orbijet.com](mailto:jah@orbijet.com). A leading manufacturer of tank cleaning equipment and systems for the internal cleaning of tanks for process, storage, and transportation. With over 150 years of combined experience, our staff has been involved in tank cleaning from the supply of tank cleaning nozzles to the engineering and design of cleaning equipment.
- 435 OrchestratedBEER**, 15220 NW Greenbrier Pkwy, Suite 340, Beaverton, OR 97006; 1.877.683.2648; Web: [www.orchestratedbeer.com](http://www.orchestratedbeer.com); Facebook: <http://www.facebook.com/orchestratedbeer>; Twitter: [@brewerysoftware](https://twitter.com/brewerysoftware). OrchestratedBEER is an all-in-one brewery management software solution that helps you manage every aspect of your business. OrchestratedBEER takes all data typically managed in spreadsheets and white boards and makes it digital so everyone has access to what they need to complete daily brewery business activities.
- 205 Pall Corporation**, 25 Harbor Park Drive, Port Washington, NY 11050; +1.866.905.9255; Web: [www.pall.com/foodandbev](http://www.pall.com/foodandbev). Pall Food and Beverage provides products and services to ensure product quality and maintain process reliability in beverage and food production. Our solutions also assist in consumer protection, the reduction of operating costs, and waste minimization. We work with our customers to advance health, safety, and environmentally responsible technologies.
- 211 Pentair Haffmans**, 293 Wright St., Delavan, WI 53115; +1.262.725.9026; Web: [www.haffmans.nl](http://www.haffmans.nl); E-mail: [hnasales@pentair.com](mailto:hnasales@pentair.com). Drawing on extensive brewing know-how and state-of-the-art technologies, Pentair provides brewing solutions including CO<sub>2</sub> and O<sub>2</sub> quality control equipment, total CO<sub>2</sub> management, “plug-and-play” units for water deaeration and carbonation, high-quality stainless steel valves, beer membrane filtration, and solutions for water and wastewater treatment from Pentair’s Haffmans, Südmo, and Beverage Systems.
- 126 PerkinElmer, Inc.**, 710 Bridgeport Avenue, Shelton, CT 06484-4794; +1.203.925.4600, alt phone 1.800.762.4000; Fax: +1.203.944.4904; Web: [www.perkinelmer.com](http://www.perkinelmer.com); E-mail: [customercareUS@perkinelmer.com](mailto:customercareUS@perkinelmer.com). PerkinElmer, Inc., is a global leader focused on improving the health and safety of people and their environment. With our analytical instrumentation and leading laboratory services, we focus on improving the integrity and safety of the world we live in.
- 327 Petainer Manufacturing USA Inc.**, 150 North Michigan Avenue, Suite 1950, Chicago, IL 60601; +1.312.447.7740, alt phone +1.773.495.7982; Fax: +1.312.276.8606; Web: [www.petainer.com](http://www.petainer.com); E-mail: [andy.carter@petainer.com](mailto:andy.carter@petainer.com). The Petainer one-way keg offers a significant breakthrough in the sales and marketing of volume beer, wine, and other beverages. It opens up new channels and markets. PetainerKeg™ provides a step change in environmental performance—as well as reducing costs and improving cash flow.
- 323 PQ Corporation**, P.O. Box 840; Valley Forge, PA 19482; 1.800.944-7411; Fax: +1.610.251.5249; Web: [www.pqcorp.com](http://www.pqcorp.com). PQ’s BRITESORB® silica gels meet the needs of brewers the world over and provide selective chillproofing performance with excellent filtration properties. BRITESORB® beer stabilizers meet all regulatory requirements for food-grade silica. PQ BRITESORB® beer stabilizers: the clear choice for world-class beer. See us at 2014 Brewing Summit Booth No. 323.
- 302 Profamo, Inc.**, 26329 Basswood Ave., Rancho Palos Verdes, CA 90275; +1.941.284.7990. Profamo Inc. will show units from Sigris, the world leader in lab and in-line turbidity; Rotech’s electronic test keg, used in over 50 breweries in North America; Pfeuffer’s Malt QA units (Friability, Assortment, Tannometer); Trace’s O<sub>2</sub> and CO<sub>2</sub> Verifiers; Advanced Instruments’ CO<sub>2</sub> purity analyzer; and finally Erlab’s ductless fume hoods.
- 306 ProLeiT Corp.**, 180 Sheree Blvd., Suite 1350, Exton, PA 19341; +1.484.348.1150; Fax: +1.610.458.060; Web: [www.proleit.com](http://www.proleit.com); E-mail: [info@proleit.com](mailto:info@proleit.com). ProLeiT offers process control technology, automation solutions, and process control systems

with integrated MES functions for the brewing industry. Our process control system called brewmaxx is, with more than 700 installations worldwide, one of the leading industry solutions for breweries. The brewmaxx system is perfectly tailored to the day-to-day operations in breweries.

- 303 Roche Applied Science**, 9115 Hague Rd., Indianapolis, IN 46256; +1.317.521.2000; Web: [www.roche-applied-science.com](http://www.roche-applied-science.com); E-mail: [matt.ward@roche.com](mailto:matt.ward@roche.com). Roche's portfolio of LightCycler® Real-Time PCR instruments combines the perfect combination of accuracy and flexibility, delivering a foundation for precise beer quality control testing. With sample throughput options at 32-, 96-, 384-well, and beyond and a host of probe/dye choices, you can truly choose the platform that fits your needs.
- 406 Sealed Air Food Care**, 100 Rogers Bridge Rd., Duncan, SC 29334; +1.864.433.2000; Fax: +1.864.433.2134; Web: [Newseal-dair.com](http://Newseal-dair.com); E-mail: [cryovac.mkt.com](mailto:cryovac.mkt.com). Sealed Air's Food Care division helps sustain healthy communities, ensuring the safety and quality of what people eat & drink by creating sustainable, innovative hygiene (Diversey™) and packaging (Cryovac®) solutions. These solutions provide measurable results to our partners through increased shelf life, food safety, operational efficiency and building their brands.
- 221 Siebel Institute and World Brewing Academy**, 900 N. North Branch Ave., Suite 1N, Chicago, IL 60642; +1.312.255.0705; Fax: 312 255 1312; E-mail: [info@siebelinstitute.com](mailto:info@siebelinstitute.com). The Siebel Institute of Technology and World Brewing Academy offers more brewing-related courses than any other school. Our campus-based and web-based programs cover the full range of brewing-related subjects, offering world-class training that ranges from the fundamentals of brewing to advanced-level programs. We also offer brewing products and services.
- 212 Siemens Industry, Inc.**, 11612 Lilburn Park Rd., St Louis, MO 63146; 1.800.241.4453, alt phone +1.423.747.5850; Web: [www.usa.siemens.com/beer](http://www.usa.siemens.com/beer); E-mail: [fbvss.industry@siemens.com](mailto:fbvss.industry@siemens.com); Facebook: [www.facebook.com/siemens.ia.us](http://www.facebook.com/siemens.ia.us); Twitter: <https://twitter.com/SiemensII>. Siemens provides products, systems, and solutions for each step of the beer production process from the dedicated process control system to field devices, measuring instruments, and drives. All our products can be seamlessly integrated into existing infrastructure, are based on proven quality standards, and ensure sustainable, energy-efficient, safe production.
- 333 Skalar Inc.**, 5012 Bristol Industrial Way #107, Buford, GA 30518; 1.800.782.4994; Fax: +1.770.416.6718; Web: [www.skalar.com](http://www.skalar.com). The Skalar Beer/Malt Automated Analyzer utilizes accurate and reliable methods defined by the EBC, ASBC, and MEBAC organizations. Methods include: Acetaldehyde, Free Amino Nitrogen,  $\alpha$ -Amylase, Viscosity, Anthocyanogen, Bitterness, Carbohydrates, Carbon dioxide, Color, Density, Diacetyl, Total Reducing Sugars, Diastatic Power, Ethanol,  $\beta$ -Glucan, pH, Nitrate + Nitrite, Soluble Protein, Polyphenols, Sulfur dioxide, Thiobarbituric acid value,  $\beta$ -Glucanase, and many others.
- 206 Spraying Systems Co.**, North Ave @ Schmale Road, Wheaton, IL 60188; +1.630.665.5000; Web: [www.spray.com](http://www.spray.com); E-mail: [David.Krueger@spray.com](mailto:David.Krueger@spray.com). Spraying Systems Co. is the world leader in spray technology. Our sales engineers are equipped to optimize all types of cleaning, coating, cooling, and drying applications in brewery operations. TankJet® tank cleaning equipment and WindJet® nozzles, air knives, and blowers are among our products used in breweries around the world.
- 410 SPX**, 611 Sugar Creek Road, Delavan, WI 53115; 1.800.252.5200, alt phone +1.262.728.1900; Fax: +1.262.728.4904; Web: [www.spx.com](http://www.spx.com); E-mail: [ft.amer.info@spx.com](mailto:ft.amer.info@spx.com). SPX is a leading supplier to the brewing industry with the APV, Seital Separation Technology, and WCB brands. We are a provider of superior products such as pumps, clarifiers, heat exchangers, and valves, including the WCB brewery mix proof valves, APV customized beer processing systems, and Seital beer clarifiers.
- 420 STATCO dsi**, 7595 Reynolds Circle, Huntington Beach, CA 92647; +1.714.375.6300; Fax: +1.714.375.6314; Web: [www.statco-dsi.com](http://www.statco-dsi.com); E-mail: [rsmith@statco-dsi.com](mailto:rsmith@statco-dsi.com). Since 1982, STATCO Engineering has been recognized as a national leader in sanitary processing, which includes the food, dairy, beverage, and life science industries. With the acquisition of DSI Process Systems, STATCO dsi is now the largest independently owned systems integrator in the industry, with approximately 200 employees from eleven offices nationwide.
- 319 Symbiont Science, Engineering and Construction, Inc.**, 6737 West Washington Street, Suite 3440, Milwaukee, WI 53214; +1.414.291.8840; Fax: +1.414.291.8841; Web: [www.symbiontonline.com](http://www.symbiontonline.com); E-mail: [jeff.vanvoorhis@symbiontonline.com](mailto:jeff.vanvoorhis@symbiontonline.com). Symbiont Science, Engineering and Construction is an engineer-led design-build company specializing in the beverage industry. Services include facilities engineering, process design, plant utilities, three-dimensional modeling, process instrumentation and control, PLC programming, equipment integration, water treatment and wastewater management, and waste-to-energy.
- 416 Therma-Stor LLC**, 4201 Lien Rd., Madison, WI 53704; 1.800.533.7533; Fax: +1.608.222.1447; Web: [www.thermastor.com](http://www.thermastor.com); E-mail: [thermasales@thermastor.com](mailto:thermasales@thermastor.com). Therma-Stor manufactures glycol chillers and heat reclaim water heaters. Heat reclaim systems capture waste refrigeration heat from to produce hot water. Therma-Stor's innovative chillers are designed for reliable, efficient cooling. The company has a strong history of heat transfer innovation, being recognized by the U.S. DOE for energy efficiency contributions.
- 208 Thermo Scientific**, 46360 Fremont Blvd., Fremont, CA 94538; +1.510.979.5000, alt phone 1.800.232.3342; Web: [www.thermoscientific.com/galleryplus](http://www.thermoscientific.com/galleryplus); E-mail: [sales.industrial@thermofisher.com](mailto:sales.industrial@thermofisher.com). Automation and efficiency for food and beverage testing. Automating and simplifying testing and quality control, the bench-top Thermo Scientific Gallery™ and Gallery Plus discrete analyzers realize time and cost savings with over 30 food and beverage applications, e.g., for different sugars and acids.
- 200 University of Nottingham—Brewing Science**, Sutton Bonnington Campus, College Road, Loughborough, Leicestershire LE12 5RD, United Kingdom; +44(0) 115 9516245, alt phone +44(0) 115 9516693; Web: [www.nottingham.ac.uk/beeringscience](http://www.nottingham.ac.uk/beeringscience). The University of Nottingham provides world-class teaching and research for the brewing and allied industries. Our postgraduate brewing qualifications and individual short courses are delivered through the latest innovations

in e-learning and intensive residential courses. Research strengths: yeast and fermentation technology, biofuels, malting science, and beer flavor technology.

**300 VitalSensors Technologies LLC**, 577 Main Street, Ste. 105, Hudson, MA 01749; +1.978.635.0450, alt phone +1.508.308.3843; Fax: +1.978.310.7074; Web: <http://vitalsensorstech.com/>; E-mail: [vst@vitalsensorstech.com](mailto:vst@vitalsensorstech.com); Facebook: <https://www.facebook.com/VitalSensorsTechnologiesLLC>; Twitter: <https://twitter.com/vitalsensorsusa>. VitalSensors Technologies is celebrating ten years of manufacturing inline process instruments in the U.S.A. VitalSensors' flagship product, the VS-3000 Beer Monitor measures CO<sub>2</sub>, alcohol, gravity, and extract at leading breweries worldwide. Our compact, cost-effective solutions provide breweries with real-time analysis of nine critical process variables using a mid-infrared probe.

**418 VLB Berlin**, Seestrass 13, Berlin 13353, Germany; +49 30 45080-0; Fax: +49 30 453 60 69; Web: [www.vlb-berlin.org](http://www.vlb-berlin.org); E-mail: [brewmaster@vlb-berlin.org](mailto:brewmaster@vlb-berlin.org). Research, training/education, information, and services for the brewing, malting, beverage, and distilling industry since 1883.

**220 Weber Scientific**, 2732 Kuser Road, Hamilton, NJ 08691; 1.800.328.8378, alt phone +1.609.584.7677; Fax: +1.609.584.8388; Web: [weberscientific.com](http://weberscientific.com); E-mail: [info@weberscientific.com](mailto:info@weberscientific.com); Facebook: <https://www.facebook.com/pages/Weber-Scientific/182912275172824>. Weber Scientific is a leading manufacturer and distributor of laboratory supplies and equipment to the food and beverage processing industries. Since 1959 we have specialized in supplying the quality control needs for product testing, both raw and finished, and for overall processing and facility quality assurance.

**201 Weyermann Specialty Malts**, Brennerstrasse 17-19, Bamberg 96052, Germany; +49-951-93220-12; Fax: +49-951-93220-912; Web: [www.weyermannmalt.com](http://www.weyermannmalt.com); Email: [info@weyermann.de](mailto:info@weyermann.de). Weyermann®, now in its fourth generation as a successful family business, has been bringing color and flavor to beer since 1879. Built on a tradition of quality, consistency, and service, Weyermann® offers more than 85 different malt varieties to brewers all around the world, in 135 countries, on all continents!

## Cheers to You, ASBC Corporate Members

ASBC Corporate Members contribute their knowledge, expertise, and professional involvement to ensure the continued strength of ASBC and promote excellence in the science and technology of brewing.

Thank you for your support, Corporate Members!

Alaskan Brewing Co.	North America Breweries
Allagash Brewing Co.	Novozymes North America
American Tartaric Products, Inc.	Inc.
Anheuser-Busch Inc.	O'Sullivan Bros Brewing Co
Anton Paar USA	optek-Danulat, Inc.
Ashland Specialty Ingredients	Pentair Haffmans
Beer Ind. Assoc. Shandong	PQ Corporation
China	Profamo, Inc.
Bio-Chem Laboratories, Inc.	PureMalt Products Ltd.
Briess Malting Co.	R-Biopharm, Inc.
Bruker BioSpin Corp.	Rahr Malting Co.
Cargill Malt	S. S. Steiner Inc.
Cloud-Sellers	Sapporo Breweries Ltd.
Craft Brew Alliance	Sealed Air Corporation
Dogfish Head Craft Brewery	Sheldon Manufacturing Inc.
Dry Dock Brewing Co	Short's Brewing Co.
Eberbach Corp	Siebel Institute and World
Ecolab, Inc.	Brewing Academy
Enartis Vinquiry	Sierra Nevada Brewing Co.
Founders Brewing Co.	Ska Brewing Co.
Fremont Brewing Co.	Skeena Brewing Co.
Hach Company	Sleeman Brewing and Malting
John I. Haas Inc.	Steinfurth, Inc.
Kalsec Inc.	Tallgrass Brewing Co.
Karbach Brewing Co.	The Bruery
Lagunitas Brewing Co.	ThermoFisher Scientific
Legend Brewing Co.	Thirsty Dog Brewing Co.
Les Brasseurs Du Nord Inc.	Union de Cervecerias
Malteurop North America	Peruanas
Inc.	Utah Brewers Cooperative
Midwest Hop and Beer	Weyerbacher Brewing Co.
Analysis LLC	White Labs, Inc.
MillerCoors	Wyeast Laboratories Inc.
Molson Coors	Yakima Chief Inc.





ChemTreat offers a complete line of water treatment products & services for the brewery, winery & beverage industries.

Our products are effective in enhancing operations and improving productivity.

- Pasteurizer Treatment
- Boiler Water Treatment
- Cooling Water, Closed Recirculating Treatment
- Wastewater Treatment
- Specialty Formulas
- Recycled Water Opportunity



**Find out more.**

**Call 1-800-442-8292**

**or visit**

**[www.chemtreat.com](http://www.chemtreat.com)**



LAGER

PurePitch™ WLP800  
PILSNER LAGER YEAST  
Best Before: June 2016 Lot No. 1003267



ESTD 1995

# WHITE LABS

PURE YEAST & FERMENTATION

## PurePitch™

"You're holding the industry's first pitchable yeast grown and delivered in the same package. Introducing White Labs PurePitch, the result of a 5 year journey to create the absolute purest yeast ever. Yeast that's never been exposed to the environment, in it's most perfect, and natural state."

A handwritten signature in black ink, consisting of a stylized 'C' and 'W'.

Chris White  
CEO & Founder, White Labs

Net Vol. 500 mL

This is  
where →  
your yeast  
grew up.

Advancing fermentation.  
Cultivating community.

[whitelabs.com/innovation](http://whitelabs.com/innovation)

# Posters

## ASBC Poster Presentations

- A-46 Jan Biering. Oscillating conditions in yeast fermentation: Multi-position sensors and improved sampling for process optimization
- A-47 John Carvell. A comparison of new digital imaging technique for yeast cell counting and viability with traditional methods
- A-48 Ashima Nayyar. Correlation of cell surface properties of industrial yeast strains to their functional role in fermentation
- A-49 Gudrun Vogeser. Microbiology in process control made easy—Is PCR finally available for everybody?
- A-50 Alex Speers. Quantification and examination of zymolectin cell surface levels and other cell characteristics in brewing yeast sub-populations using a flow cytometric assay
- A-52 Taku Ota. Crossbreeding of bottom-fermenting yeast strains by a novel method for effective isolation of mating-competent cells
- A-53 Leo Chan. Image-based cytometric analysis of fluorescent viability and vitality staining methods for *Saccharomyces cerevisiae*
- A-54 Benjamin Haeffner. Spent grains as a renewable energy source: Procedural solutions to optimize the wet-fermentation process
- A-56 Gudrun Vogeser. Specific detection of bacteria and yeasts in downstream process control of beer and related products
- A-57 Tiffany Andres. Analyzing the sugar and flavor profile of *Brettanomyces* wild yeast during primary versus secondary fermentation
- A-58 Ruslan Hofmann. The influence of up- and downright bottle storage on oxygen permeation through crown corks
- A-59 Jason Porter. Manganese in brewing and beer
- A-60 Martina Gastl. Maltodextrins—The body builders!
- A-62 Zhumao Jiang. A novel approach to brew alcohol-free beer
- A-63 Frank Verkoelen. Differentiated total package oxygen (TPO) measurement for improved packaging and product quality
- A-65 Muriel Steele. Comparison of life cycle impacts of brewing with locally and conventionally sourced ingredients
- A-66 C. David Thornton. Value-added processing of brewery wastes for production of feed, fuel, and fertilizer utilizing larvae and algae
- A-68 Matthias Kern. Use of direct steam and inert gas for heating and mixing—A new mashing system with various advantages
- A-69 Daniel Vollmer. Oxidative storage conditions influence the aroma and flavor of Hallertauer Mittelfrüh in dry-hopped lager beer
- A-70 Daniel Sharp. Influence of hop regime, hop cultivar, and yeast on the hop aroma in beers using descriptive sensory analysis
- A-71 Alexander Mauch. Impact of major *T. reesei* derived hemi- and cellulytic activities on grist elements supposed to be beneficial to the filter-bed properties
- A-72 Gilles Goemaere. Improvement of beer flavor stability through wort protection against oxidation
- A-73 Yongxian Li. Variation of bitter substances from hop pellets during storage
- A-74 Meghan Peltz. Effect of ethanol content on sensory aroma detection thresholds of hop compounds in water and beer
- A-75 Ellen Parkin. Investigations into the bitterness of dry-hopped beer
- A-76 Sonia Collin. Polyfunctional thiol potential of new dual hop varieties for late- and dry-hopping: Flavor stability through beer aging
- A-77 Pattie Aron. Identification and characterization of 1,3-pentadiene in commercially produced hop extract and its potential impact on hop product and lager beer quality
- A-78 Brett Taubman. A comparative analysis of aroma active compounds in hops grown in North Carolina and the Pacific Northwest via headspace GC-MS
- A-79 David Riveros. Physical differences among class II hydrophobins affect their self-assembly mechanism and hence their gushing potential
- A-80 Linjiang Zhu. Emerging factors blocking wort filtration during beer brewing using corn starch as adjunct
- A-81 Simon Henke. About the influence of mass transfer phenomena on starch gelatinization during mashing
- A-82 Makoto Kawasaki. Novel two-phase wort boiling process for energy saving
- A-83 Philippe Cario. DE-free beer filtration: Innovative alternative to improve quality and cost efficiency on traditional equipment
- A-84 Katy Benson. Metabolomics and hopping
- A-85 Shumin Hu. Effect of glucanase, xylanase, and proteinase on starch degradation during mashing
- A-86 Austin Gregoire. An investigation into the use of hops in the whirlpool and the impact on wort during the whirlpool process
- A-87 Timothy D'Andrea. Thermal decomposition kinetics of iso-alpha-acids
- A-88 Hisato Imashuku. Improved utilization of alpha-acids and varied aroma characters by pre-incubation of hops
- A-89 Marcus Vinje. Evaluating differences between micromalted and laboratory germinated barley
- A-90 Gregg Hasman. Direct quantitative analysis of alpha- and beta-acids by electrospray ionization mass spectrometry
- A-91 Roman Ortiz. Analysis of selected aldehydes in packaged beer by solid-phase microextraction (SPME)-gas chromatography-negative chemical ionization mass spectrometry (GC-NCIMS)
- A-92 Peter Brugger. Influence of fluorescence of dark beers on haze measurement
- A-94 Luis Castro. Development and optimization of a solid-phase dynamic extraction (SPDE) method for volatile compound determination in beer
- A-95 Luis Castro. The use of stir bar sorptive extraction and solid-phase microextraction for the determination of beer flavor compounds
- A-96 Nils Rettberg. Retooling hop oil analysis—Enantioselective gas chromatography-mass spectrometry empowers the investigation of flavor and bioactive compounds
- A-97 Atsushi Ohuchi. Determination of ethanol in low alcohol beer by headspace GC-FID: 2013 BCOJ collaborative work
- A-98 Grant Ruehle. Instrumental methods for measuring flavor changes over the shelf life of beer
- A-100 Elizabeth Humston-Fulmer. Investigation of “dry-hop index” as an indicator for hop oxidation via UV-Vis spectrometry and GC-TOFMS
- A-101 Stanley Duke. Comparisons of barley malt amylolytic enzyme thermostabilities to wort osmolyte concentrations, malt extract, ASBC measures of malt quality, and initial enzyme activities
- A-102 Elizabeth Humston-Fulmer. Gas chromatography with time-of-flight mass spectrometry for aroma profiling
- A-103 Brett Taubman. Profiling the shelf life and shelf stability of hop and malt driven beers using SBSE-TD-GC-MS/O and trained sensory panel evaluation
- A-104 Darrin Smith. Chemical profile analysis of beer using direct analysis in real time mass spectrometry (DART-MS)

## ASBC Vender Poster Presentations

- A-105 Jack Saad. Complete size characterization of diatomaceous earth
- A-106 Tove Wichmann. Escaping the event horizon of attenuation control's black hole
- A-107 Javier Gomez-Lopez. Burnt caramel: From the flavor wheel to the tasting room

## MBAA Poster Presentations

- M-45 Simon Henke. Solid-liquid separation of high-gravity mashes with a decanter centrifuge
- M-46 Calum Holmes. The impacts of steam injection technology upon volatile formation and stripping during wort boiling
- M-47 Yarong Huang. Influence of formation of hot trub and kinetic chemistry during wort boiling
- M-48 Brian Faivre. Define your brewery automation, or this guy will
- M-49 Johannes Preiss. Old-fashioned processing integrated in a brand new brewhouse
- M-50 Udo Kattein. Brewing beer versus brewing sake—What makes the difference?
- M-51 Kenneth Berg. Gluten content of some commercial American beers
- M-52 Michael Koppelman. A simple, quantitative approach to beer freshness
- M-54 Niels Mastrup. Which filter? A guide to beer clarification in the 21st century
- M-55 Julia Hoffmann. Rapid detection and identification of 30 beer-spoilage bacteria in one test
- M-56 Hilary Kane. Automated wort and beer quality control analysis
- M-57 Frank Verkoelen. Segmented filter system—A proven, revolutionary design
- M-59 Toru Kishimoto. Development of the mercury-free analytical method for the quantification of hop-derived thiols in beer
- M-62 Gregg Norris. New aspects of brewhouse configurations for mid-size brewers: Have the optimal system right from the start!
- M-63 David Griggs. Heritage barley varieties—Going back for the future?
- M-64 David Griggs. A clear choice for haze-free beers
- M-65 Ryoichi Kanatani. The LOX-1-less malting barley varieties—Breeding of high-end barley varieties
- M-66 Koji Mima. Handling techniques of lightweight cartons
- M-67 Bob Pease. The role of eco-friendly processes in packaging beer
- M-68 Adam Stowitts. Beer in PET: The answer to beer packaging headaches
- M-69 Laetitia d’Ursel. Sustainable brewing of the future—Innovative water and energy recovery technologies through practical cases
- M-70 Manaf Farhan. High-rate anaerobic digester systems for brewery wastewater treatment and electricity generation: Waste-water characterization, system description, required footprint, construction, start-up and operation, and derived benefits
- M-71 Matthew Silver. Brewing a sustainable footprint: Generating energy while treating wastewater for reuse
- M-73 Juerg Zuber. Sustainability of beer filtration
- M-74 Verena Blomenhofer. Regenerative cooling in breweries
- M-75 Josef Bloder. Aspects of optical and traditional measurement of dissolved carbon dioxide by in-line, at-line, and laboratory instrumentation
- M-76 J. P. Northrop. Aspects of in-line instrument measuring principles for alcohol determination, with introduction of a new low-cost method
- M-77 Benjamin Bailey. Implementation of real-time PCR to ensure bacteria-free yeast propagations in a mid-sized craft brewery
- M-78 Sasa Despotovic. Influence of yeast generation on fermentation behavior and sensory characteristics of beer
- M-79 Pritee Gaikwad. Speedy Breedy: Rapid and reliable detection of microbial contamination in brewing
- M-80 Joseph Spearot. Effect of the early-pitching method on beer composition during the brewing process
- M-81 R. Alex Speers. The types and properties of yeasts and bacteria isolated during a microbiological survey of Lindores Abbey
- M-82 Kara Taylor. Relationships between dry-hopped beers and diacetyl: Part II

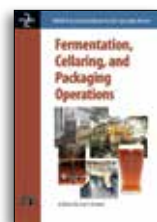
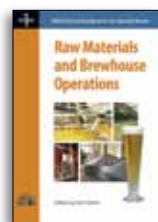
# MBAA Book Signing Event!



**Karl Ockert**

Thursday, June 5, 1:00–2:00 p.m.  
near the registration area

Buy *Beer Packaging, Second Edition* or the *Practical Handbook Series* books during signing hours and get them personally signed by Karl! (*Supplies are limited*)







# MALT HANDLING, LLC

*Customized Solutions for the Craft Brewer & Distiller*

- ⚙️ MALT SILOS & STORAGE
- ⚙️ MALT MILLS
- ⚙️ AGTRONIX FLOWSCALE & MOTOR CONTROL CENTERS
- ⚙️ AUGERS, CONVEYORS & BUCKET ELEVATORS
- ⚙️ SPENT GRAIN REMOVAL
- ⚙️ CUSTOM GRIST CASES
- ⚙️ SUPER SACK HANDLING
- ⚙️ GRIST PROFILE ANALYSIS
- ⚙️ TURN-KEY SYSTEMS

Contact us today at 773.888.7718

[www.MALTHANDLING.COM](http://www.MALTHANDLING.COM)



# CONTINUWELD®

## 7-PLY FILTER LEAF



## Leakproof. Durable. Repairable.

With state-of-the-art pressure filter technology, rugged Continuweld® construction and leakproof seal, Cambridge Engineered Solutions helps brew some of the world's best beers.

Contact Todd Donohoe to learn how we can help your brewmaster  
800.677.2358 | 410.713.9103 | tdonohoe@Cambridge-ES.com



**CAMBRIDGE**  
ENGINEERED SOLUTIONS

[www.Cambridge-ES.com](http://www.Cambridge-ES.com)



# Author Index

The letter (A or M) preceding the abstract number refers to the program, ASBC or MBAA, the abstract is associated with.

- Adya, A. K., A-48, M-19, M-25  
Aerts, G., A-40  
Aizawa, M., A-12  
Algazzali, V., A-37, A-69  
Andersen, M. L., A-23  
Andres, T. N., A-57  
Andrews, W., A-30  
Aron, P., A-77  
Asada, K., A-28  
Asakawa, M., A-97
- Babarogic, S., M-78  
Bachman, T., M-72  
Baert, J. J., M-25  
Bailey, B., M-77  
Bamforth, C. W., A-59, A-84  
Baugh, C., M-37  
Becher, T., M-29, M-74  
Becker, T., A-4, A-9, A-11, A-40, A-43, A-60, A-68, M-8, M-31, M-39, M-42, M-43, M-47  
Beermann, M., A-19  
Beneš, R., A-92  
Benson, K., A-84  
Berg, K. A., M-51  
Berget, P. B., A-41  
Bertaccini, M., A-72  
Biering, J., A-46  
Binkley, J., A-100, A-102  
Bloder, J., M-75, M-76  
Blom Sørensen, M., A-71  
Blomenhofer, V., M-74  
Blundell, M., A-15  
Bockisch, A., A-46  
Boulton, C. A., A-2  
Bowman, J., A-17  
Brady, E. A., A-86  
Brown, E., A-103  
Brugger, P., A-92  
Burke, C. J., M-81
- Cabrera, M. G., M-10  
Canetta, E., A-48  
Cardoso, D. R., A-23  
Cario, P., A-72, A-83  
Carvell, J. P., A-47  
Castro, L. F., A-29, A-94, A-95  
Chadwick, L. R., A-100  
Chan, L. L., A-53  
Chaya, C., A-8  
Christiansen, K. L., A-34  
Clark, F., M-20  
Cohen, S., A-103  
Collin, S., A-76  
Cook, D. J., A-22, M-46  
Coote, N., M-54
- Daigaku, Y., M-66  
D'Andrea, T., A-87  
Davis, M. P., M-13  
de Almeida, N. E., A-23  
De Clippeleer, J., M-25  
De Cooman, L., A-40, M-19, M-25  
de Vos, S., M-63  
Deckers, S. M., A-10  
Derdelinckx, G. S., A-10  
Despotovic, S., M-78  
Diniz, P., A-24  
Dobrick, S., A-58  
Doi, N., A-12  
Dong, J., A-85  
Donnelly, D., M-46  
Driscoll, D., A-27, A-53  
Duff, J. D., M-38  
Duffy, A., A-103  
Duke, S. H., A-89, A-101  
Duncan, K., M-20  
d'Ursel, L., M-69
- Eaton, C., A-8  
Edney, M. J., A-18  
Eglinton, J., M-65  
Eklöf, J., A-71  
Elvig, N., A-71  
Engstle, J., M-30  
Espinosa, M. H., A-30  
Eurich, M., A-77, M-32  
Evans, E., A-17
- Faivre, B., M-48  
Farber, M. J., A-41  
Farhan, M. H., M-11, M-70  
Fernández Vázquez, R., A-8  
Fernández-Ruiz, V., A-8  
Fischer, H., M-26  
Fischer, M., M-34  
Folz, R., A-46  
Först, P., M-30  
Foster, R. T., A-30, M-32  
Francis, S., A-7  
Fujiwara, H., M-1  
Fusa, T., A-82
- Gaikwad, P. A., M-79  
Garbe, L. A., A-21, A-32, A-44, A-96  
Gastl, M., A-9, A-11, A-40, A-43, A-60, M-14  
Gebremariam, M. M., A-4  
Goemaere, G., A-72, A-83  
Gomez-Lopez, J., A-107, M-41  
Gonzalez, S., M-17  
Gore, E., M-5  
Grantham, K., M-40  
Gregoire, A. D., A-86
- Griggs, D., M-63, M-64  
Grönewald, C., M-55  
Gros, J., A-76
- Habara, M., A-6  
Haeffner, B., A-54  
Hasman, G., A-90  
Hassani, A., A-4  
Henke, S., A-81, M-45  
Henry, J. S., A-86  
Hense, W., M-46  
Henson, C. A., A-89, A-101  
Hida, Y., M-15, M-16  
Hildebrand, J. H., A-25  
Hill, A. E., M-81  
Hirota, N., M-65  
Hoffmann, J., M-55  
Hofmann, R., A-24, A-58  
Holtz, C., A-43  
Hoki, T., M-65  
Holmes, C. P., M-46  
Horner, T., M-32  
Hort, J., A-7, A-8  
Hotchko, R. A., A-36  
Howitt, C., A-15  
Hu, S., A-85  
Huang, S., A-85  
Huang, Y., M-42, M-47  
Humston-Fulmer, E., A-100, A-102  
Hussein, M. A., M-8  
Hutchison, J., M-12
- Ianieri, J., M-20  
Iannetta, P., M-20  
Ichii, T., A-52  
Iimure, T., M-65  
Imezaki, H., A-6  
Imashuku, H., A-88  
Ishizuka, Y., M-15  
Izydorczyk, M. S., A-18
- Janusz, A., A-17  
Jiang, Z., A-62  
Junne, S., A-46
- Kaltenbrunner, A., A-19  
Kanai, K., A-52  
Kanatani, R., M-65  
Kanauchi, M., A-97  
Kane, H., M-56  
Kankolongo Cibaka, M. L., A-76  
Kattein, U., M-50  
Kaur, M., A-17  
Kawasaki, M., A-82  
Kern, M., A-68, M-31  
Kihara, M., M-65  
Kishimoto, T., M-59  
Kobayashi, M., A-12
- Kobayashi, O., A-52  
Koenig, W., M-14  
Kollmannsberger, H., A-40  
Koppelman, M. D., M-52  
Koutoulis, A., A-17  
Krause, D., M-8  
Krebs, G., A-60  
Krivenki, T., A-78  
Kuhn, M., M-30  
Kuhr, J., M-70  
Kuksin, D., A-53  
Kusaka, K., A-97
- Larsen, L. B., A-106  
Layfield, J. B., A-25, A-55  
Leskosek-Cukalovic, I., M-78  
Lewis, A., M-6  
Li, Q., A-3, A-31, A-73, A-80  
Li, Y., A-20, A-73, A-80  
Lindner, M., M-49  
Liu, C., A-3, A-31, A-73  
Liu, J., A-85  
Liu, X., A-62  
Loeffler, D., M-21  
Luan, G., A-3  
Lund, M., A-23
- Ma, T., A-80  
Maca, H. W., M-2  
MacLeod, A. L., A-18  
Marques, L., A-30  
Masuda, S., A-12  
Maruhashi, T., M-15  
Mauch, A., A-71  
Mastrup, N. S., M-54  
Maxminer, J. P., A-22  
McCaig, R., A-20  
McDonald, V. M., M-23  
McEnery, K., M-7  
McMaster, J., A-22  
Mengdehl, M., A-21  
Methner, F. J., M-27  
Mima, K., M-66  
Moench, M., M-20  
Mott, A., A-1  
Muller, M., M-43  
Müller-Auffermann, K., A-26, A-35  
Munoz Insa, A., A-11
- Nayyar, A., A-48  
Nedovic, V., M-78  
Neubauer, P., A-46  
Neugrodda, C., A-9  
Neumann, K., A-32  
Nielsen, T., M-37  
Nikolova, N., M-19  
Niksic, M., M-78
- Nishimura, H., A-52  
Norder, E., A-19  
Norris, G., M-62  
Northrop, J., M-75, M-76
- Ochiai, N., M-59  
O'Donovan, J. T., A-18  
Ogushi, K., M-65  
Ohuchi, A., A-97  
Oka, K., M-15, M-16  
Ornay, B. C., M-12  
Ortiz, R. M., A-91, M-32  
O'Shaughnessy, C., M-56  
Oshima, T., A-28  
Ostinelli, A., A-83  
O'Sullivan, S. J., M-33  
Ota, T., A-52
- Packard, K. A., A-86  
Pahl, R., A-24, A-46, A-58  
Palomba, G., M-20  
Parkin, E. J., A-75  
Payne, K., A-100  
Peacock, V. E., M-18  
Pease, B., M-67  
Peltz, M. L., A-74  
Porter, J. R., A-59  
Potter, G., A-50  
Powell, C. D., A-1  
Praet, T., M-19  
Pratt, D. P. L., A-13  
Preiss, J., M-49  
Pueschel, M., A-21, A-44
- Qian, Y., A-39
- Rath, F., M-14  
Raver, M., A-77  
Rebecca, C., A-7  
Rettberg, N., A-21, A-44, A-96  
Ridout, C., M-63  
Riveros, D., A-79  
Robiette, R., A-76  
Rodriguez, J., A-10  
Ross, C. F., A-29, A-94, A-95  
Rossnagel, B. G., M-65  
Rothenberger, D., M-22  
Ruehle, G. M., A-98  
Rush, B. A., A-33, M-24  
Russ, W., M-74  
Rynders, T. P., M-34
- Saad, J. G., A-105  
Saeki, K., A-42  
Saito, W., M-65  
Saldi, S., A-53

*continued*

## Advertisers' Index

Samp, E. J., M-32	Tippmann, J., A-14, A-68, M-31, M-39, M-42, M-43, M-47	Alfa Laval ..... 11 <a href="http://www.alfalaval.com">www.alfalaval.com</a>
Sanchez, G., M-37	Titze, J., A-10, A-19	Ashland Specialty Ingredients ..... Cover 3 <a href="http://www.ashland.com/mbaa/polyclar">www.ashland.com/mbaa/polyclar</a>
Santiago Riverros, D., A-10	Tomellini, S. A., A-86	Beckman Coulter Life Sciences ..... 17 <a href="http://www.particle.com/cell-counter/vi-cell-xr">www.particle.com/cell-counter/vi-cell-xr</a>
Sasamoto, K., M-59	Torres, L., A-100	BSG CraftBrewing ..... 47 <a href="http://www.bsgcraftbrewing.com">www.bsgcraftbrewing.com</a>
Sato, M., A-28, A-42	Tran, T. T., A-76	Bühler Inc. .... 3 <a href="http://www.buhlergroup.com">www.buhlergroup.com</a>
Schoenberger, C., A-10, A-40	Tsuchiya, F., A-97	Cambridge Engineered Solutions ..... 44 <a href="http://www.cambridge-es.com">www.cambridge-es.com</a>
Seaman, R., M-11	Tsukada, Y., A-97	Cargill Malt ..... 18 <a href="http://www.specialtymalts.com">www.specialtymalts.com</a>
Sedin, D., A-103	Van Opstaele, F., A-40, M-19	ChemTreat, Inc. .... 39 <a href="http://www.chemtreat.com">www.chemtreat.com</a>
Sharp, D. C., A-70	VanVoorhis, J., M-72	DSM Food Specialties ..... Cover 2 <a href="http://www.dsm.com/food">www.dsm.com/food</a>
Shellhammer, G., A-39	Veljovic, M., M-78	DuPont Nutrition & Health ..... 15 <a href="http://www.danisco.com">www.danisco.com</a>
Shellhammer, T. H., A-36, A-37, A-39, A-69, A-70, A-74, A-75	Veljovic, S., M-78	Gusmer Enterprises, Inc. .... 24 <a href="http://www.gusmerbeer.com">www.gusmerbeer.com</a>
Sheppard, J. D., A-25, A-55	Venter, A. R., A-90	Institute of Brewing & Distilling ..... 28 <a href="http://www.ibd.org.uk">www.ibd.org.uk</a>
Shi, H., A-31	Verkoelen, F., A-63, A-63, M-57	Malt Handling, LLC ..... 43 <a href="http://www.malthandling.com">www.malthandling.com</a>
Shigyo, T., A-28, A-42	Vinje, M. A., A-89, A-101	McClain Ozone ..... 21 <a href="http://www.zeemedrdg.com">www.zeemedrdg.com</a>
Shinkai, T., M-65	Vogeser, G., A-49, A-56	Novozymes ..... 27 <a href="http://www.brewingwithenzymes.com">www.brewingwithenzymes.com</a>
Siebert, K. J., A-5	Vollmer, D., A-39, A-69	Pentair Haffmans ..... Cover 4 <a href="http://www.haffmans.nl">www.haffmans.nl</a>
Silver, M., M-71	Walker, G. M., A-48, M-20	Petainer Manufacturing USA Inc. .... 6 <a href="http://www.petainer.com">www.petainer.com</a>
Smart, K., A-1, A-7, A-8	Wardrop, F., A-48	White Labs, Inc. .... 40 <a href="http://www.whitelabs.com/innovation">www.whitelabs.com/innovation</a>
Smith, D. L., A-104	Wasmuht, K., M-29, M-74	
Smith, T., A-16	Watanabe, T., A-97, M-65	
Sommer, K., A-54, A-81, M-45	Weaver, B., M-34	
Sorensen, M. B., A-23	Weber, D., M-28	
Spearot, J. W., M-80	Weber, I., A-58	
Speers, R. A., A-50, M-81	Welford, A. R., M-35	
Stanton, C., A-50	White, R., A-22	
Steele, M., A-65	Whitehead, I. J., M-8	
Steinmüller, F., M-45	Wichmann, T. B., A-106	
Stewart, D., A-17	Wilson, M., M-36	
Stewart, G. G., M-3	Wright, A., M-38	
Stordeur, C., A-100	Wuertz, A., A-24	
Stowitts, A. P., M-68	Xu, N., A-5	
Suoniemi-Kähärä, A., M-56	Yamadera, J., M-16	
Suyama, A., A-42	Yin, H., A-85	
Tajika, Y., M-4	Yin, X., A-3, A-31, A-34, A-73	
Takakuwa, H., A-97	Yokoyama, A., A-82	
Takazumi, K., A-28, M-65	Yoshida, S., A-52	
Takegawa, K., A-42	Yu, J., A-85	
Takoi, K., M-65	Yue, Z., A-62	
Tanigawa, A., M-65	Zarnkow, M., A-4	
Tanner, G., A-15	Zasche, G., M-39	
Tatsu, S., A-97	Zhou, G., A-62	
Taubman, B., A-16, A-78, A-103	Zhou, Y., A-73	
Taylor, K., M-82	Zhu, L., A-80	
Thamm, L., A-62	Zhuang, S., A-1	
Thoerner, S., A-96	Zunkel, M., A-40	
Thomas, K., M-63	Zuber, J. P., M-73	
Thomson, K., A-47		
Thornton, C. D., A-65, A-66		
Tipler, A., M-44		





**THE SELECT INGREDIENTS, INDUSTRY EXPERIENCE,  
AND DEDICATED CUSTOMER SERVICE TO HELP YOU  
CREATE OUTSTANDING BEERS.**

In 2004, BSG recognized that the craft brewing community needed a dependable source for quality brewing ingredients from around the world. Since then we have earned the trust of our customers by delivering the finest brewing ingredients at competitive prices, backed by outstanding customer service and depth of industry experience.

Whether its exclusive specialty malts, in-demand hop varieties, or premium brewing aids we have you covered; great beers are made from select ingredients. BSG CraftBrewing is committed to being your partner, and shares your passion for creating outstanding beers.



Order at 800.374.2739  
[bsgcraftbrewing.com](http://bsgcraftbrewing.com)



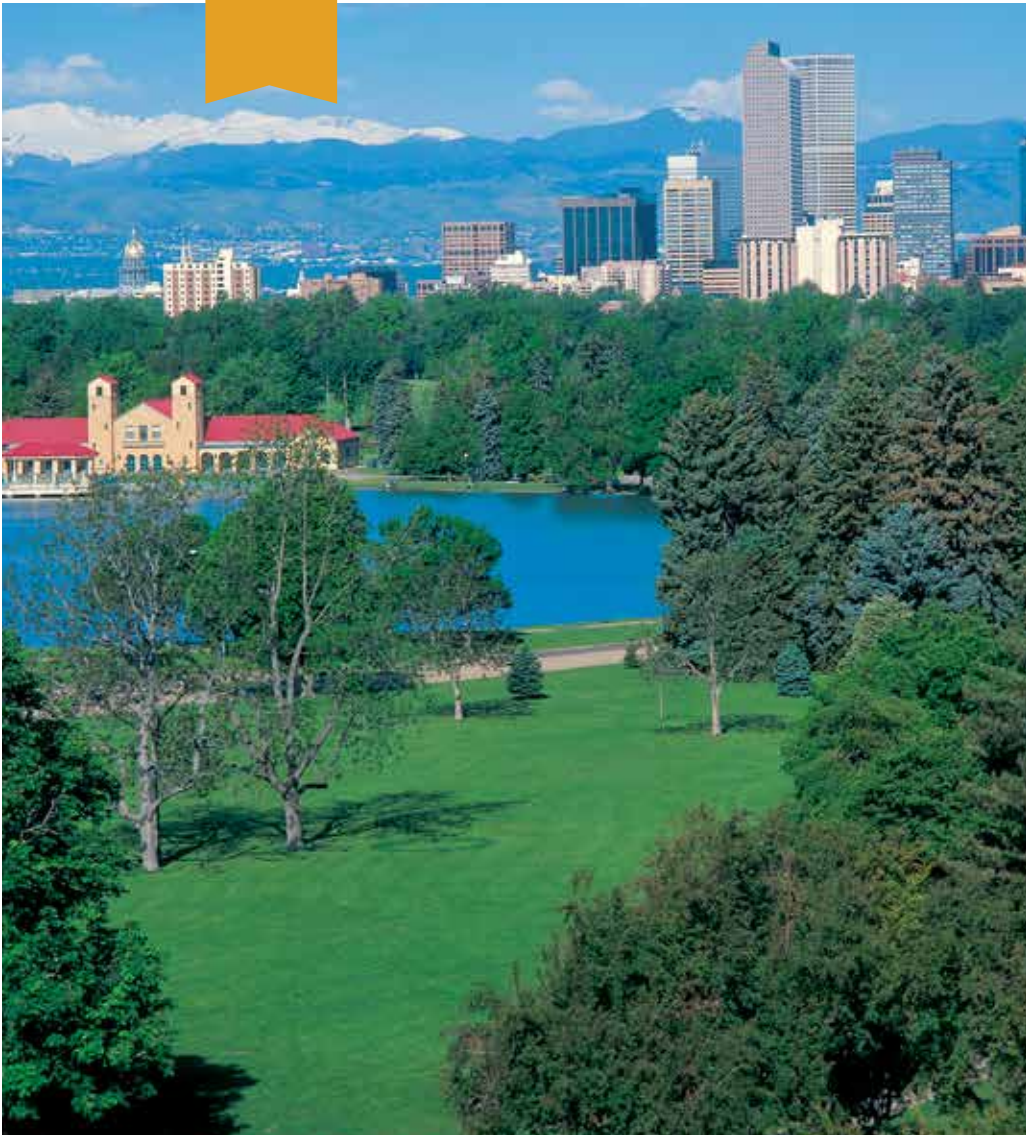
[facebook.com/BSGCraftBrewing](https://facebook.com/BSGCraftBrewing)



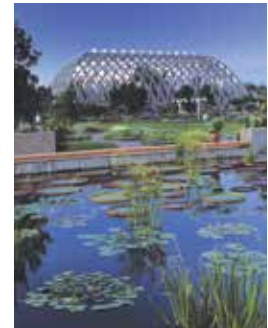
2016

# World Brewing Congress

August 13-17  
Denver, Colorado, U.S.A.



Ron Ruhoff VISIT DENVER



Scott Dressler-Martin VISIT DENVER



Stan Obert VISIT DENVER



Bruce Boyer VISIT DENVER

Hosted by:



American Society of  
Brewing Chemists



Master Brewers Association  
of the Americas



## Ashland — your beverage technology resource

### Innovate solutions and services

Ashland, the maker of Polyclar™ beer stabilizers, launched Polyclar AT beer stabilizer in the late 1960s. Since introducing the technology to our beverage industry, Ashland has established Polyclar beer stabilizers as the leading brand in clarification and stabilization technology with multiple stabilization offerings.

Polyclar beer stabilizers are recognized by brewers and vintners around the world as the leading technology brand for enhancing clarity and stability in beer and wine, and we continue to build on our success. Through our global research and development network we are devoting increased resources to focus on customer solutions beyond haze.

In addition, Ashland is the leader in technical service and support, offering not only beverage expertise to our customers, but also spearheading efforts to develop industry standard testing methods.

#### **Polyclar™ beer stabilizers** **For clear and stable beverages**

- First choice of bottled-beer brewers and manufacturers
- Prevents colloidal haze and loss of clarity caused by polyphenols
- Insoluble in beer – no additives labeling required
- Worldwide regulatory approval
- Excellent technical service from dedicated industry specialists
- Cost-effective

For more information, please contact your local Ashland Specialty Ingredients representative or visit us at [ashland.com/mbaa/polyclar](http://ashland.com/mbaa/polyclar).

# ASHLAND®

With good chemistry great things happen.™





**HAFFMANS • SÜDMO • BEVERAGE SYSTEMS**

# YOUR PASSION FOR BEER IS OUR **MOTIVATION!**

Pentair's brewery solutions combine our state-of-the-art technologies and decades of brewing know-how

#### **Haffmans**

- CO<sub>2</sub> & O<sub>2</sub> Measurement Equipment
- Systems for High Gravity Brewing
- CO<sub>2</sub> Recovery Systems
- Air, Gas, Steam & Liquid Microfiltration

#### **Südmö**

- DSV Complete Mix Proof Valves
- IntelliTop 2.0 Control Unit
- Butterfly Valves

#### **Beverage Systems**

- Beer Membrane Filtration (BMF)

**VISIT US AT BOOTH 211 TO LEARN MORE  
ABOUT THESE BRANDS AND PENTAIR'S  
FULL RANGE OF BREWING TECHNOLOGIES**