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® 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 | 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.
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.
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Anheuser-Busch, LLC
Karl Lakenburges
Anheuser-Busch, LLC
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Malteurop North America Inc.
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Barth Innovations
Fred Strachan
Sierra Nevada Brewing Co.
Kelly Tretter
New Belgium Brewing Co.
Sylvie Van Zandycke
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Daniel Vollmer
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Steven Wright
Spiritech Solutions

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Krones Inc.
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Leon W. Fyfe
Craft Brew Alliance
Jennifer J. Talley
Russian River Brewing Co.
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
Thank You Sponsors

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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.
## Schedule-at-a-Glance

### Tuesday, June 3 — Pre-Summit Activities

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:00 a.m.–12:00 p.m.</td>
<td>MBAA Executive Committee Meeting • Level 3, Kimball Room</td>
<td></td>
</tr>
<tr>
<td>8:00 a.m.–5:00 p.m.</td>
<td>ASBC Board of Directors Meeting • Level 3, Cresthill Room</td>
<td></td>
</tr>
<tr>
<td>1:00–5:00 p.m.</td>
<td>MBAA Board of Governors Meeting • Level 3, Crystal Room</td>
<td></td>
</tr>
<tr>
<td>3:30–6:00 p.m.</td>
<td>Registration • Level 4, Registration Bays</td>
<td></td>
</tr>
<tr>
<td>5:15–6:15 p.m.</td>
<td>ASBC Meet and Greet • Level 3, Salon 12</td>
<td></td>
</tr>
</tbody>
</table>

### Wednesday, June 4 — ASBC Annual Meeting

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>7:00–8:00 a.m.</td>
<td>ASBC Speakers Breakfast • Level 4, State Ballroom</td>
<td></td>
</tr>
<tr>
<td>7:30 a.m.–5:00 p.m.</td>
<td>Registration • Level 4, Registration Bays</td>
<td></td>
</tr>
<tr>
<td>8:00–9:45 a.m.</td>
<td>ASBC Opening Session • Level 4, Red Lacquer Ballroom</td>
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</tr>
<tr>
<td>10:00–11:45 a.m.</td>
<td>ASBC Technical Session: Sensory I • Level 4, Red Lacquer Ballroom</td>
<td>ASBC Technical Session: Fermentation • Level 3, Crystal Room</td>
</tr>
<tr>
<td></td>
<td>ASBC Technical Session: Regulations and Guidelines • Level 4, Red Lacquer Ballroom</td>
<td>ASBC Workshop: Packaging Quality • Lobby Level, Empire Ballroom</td>
</tr>
<tr>
<td>1:00–2:45 p.m.</td>
<td>Lunch Break</td>
<td>ASBC Technical Subcommittee Meetings • See Wednesday schedule for locations</td>
</tr>
<tr>
<td>1:00–2:45 p.m.</td>
<td>ASBC Technical Session: Regulations and Guidelines • Level 4, Red Lacquer Ballroom</td>
<td>ASBC Workshop: Malt Analytical Laboratories • Lobby Level, Empire Ballroom</td>
</tr>
<tr>
<td>3:00–4:45 p.m.</td>
<td>ASBC Technical Session: Malt • Level 4, Red Lacquer Ballroom</td>
<td>ASBC Technical Session: Stability • Level 3, Crystal Room</td>
</tr>
<tr>
<td>4:45–6:15 p.m.</td>
<td>ASBC Happy Hour* • Mezzanine Level</td>
<td></td>
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</tbody>
</table>

### Thursday, June 5 — ASBC and MBAA Shared Programming

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Location</th>
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</thead>
<tbody>
<tr>
<td>7:00–8:00 a.m.</td>
<td>MBAA Speaker Breakfast • Level 3, Crystal Room</td>
<td></td>
</tr>
<tr>
<td>7:30 a.m.–5:30 p.m.</td>
<td>Registration • Level 4, Registration Bays</td>
<td></td>
</tr>
<tr>
<td>8:00–9:45 a.m.</td>
<td>MBAA Opening Session • Level 4, Grand Ballroom</td>
<td>ASBC Technical Session: Yeast • Level 4, Red Lacquer Ballroom</td>
</tr>
<tr>
<td></td>
<td>ASBC Technical Session: Yeast, Fermentation, and Microbiology • Level 4, Red Lacquer Ballroom</td>
<td>ASBC Analytical Forum: Wort Contamination by Hydrophobins • Lobby Level, Empire Ballroom</td>
</tr>
<tr>
<td>10:00–11:45 a.m.</td>
<td>Joint Workshop: Food Safety I • Level 4, Grand Ballroom</td>
<td>MBAA Technical Session: Yeast, Fermentation, and Microbiology • Level 4, Red Lacquer Ballroom</td>
</tr>
<tr>
<td></td>
<td>ASBC Technical Session: Sensory II • Lobby Level, Empire Ballroom</td>
<td>ASBC Technical Session: Sensory II • Lobby Level, Empire Ballroom</td>
</tr>
<tr>
<td>11:45 a.m.–2:00 p.m.</td>
<td>Exhibits and Lunch • Level 4, Exhibit Hall</td>
<td>Posters • Level 4, State Ballroom</td>
</tr>
<tr>
<td>2:00–3:45 p.m.</td>
<td>MBAA Brewing Fundamentals: Hops I • Level 4, Grand Ballroom</td>
<td>ASBC Technical Session: Raw Materials • Level 4, Red Lacquer Ballroom</td>
</tr>
<tr>
<td></td>
<td>ASBC Technical Session: Raw Materials • Level 4, Red Lacquer Ballroom</td>
<td>ASBC Workshop: Turning Data into Information to Make Decisions • Lobby Level, Empire Ballroom</td>
</tr>
<tr>
<td>4:00–5:45 p.m.</td>
<td>MBAA Technical Session: Engineering • Level 4, Grand Ballroom</td>
<td>ASBC Pearls of Wisdom: Hops • Level 4, Red Lacquer Ballroom</td>
</tr>
<tr>
<td></td>
<td>MBAA Workshop: Beer Stability and Hazing • Lobby Level, Empire Ballroom</td>
<td></td>
</tr>
<tr>
<td>6:30–9:30 p.m.</td>
<td>Brewing Summit Joint Party** • The Rivers (off-site venue)</td>
<td></td>
</tr>
<tr>
<td>9:30–11:00 p.m.</td>
<td>Afterglow Party • Lobby Level, Honore Ballroom</td>
<td></td>
</tr>
</tbody>
</table>
### Friday, June 6 — ASBC and MBAA Shared Programming

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>7:00–8:00 a.m.</td>
<td>MBAA Speaker Breakfast • <strong>Level 3, Crystal Room</strong></td>
<td></td>
</tr>
<tr>
<td>8:00–9:45 a.m.</td>
<td>Joint Workshop: Food Safety II • <strong>Level 4, Grand Ballroom</strong></td>
<td>ASBC Technical Session: Hops • <strong>Level 4, Red Lacquer Ballroom</strong> MBAA Workshop: Achieving Beer Characteristics through Yeast Strain Selection and Fermentation Management • <strong>Level 4, Red Lacquer Ballroom</strong></td>
</tr>
<tr>
<td>8:00 a.m.–5:30 p.m.</td>
<td>Registration • <strong>Level 4, Registration Bays</strong></td>
<td></td>
</tr>
<tr>
<td>10:00–11:45 a.m.</td>
<td>MBAA Workshop: Growing Pains of a Successful Brewery I • <strong>Level 4, Grand Ballroom</strong></td>
<td>MBAA Workshop: The Truth about Bitterness Units • <strong>Lobby Level, Empire Ballroom</strong></td>
</tr>
<tr>
<td>11:45 a.m.–2:00 p.m.</td>
<td>Exhibits and Lunch • <strong>Level 4, Exhibit Hall</strong></td>
<td>Posters • <strong>Level 4, State Ballroom</strong></td>
</tr>
<tr>
<td>2:00–3:45 p.m.</td>
<td>MBAA Technical Session: Sustainability I • <strong>Level 4, Grand Ballroom</strong></td>
<td>ASBC Technical Session: Analytical • <strong>Level 4, Red Lacquer Ballroom</strong> MBAA Brewing Fundamentals: Hops II • <strong>Lobby Level, Empire Ballroom</strong></td>
</tr>
<tr>
<td>4:00–5:45 p.m.</td>
<td>MBAA Technical Session: Raw Materials I • <strong>Level 4, Grand Ballroom</strong></td>
<td>ASBC Closing Session • <strong>Level 4, Red Lacquer Ballroom</strong> MBAA Workshop: Brewing Engineering • <strong>Lobby Level, Empire Ballroom</strong></td>
</tr>
<tr>
<td>5:45–7:00 p.m.</td>
<td>MBAA Happy Hour*** • <strong>Level 4, State Ballroom</strong></td>
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</table>

### Saturday, June 7 — MBAA Annual Conference

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Location</th>
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</thead>
<tbody>
<tr>
<td>7:00–8:00 a.m.</td>
<td>MBAA Speaker Breakfast • <strong>Lobby Level, Honore Ballroom</strong></td>
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</tr>
<tr>
<td>8:00–9:45 a.m.</td>
<td>MBAA Technical Session: Finishing and Stability • <strong>Level 4, Grand Ballroom</strong></td>
<td>MBAA Technical Session: Brewery Safety/WCM • <strong>Level 3, Crystal Room</strong> MBAA Workshop: Sustainability • <strong>Level 4, State Ballroom</strong></td>
</tr>
<tr>
<td>8:00 a.m.–3:00 p.m.</td>
<td>Registration • <strong>Level 4, Registration Bays</strong></td>
<td></td>
</tr>
<tr>
<td>10:00–11:45 a.m.</td>
<td>MBAA Technical Session: Brewhouse Operations • <strong>Level 4, Grand Ballroom</strong></td>
<td>MBAA Technical Session: Sustainability II • <strong>Level 3, Crystal Room</strong> MBAA Technical Session: Raw Materials II • <strong>Level 4, State Ballroom</strong></td>
</tr>
<tr>
<td>11:45 a.m.–1:00 p.m.</td>
<td>Lunch Break • <strong>Level 4, Red Lacquer Ballroom</strong></td>
<td>MBAA Committee Meetings • <strong>Level 4, Red Lacquer Ballroom</strong></td>
</tr>
<tr>
<td>1:00–2:45 p.m.</td>
<td>MBAA Workshop: Growing Pains of a Successful Brewery II • <strong>Level 4, Grand Ballroom</strong></td>
<td>MBAA Technical Session: Sensory • <strong>Level 3, Crystal Room</strong> MBAA Technical Session: Packaging (Bottles, Draft and Cans) • <strong>Level 4, State Ballroom</strong></td>
</tr>
<tr>
<td>3:00–4:45 p.m.</td>
<td>MBAA Closing Session • <strong>Level 4, Grand Ballroom</strong></td>
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</tr>
</tbody>
</table>

* 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
General Information

Registration Desk
Registration is in the 4th 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 Cargill.

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
- 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 4th 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

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
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</tr>
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<tbody>
<tr>
<td>8:00 a.m.–12:00 p.m.</td>
<td>MBAA Executive Committee Meeting</td>
<td>Level 3, Kimball Room</td>
</tr>
<tr>
<td>8:00 a.m.–5:00 p.m.</td>
<td>ASBC Board of Directors Meeting</td>
<td>Level 3, Cresthill Room</td>
</tr>
<tr>
<td>1:00–5:00 p.m.</td>
<td>MBAA Board of Governors Meeting</td>
<td>Level 3, Crystal Room</td>
</tr>
<tr>
<td>3:30–6:00 p.m.</td>
<td>Registration</td>
<td>Level 4, Registration Bays</td>
</tr>
<tr>
<td>4:00–11:00 p.m.</td>
<td>Hospitality Room</td>
<td>Level 6, Adams Room</td>
</tr>
<tr>
<td>5:15–6:15 p.m.</td>
<td>ASBC Meet and Greet</td>
<td>Level 3, Salon 12</td>
</tr>
</tbody>
</table>

### Wednesday, June 4

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>7:00–8:00 a.m.</td>
<td>ASBC Speakers Breakfast</td>
<td>Level 4, State Ballroom</td>
</tr>
<tr>
<td>7:30 a.m.–5:00 p.m.</td>
<td>Registration</td>
<td>Level 4, Registration Bays</td>
</tr>
<tr>
<td>8:00–9:45 a.m.</td>
<td>ASBC Opening Session</td>
<td>Level 4, Red Lacquer Ballroom</td>
</tr>
<tr>
<td>10:00–11:45 a.m.</td>
<td>ASBC Technical Session: Fermentation</td>
<td>Level 3, Crystal Room</td>
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<tr>
<td></td>
<td>Moderator: Kimberly Bacigalupo</td>
<td></td>
</tr>
<tr>
<td>10:00 a.m.</td>
<td>A-1. Chris Powell. The relationship between very high-gravity fermentations, yeast stress, and key performance indicators</td>
<td></td>
</tr>
<tr>
<td>10:25 a.m.</td>
<td>A-2. Chris Boulton. Proposals for improvements in the design and operation of high-capacity cylindroconical fermentation and conditioning vessels</td>
<td></td>
</tr>
<tr>
<td>10:00–11:45 a.m.</td>
<td>ASBC Technical Session: Sensory I</td>
<td>Level 4, Red Lacquer Ballroom</td>
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<tr>
<td></td>
<td>Moderator: Cindy-Lou Lakenburges</td>
<td></td>
</tr>
<tr>
<td>10:00 a.m.</td>
<td>A-5. Karl Siebert. Chemesthesia: The third part of flavor perception</td>
<td></td>
</tr>
<tr>
<td>10:50 a.m.</td>
<td>A-7. Joanne Hort. Beyond bubbles: The contribution of carbonation to flavor perception in beer and variation in individual response</td>
<td></td>
</tr>
<tr>
<td>10:00–11:45 a.m.</td>
<td>ASBC Workshop: Packaging Quality</td>
<td>Lobby Level, Empire Ballroom</td>
</tr>
<tr>
<td>11:45 a.m.–1:00 p.m.</td>
<td>Lunch Break</td>
<td>(Lunch Level 3, Kimball Room)</td>
</tr>
<tr>
<td>11:45 a.m.–1:00 p.m.</td>
<td>ASBC Technical Subcommittee Meetings</td>
<td>See description for locations.</td>
</tr>
<tr>
<td>1:00–2:45 p.m.</td>
<td>ASBC Technical Session: Quality</td>
<td>Level 3, Crystal Room</td>
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<tr>
<td></td>
<td>Moderator: Brad Rush</td>
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</tr>
<tr>
<td>1:00 p.m.</td>
<td>A-9. Christoph Neugrodda. Comparison of foam analysis methods and the impact of beer components</td>
<td></td>
</tr>
<tr>
<td>1:25 p.m.</td>
<td>A-10. Guy Derdelinckx. Primary gushing of beer under the magnifying glass of “exact science”</td>
<td></td>
</tr>
<tr>
<td>1:50 p.m.</td>
<td>A-11. Alicia Munoz Insa. Lightstruck flavor reduction by increasing polyphenol content in beer</td>
<td></td>
</tr>
<tr>
<td>2:15 p.m.</td>
<td>A-12. Norio Doi. Mechanism of dimethyl trisulfide formation in stored beer</td>
<td></td>
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</tbody>
</table>
**Wednesday, June 4 (continued)**

<table>
<thead>
<tr>
<th>Time</th>
<th>Session/Workshop</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>1:00–2:45 p.m.</td>
<td><strong>ASBC Workshop: Malt Analytical Laboratories</strong>&lt;br&gt;Level 4, Red Lacquer Ballroom</td>
<td></td>
</tr>
<tr>
<td>2:00–4:00 p.m.</td>
<td><strong>ASBC Technical Session: Malt</strong>&lt;br&gt;<em>Moderator: Mont Stuart</em>&lt;br&gt;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&lt;br&gt;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&lt;br&gt;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&lt;br&gt;4:15 p.m. A-20. Yueshu Li. What can we expect from newer Canadian malting barley varieties?</td>
<td>Level 4, Red Lacquer Ballroom</td>
</tr>
<tr>
<td>3:00–4:45 p.m.</td>
<td><strong>ASBC Workshop: Sensory—How to Get to the Next Level</strong>&lt;br&gt;Lobby Level, Empire Ballroom</td>
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<tr>
<td>4:00–11:00 p.m.</td>
<td>Hospitality Room&lt;br&gt;Level 6, Monroe Room</td>
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<td>4:45–6:15 p.m.</td>
<td><strong>ASBC Happy Hour</strong>&lt;br&gt;Mezzanine Level</td>
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Wednesday, June 4

**ASBC Opening Session and Keynote**
The Ups and Downs in Brewing Technology
8:00–9:45 a.m. • Level 4, Red Lacquer Ballroom

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.

**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; Yuehu 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 Guerdum, 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.

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<tr>
<td>7:00–8:00 a.m.</td>
<td>MBAA Speaker Breakfast</td>
<td>Level 3, Crystal Room</td>
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<td>7:30 a.m.–5:30 p.m.</td>
<td>Registration</td>
<td>Level 4, Registration Bays</td>
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<tr>
<td>8:00–9:45 a.m.</td>
<td>MBAA Opening Session</td>
<td>Level 4, Grand Ballroom</td>
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| 8:00–9:45 a.m. | **ASBC Technical Session: Yeast**  
*Moderator: Nikita Penn*  
8:00 a.m.  A-25. Johnathon Layfield. What brewers should know about viability, vitality, and overall brewing fitness: A mini-review  
8:50 a.m.  A-27. Dan Driscoll. Leveraging next generation sequencing in brewing quality control  
| 8:00–9:45 a.m. | **ASBC Analytical Forum: Wort Contamination by Hydrophobins: How to Detect and What to Do** | 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. | Joint Workshop: Food Safety I                                    | Level 4, Grand Ballroom            |
| 10:00–11:45 a.m. | **ASBC Technical Session: Sensory II**  
*Moderator: Suzanne Thompson*  
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 cis- and trans-4,5-epoxy-2E-decal | Lobby Level, Empire Ballroom |
| 10:00–11:45 a.m. | **MBAA Technical Session: Yeast, Fermentation, and Microbiology**  
*Moderator: Kara Taylor*  
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. | Exibits 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. | **ASBC Technical Session: Raw Materials**  
*Moderator: Aaron MacLeod*  
2:00 p.m.  A-33. Brad Rush. Understanding raw materials and their impact on the finished product  
<p>| 2:00–3:45 p.m. | <strong>ASBC Workshop: Turning Data into Information to Make Decisions</strong>  | Lobby Level, Empire Ballroom       |</p>
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<tr>
<td>2:00–3:45 p.m.</td>
<td>MBAA Brewing Fundamentals: Hops I</td>
<td>Level 4, Grand Ballroom</td>
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<td>4:00–5:45 p.m.</td>
<td>ASBC Pearls of Wisdom: Hops</td>
<td>Level 4, Red Lacquer Ballroom</td>
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<td>4:00–5:45 p.m.</td>
<td>MBAA Technical Session: Engineering</td>
<td>Level 4, Grand Ballroom</td>
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<td>Moderator: Tim Hawn</td>
<td>4:00 p.m. M-5. Eric Gore. Corrosion of process piping and equipment in breweries</td>
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<td>4:25 p.m. M-6. Ashton Lewis. Vacuum really does suck</td>
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<td>4:50 p.m. M-7. Kevin McEnery. Considerations for brewery automation</td>
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<td>5:15 p.m. M-8. lain Whitehead. Yeast production and multivariate statistical process control: Utilization of on-line data for statistical control of yeast propagation as a batch-wise process</td>
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<tr>
<td>4:00–5:45 p.m.</td>
<td>MBAA Workshop: Beer Stability and Hazing</td>
<td>Lobby Level, Empire Ballroom</td>
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<td>5:30–6:30 p.m.</td>
<td>Hospitality Room</td>
<td>Level 6, Monroe Room</td>
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<td>6:30–9:30 p.m.</td>
<td>Brewing Summit Joint Party</td>
<td>The Rivers (off-site venue)</td>
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<td>9:30–11:00 p.m.</td>
<td>Afterglow Party</td>
<td>Lobby Level, Honore Ballroom</td>
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<td>9:30–11:30 p.m.</td>
<td>Hospitality Room</td>
<td>Level 6, Monroe Room</td>
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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, VL Berlin; 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 CO₂ 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!
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 frontline 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!
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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*

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**Oct. 7–10**

Jacksonville, Florida, U.S.A.

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| 8:00–9:15 a.m. | ASBC Technical Session: Hops  
Moderator: Tom Nielsen  
8:00 a.m. A-37. Victor Algazzali. Bitterness intensity of hop acid oxidation products—Humulinones and hulupones  
| 8:00–9:45 a.m. | Joint Workshop: Food Safety II                                                               | Level 4, Grand Ballroom              |
| 8:00–9:45 a.m. | MBAA Workshop: Achieving Beer Characteristics through Yeast Strain Selection and Fermentation Management | 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. | ASBC Special Session: Emerging Issues/New and Alternate Methods of Analysis                  | Level 4, Red Lacquer Ballroom       |
| 10:00–11:45 a.m. | MBAA Workshop: Growing Pains of a Successful Brewery, Part I                                 | Level 4, Grand Ballroom              |
| 10:00–11:45 a.m. | MBAA Workshop: The Truth about Bitterness Units                                                | 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. | ASBC Technical Session: Analytical  
Moderator: Joe Palausky  
2:00 p.m. A-41. Matthew Farber. Biotechnology, biosensors, and beer: The measurement of proteases relevant to brewing  
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. | MBAA Technical Session: Sustainability I  
Moderator: Fred Scheer  
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 Cervecería 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. | MBAA Brewing Fundamentals: Hops II                                                           | 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. | ASBC Closing Session – What’s the Buzz?                                                      | Level 4, Red Lacquer Ballroom       |
| 4:00–5:45 p.m. | MBAA Technical Session: Raw Materials I  
Moderator: Roy Johnson  
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. | MBAA Workshop: Brewing Engineering                                                            | 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 grinds 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 Kostelecky, 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 Kostelecky 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, Krones AG Germany; Ashton Lewis, Paul Mueller Co.; Fred Scheer, Krones Inc.

Industry experts from Krones, 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

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<tr>
<th>Time</th>
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<tr>
<td>7:00–8:00 a.m.</td>
<td>MBAA Speaker Breakfast</td>
<td>Lobby Level, Honore Ballroom</td>
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<tr>
<td>8:00–9:45 a.m.</td>
<td><strong>MBAA Technical Session: Brewery Safety/WCM</strong></td>
<td>Level 3, Crystal Room</td>
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<td><strong>Moderator:</strong> Susan Welch</td>
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<td></td>
<td>8:00 a.m. M-21. Dirk Loeffler. Chemical safety and hazardous interactions between products and equipment</td>
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<td>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</td>
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<td>8:50 a.m. M-23. Virgil McDonald. Meeting the challenge of establishing a research brewery</td>
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<td>9:15 a.m. M-24. Brad Rush. Building a better tomorrow: What today's brewery employees need to know to be successful</td>
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<td>8:00–9:45 a.m.</td>
<td><strong>MBAA Technical Session: Finishing and Stability</strong></td>
<td>Level 4, Grand Ballroom</td>
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<td><strong>Moderator:</strong> Walter Heeb</td>
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<td>8:00 a.m. M-25. Jeroen Baert. A springboard to understanding beer flavor stability: The role of bound-state aldehydes.</td>
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<td>8:25 a.m. M-26. Henri Fischer. Flash pasteurization—Advantages, weak points, remarkable points</td>
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<td>8:50 a.m. M-27. Frank-Jurgen Methner. Practical aspects to minimize the risk of oxidation and haze formation during beer production</td>
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<td>8:00 a.m.–3:00 p.m.</td>
<td>MBAA Workshop: Sustainability: Zeroing in on Zero Waste</td>
<td>Level 4, State Ballroom</td>
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<tr>
<td>10:00–11:45 a.m.</td>
<td><strong>MBAA Technical Session: Brewhouse Operations</strong></td>
<td>Level 4, Grand Ballroom</td>
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<td><strong>Moderator:</strong> John Palmer</td>
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<td>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</td>
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<td>10:50 a.m. M-31. Matthias Kern. Development of a combined mashing and lautering system using direct steam and inert gas</td>
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<td>11:15 a.m. M-32. Eric Samp. A practical approach to controlling the formation of trans-2 nonenal and sensory perception of papery off-notes in packaged beer, a six sigma approach</td>
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<td>10:00–11:45 a.m.</td>
<td><strong>MBAA Technical Session: Raw Materials II</strong></td>
<td>Level 4, State Ballroom</td>
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<td><strong>Moderator:</strong> Doug Wilson</td>
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<td>10:00 a.m. M-14. Martina Gastl. Open up a new era in evaluation of spring barley varieties</td>
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<td>10:50 a.m. M-15. Yusuke Ishizuka. The influence of protein characteristics of malt on beer quality</td>
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<td>10:00–11:45 a.m.</td>
<td><strong>MBAA Technical Session: Sustainability II</strong></td>
<td>Level 3, Crystal Room</td>
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<td><strong>Moderator:</strong> Nolan Michael</td>
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<td>10:00 a.m. M-33. Stephen O’Sullivan. Sustainability—From an equipment manufacturer's standpoint</td>
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<td>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?</td>
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<td>10:50 a.m. M-35. Andrew Welford. Diatomaceous earth spent filter cake recycling: Waste or a resource?</td>
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<td>11:15 a.m. M-36. Mark Wilson. Exploring energy efficiencies in scaling up to a larger brewhouse</td>
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<td>11:45 a.m.–1:00 p.m.</td>
<td>Lunch Break</td>
<td>(Lunch on your own)</td>
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<td>11:45 a.m.–1:00 p.m.</td>
<td>MBAA Committee Meetings</td>
<td>Level 4, Red Lacquer Ballroom</td>
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| 1:00–2:45 p.m. | **MBAA Technical Session: Packaging (Bottles, Draft and Cans)**<br>
Moderator: Michael Skroblin<br>
1:00 p.m. M-37. Chris Baugh. Bottle finish design and its effect on sheared<br>finish package failure<br>
1:25 p.m. M-38. David Duff. An explanation for corrosion in highly efficient<br>stainless-steel tunnel pasteurizers and the options for reducing<br>the corrosive environment and protecting the stainless steel<br>
1:50 p.m. M-39. Johannes Tippmann. Investigations on draught hopping<br>
2:15 p.m. M-40. Ken Grantham. Proper maintenance of keg spears with<br>regards to safety of personnel and equipment | Level 4, State Ballroom |
| 1:00–2:45 p.m. | **MBAA Technical Session: Sensory**<br>
Moderator: Richard Michaels<br>
1:00 p.m. M-41. Javier Gomez-Lopez. Astringent: A case study in product<br>development<br>
1:25 p.m. M-42. Yarong Huang. A kinetic study on the formation of Strecker<br>aldehydes during beer aging<br>
1:50 p.m. M-43. Magdalena Muller. A review on the characterization of<br>important aroma components of alcohol-free beer produced by<br>thermal dealcoholization<br>
2:15 p.m. M-44. Andres Tipler. A novel gas chromatographic system to<br>characterize volatile components in beer and its ingredients | Level 3, Crystal Room |
| 1:00–2:45 p.m. | **MBAA Workshop: Growing Pains of a Successful Brewery, Part II**<br>
| 3:00–4:45 p.m. | **MBAA Closing Session**<br>
| 4:30–11:00 p.m. | Hospitality Room | Level 4, Grand Ballroom | Level 4, Grand Ballroom | 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
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.
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IBD Convention dates for your diary...

8-11 September 2014
GLASGOW, SCOTLAND

28-30 October 2014
GHENT, BELGIUM

2-5 March 2015
MOZAMBIQUE, AFRICA

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

www.ibd.org.uk

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

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
before 14 June 2014.

Sponsorship opportunities are available to support this event.
For details contact:
Gert.DeRouck@kuleuven.be

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

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

www.ibd.org.uk

www.ibdafrica.co.za
Exhibitors

Exhibit Hall Hours

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<th>Wednesday, June 4</th>
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<th>Friday, June 6</th>
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<td>2:00–4:00 p.m.</td>
<td>8:00–11:00 a.m.</td>
<td>11:45 a.m.–2:00 p.m.</td>
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<td>Exhibit Setup</td>
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<td>Lunch and Exhibits</td>
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<td>11:45 a.m.–2:00 p.m.</td>
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<td>Lunch and Exhibits</td>
<td>Exhibit Take-down</td>
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Poster Hours

Level 4, State Ballroom

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<th>Thursday, June 5</th>
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<td>Poster Viewing</td>
<td>12:30–1:00 p.m. Odd Numbers</td>
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<td>Authors Present:</td>
<td>1:00–1:30 p.m. Even Numbers</td>
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<td>12:30–1:00 p.m.</td>
<td>2:00–2:30 p.m. Poster Take-down*</td>
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<td>Even Numbers</td>
<td>1:00–1:30 p.m. Odd Numbers</td>
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<td>1:00–1:30 p.m.</td>
<td>2:00–2:30 p.m. Poster Take-down*</td>
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*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

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

Brewing and Malting Science Course
November 2–13, 2014 • Madison, Wisconsin
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100 BSG CraftBrewing 305 Albert Handtmann
102 ANDRITZ Separation, Inc. 306 Armaturenfabrik
104 Bruker BioSpin Corp. 307 GmbH & Co. KG
106 Kagetec Industrial Floorin 308 ProLeiT Corp.
108 Miura North America, Inc. 309 Institute of Brewing & Distilling
110/112 Cargill Malt 310 GEA Brewery Systems
116 DuPont Nutrition & Health 311 GEA Westfalia Separator
118 ChemTreat, Inc. 312 Briggs of Burton, Inc.
120 Malteurop North America, Inc. 313 GE Aichenhagen
122 Micro Matic USA, Inc. 314 Gusmer Enterprises, Inc.
124 Bühler Inc. 315 Ecolab, Inc.
126 PerkinElmer, Inc. 316 Esau & Hueber GmbH
128 DSM Food Specialties 317 Symbiont
200 University of Notting-ham—Brewing Science 318 Krone, Inc.
201 Weyermann Specialty Malts 320 Haynes Lubricants
202 Flottweg Separation Technology, Inc. 321 Anton Paar USA
203 DCI, Inc. 322 PQ Corporation
204 Mettler Toledo 323 Petainer Manufacturing USA, Inc.
205 Pall Corporation 324 Skalar, Inc.
206 Spraying Systems Co. 325 CE Elanted, Inc.
207 EMG International, LLC 326 Argelith Ceramic Tiles, Inc.
208 Thermo Scientific 327 American Tartaric Products, Inc.
210 International Ceramic Construction LLC 330 KHS USA, Inc.
211 Pentair Haffmans 331 Heuft USA, Inc.
212 Siemens Industry, Inc. 332 Enerquip, LLC
216/218 Hach Company 334 LECO Corp.
217/219 Hopsteiner 335 Sealed Air Corp.
220 Weber Scientific 336 optek-Danulat, Inc.
221 Siebel Institute and World Brewing Academy 337 Airborne Labs International, Inc.
222 Commodity Specialists Co. 338 SPX
223 Lallemand Brewing 340 Hamilton Co.
224 Lechler Inc. 341 FleetwoodGoldcoWyard
226 Hansen-Rice, Inc. 342 BeerRun Software
227 Cloud-Sellers 343 Therma-Stor LLC
228 3M Purification, Inc. 344 Micromeritics Instrument Corp.
300 VitalSensors Technologies LLC 345 VLB Berlin
301 BIOTECON Diagnostics 346 STATCO dsi
302 Profamo, Inc. 347 Orbijet Technologies, Inc.
303 Roche Applied Science 348 Life Technologies
304 BMT USA, LLC 349 Nexcelom Bioscience, LLC

Albert Handtmann
Armaturenfabrik
GmbH & Co. KG
ProLeiT Corp.
Institute of Brewing & Distilling
GEA Brewery Systems
GEA Westfalia Separator
Briggs of Burton, Inc.
GEA Aichenhagen
Gusmer Enterprises, Inc.
Ecolab, Inc.
Esau & Hueber GmbH
Symbiont
Krones, Inc.
Haynes Lubricants
Anton Paar USA
PQ Corporation
Petainer Manufacturing USA, Inc.
Skalar, Inc.
CE Elanted, Inc.
Argelith Ceramic Tiles, Inc.
American Tartaric Products, Inc.
KHS USA, Inc.
Heuft USA, Inc.
Enerquip, LLC
LECO Corp.
Sealed Air Corp.
optek-Danulat, Inc.
Airborne Labs International, Inc.
SPX
Hamilton Co.
FleetwoodGoldcoWyard
BeerRun Software
Therma-Stor LLC
Micromeritics Instrument Corp.
VLB Berlin
STATCO dsi
Orbijet Technologies, Inc.
Life Technologies
Nexcelom Bioscience, LLC
BEGNEAUD
OrchestratedBEER
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. Airborne Labs International offers our clients a broad range of services and products to help them stay current with ever changing regulations. We provide 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 CO2 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 Alloys, 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: INFOUS@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 CO2 and in the field of rheometry.

306 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 tipping.

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.

301 BIOTECON Diagnostics, Hermannswerder 17, Potsdam 14473, Germany; +49(0) 331 2300 200; Fax: +49(0) 331 2300-299; Web: http://www.bcd-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.briggsplc.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.


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

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!

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!
FleetwoodGoldcoWyard has been providing advanced conveyance technology, palletizers, depalletizers, automated can end and product handling equipment, unwrappers, destrappers, coolers, pasteurizers, and brewery process equipment.

Flottweg Separation Technology, Inc., 10700 Toeben Drive, Independence, KY 40151; +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 Sedicanters 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.

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.

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.

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.

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.

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
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; E-mail: 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 60515; +1.630.968.9011; Fax: +1.630.968.8767; Web: www.heuft.com; E-mail: 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; E-mail: 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 Curlews Street, London, SE1 2ND, United Kingdom; +44(0) 207 499 8144; Web: www.ibd.org.uk; E-mail: 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; E-mail: tom.jaggard@icc-tileconstruction.com; Facebook: 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; E-mail: sha@kagetecusa.com; Facebook: 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. 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; +1.414.499.4000; Fax: +1.414.490.4100; Web: www.krones.com; E-mail: salesusa@kronesusa.com. Krones is a leading global manufacturer of integrated breweries, 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 cells.

223 Lallemann Brewing, 900 N. North Branch Ave., Suite 1N, Chicago, IL 60642; +1.312.255.0705; Fax: +1.312.255.1312; Web: www.lallemandbrewing.com; E-mail: info@siebelinstitute.com. Lallemann 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. Lallemann 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. 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, kgs, 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. 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.dalegondro@thermofisher.com. Life Technologies, a premier brand of Thermo Fisher Scientific, provides innovative 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; E-mail: contact.northamerica@malteurop.com. Malteurop is the leading producer 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. 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; E-mail: 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 BTUs!

433 **Nexcelom Bioscience, LLC**, 360 Merrimack St., Building 9, 2nd Floor, Lawrence, MA 01843; +1. 978.327.5340; +1.978.327.5340, Fax: +1.978.327.5341; Web: www.nexcelom.com; E-mail: smarquis@nexcelom.com; Facebook: www.facebook.com/nexcelom. Twitter: 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; E-mail: 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; E-mail: 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; Facebook: http://www.facebook.com/orchestrated-edBeer; Twitter: @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. 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; E-mail: hnasaales@pentair.com. Drawing on extensive brewing know-how and state-of-the-art technologies, Pentair provides brewing solutions including CO2 and O2 quality control equipment, total CO2 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, Südeo, 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; E-mail: customerscareUS@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; E-mail: 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. 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 Sigrist, 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 O2 and CO2 Verifiers; Advanced Instruments’ CO2 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; E-mail: 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; E-mail: 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: Newsedair.com; E-mail: 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@siebelsitute.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/brewery; E-mail: fbvss.industry@siemens.com; Facebook: www.facebook.com/siemens ia us; Twitter: https://twitter.com/SiemenslI. 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.


206 Spraying Systems Co., North Ave @ Schmale Road, Wheaton, IL 60188; +1.630.665.5000; Web: www.spray.com; E-mail: 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; E-mail: 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.

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