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- Chris Reilly, QA/QC Lab Manager, Weyerbacher Brewing Co.



Invisible Sentinel's new system designed for RT-PCR systems with the same industry-leading accuracy, specificity and simplified workflow.

For more information or to place an order, please contact Invisible Sentinel at 215.966.6118 or www.invisiblesentinel.com

Invisible Sentinel, a global molecular solutions company, is dedicated to providing first-in-class microbial detection tools. The company's core technology, Veriflow, is a patented, game-changing platform that integrates molecular diagnostics, antibody design, and immunoassays.

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Powered by Veriflow®
Lactic Acid-Producing Microbes

brewMAP
Powered by Veriflow®
Megasphaera & *Pectinatus*

brewBRUX
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brewDEK
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Brettanomyces/Dekkera species

brewSTAT
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Saccharomyces Diastaticus



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Program Overview



Tuesday, October 10			
8:00 a.m.–5:00 p.m.	Preconference Course: Hazard Analysis and Critical Control Point (HACCP) • <i>M304</i>		
Wednesday, October 11			
8:00 a.m.–12:00 p.m.	Preconference Workshop: How to Use qPCR in your Brewery QC • <i>M101</i>	Executive Committee Meeting • <i>M106–M107</i>	
8:00 a.m.–5:00 p.m.	Preconference Course: Hazard Analysis and Critical Control Point (HACCP) • <i>M304</i>		
10:00 a.m.–5:00 p.m.	Tour: Schaefer Containers & Monday Night Brewing • <i>Bus departs from Atlanta Marriott Marquis</i>		
1:00–4:00 p.m.	Board of Governors Meeting • <i>M106–M107</i>		
1:00–5:00 p.m.	Tour: SweetWater Brewing Co. • <i>Bus departs from Atlanta Marriott Marquis</i>		
1:00–6:00 p.m.	Preconference Workshop: Process Piping Considerations and Design • <i>M101</i>		
Thursday, October 12			
8:15–9:30 a.m.	Opening Session and Keynote • <i>Imperial Salon B</i>		
9:45–11:00 a.m.	Technical Session: World Class Manufacturing • <i>Imperial Salon B</i>		
9:45–11:30 a.m.	Technical Session: Brewhouse Operations I • <i>M301–M302</i>	Workshop: Yeast Propagation—How to Nurture Happy Yeast! • <i>Imperial Salon A</i>	
11:30 a.m.–1:30 p.m.	Lunch with Exhibits and Posters • <i>International Ballroom</i>		
11:30 a.m.–4:30 p.m.	Exhibits and Poster Viewing • <i>International Ballroom</i>		
1:30–2:45 p.m.	Technical Session: Yeast, Fermentation, and Microbiology I • <i>M301–M302</i>		
1:30–3:15 p.m.	Technical Session: Cleaning and Sanitation • <i>Imperial Salon B</i>	Brewing Fundamentals: Centrifugation in the Brewery I • <i>Imperial Salon A</i>	
3:30–5:15 p.m.	Technical Session: Packaging • <i>Imperial Salon B</i>	Technical Session: Yeast, Fermentation, and Microbiology II • <i>M301–M302</i>	Brewing Fundamentals: Centrifugation in the Brewery II • <i>Imperial Salon A</i>
5:15–6:45 p.m.	Opening Happy Hour with Exhibits* • <i>International Ballroom</i>		

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



Friday, October 13			
8:00–9:45 a.m.	Technical Session: Brewhouse Operations II • <i>M103–M105</i>	Technical Session: Malt and Grains I • <i>Imperial Salon B</i>	Workshop: PCR Curious? Part I: Principle of PCR Analyses • <i>Imperial Salon A</i>
9:45 a.m.–1:45 p.m.	Exhibits and Poster Viewing • <i>International Ballroom</i>		
10:00–11:15 a.m.	Technical Session: Automation • <i>M103–M105</i>		
10:00–11:45 a.m.	Technical Session: Malt and Grains II • <i>Imperial Salon B</i>	Workshop: PCR Curious? Part II: PCR Users Panel and Demonstration • <i>Imperial Salon A</i>	
11:45 a.m.–1:45 p.m.	Lunch with Exhibits and Posters • <i>International Ballroom</i>		
1:45–3:00 p.m.	Technical Session: Sensory • <i>M103–M105</i>		
1:45–3:30 p.m.	Technical Session: Engineering • <i>Imperial Salon B</i>	Workshop: An Examination of Pilot Brewing Operations • <i>Imperial Salon A</i>	
3:45–5:00 p.m.	Technical Session: Hops • <i>Imperial Salon B</i>		
3:45–5:30 p.m.	Workshop: Brewing Engineering • <i>Imperial Salon A</i>	Workshop: Food Safety • <i>M103–M105</i>	
5:30–6:15 p.m.	NEW! Volunteer Opportunity Fair • <i>International C</i>		
7:15–9:45 p.m.	Celebration Reception* • <i>Skyline Level (10th floor)</i>		
9:45–11:00 p.m.	Afterglow Party* • <i>Marquis C</i>		
Saturday, October 14			
8:30–10:15 a.m.	Technical Session: Sustainability • <i>M103–M105</i>	Workshop: Practical Tools of Engineering Economics Applied to Brewery CapEx Decisions • <i>Imperial Salon A</i>	Workshop: A Discussion on Packaging Quality Assurance • <i>Imperial Salon B</i>
10:30 a.m.–12:15 p.m.	Closing Session and Award Ceremony • <i>Imperial Salon B</i>		

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



General Information



Registration Desk

Registration will be open at Brewers Central in the Imperial Foyer during the following times:

Wednesday, October 11:	2:00–7:00 p.m.
Thursday, October 12:	7:30 a.m.–6:30 p.m.
Friday, October 13:	7:30 a.m.–5:30 p.m.
Saturday, October 14:	8:00 a.m.–12:00 p.m.

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

Poster Viewing

Posters will be available for viewing in the International Ballroom on Thursday, October 12, 11:30 a.m.–4:30 p.m. and 5:15–6:45 p.m. Additionally, they will be available on Friday, October 13, 9:45 a.m.–1:45 p.m. Check the daily schedules for times to meet with poster presenters.

Bierstube

The Master Brewers Bierstube is open to all registered attendees and registered guests. A name badge is required to enter. No one under the age of 21 is permitted in the Bierstube.

Wednesday, October 11:	3:00–11:00 p.m.	<i>M301–M303</i>
Thursday, October 12:	6:45–11:00 p.m.	<i>M301–M304</i>
Friday, October 13:	5:00–7:15 p.m.	<i>M301–M304</i>
	9:45–11:30 p.m.	<i>M301–M304</i>

WiFi Lounge

Complimentary WiFi will be available in the Atlanta Marriott Marquis for all attendees.

Network: MasterBrewers
Password: unitedwebrew

Speaker Kiosk

The Speaker Kiosk will be available for speakers to review their presentations the day before their scheduled session. The kiosk is located at Brewers Central in the registration area.

Meeting Space

Exhibits and posters are located in the International Ballroom on the International Level. A map of the Exhibit Hall can be found on page 18 and in the mobile app. All session rooms, Brewers Central, and the Bierstube can be found up on the Marquis Level. A map of the Marquis Level can be found on page 5 and in the mobile app.

Guests

Guests wishing to attend the Master Brewers Celebration Reception or the Opening Happy Hour must purchase a ticket. Guests do not have access to technical sessions, workshops, or the exhibit area. Guests must register, have a name badge, and be at least 21 years of age to gain access to the Bierstube. Coworkers and business associates are not considered guests and must pay the appropriate registration fees.

Proceedings

Electronic proceedings are available to purchase for \$59 at the Registration Desk. The proceedings will be available online on the Master Brewers website (mbaa.com) following the conference.

Photo Release

Photographs will be taken during the 2017 Master Brewers Conference. By attending, you agree to allow Master Brewers to use your photo in any publications, promotions, or websites for Master Brewers.

Get Social with Master Brewers!

Follow and join our social media groups so you can connect now and after the meeting.

- On Twitter, use #UnitedWeBrew throughout the meeting and follow **@MasterBrewers**
- Like **Master Brewers Association of the Americas** on Facebook.
- Get the discussion going on LinkedIn in our **Master Brewers** group.
- Do you Instagram? Follow **@MasterBrewers** to see pictures from the conference. Tag us in your #UnitedWeBrew photos!

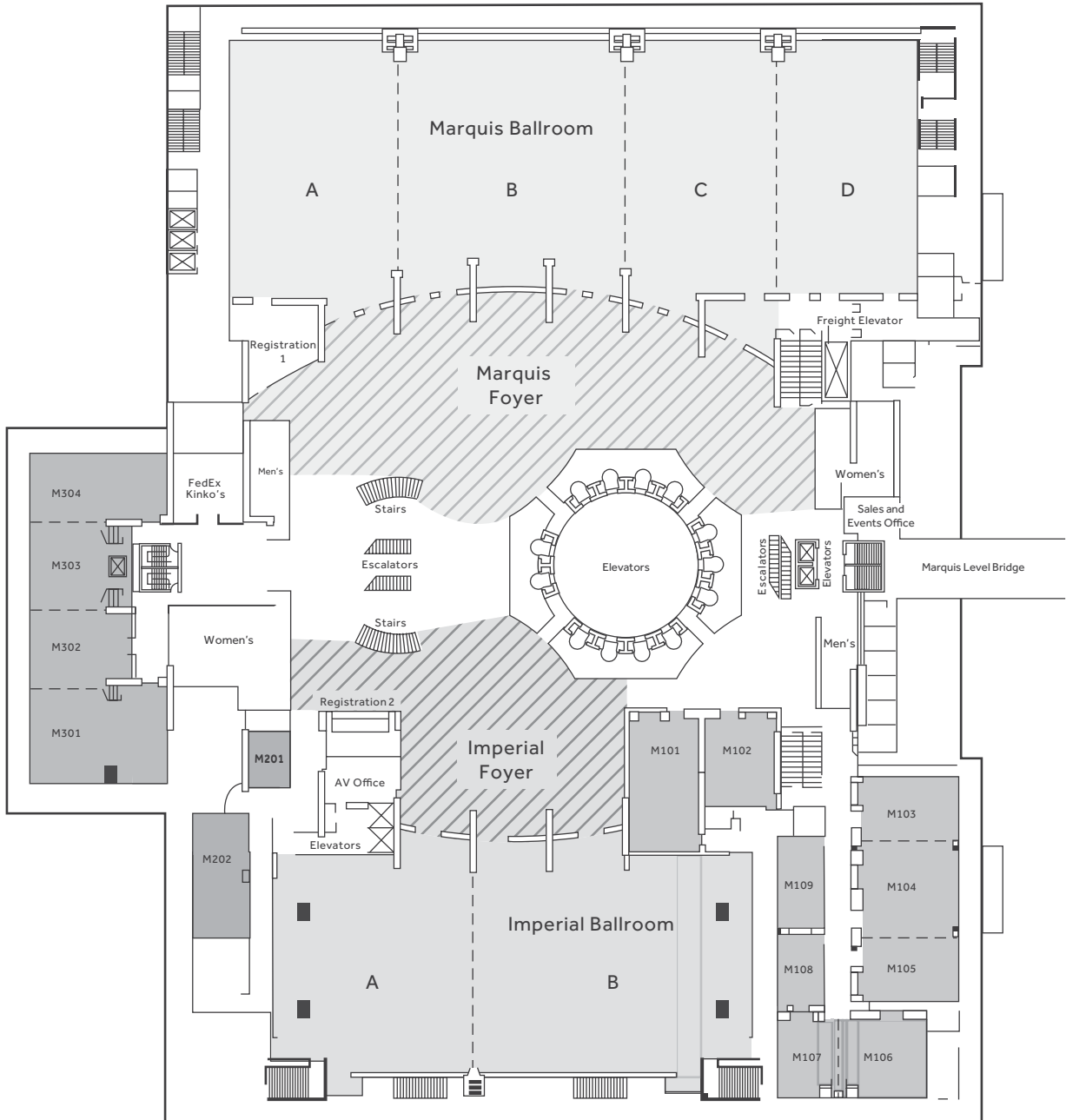
Calling all Snapchat users! Follow us at **@MasterBrewers** and share your experience with our unique conference geofilter!



Hotel Floor Plan



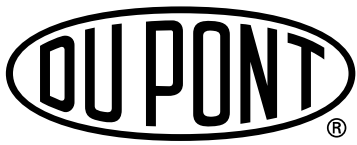
Marquis Level



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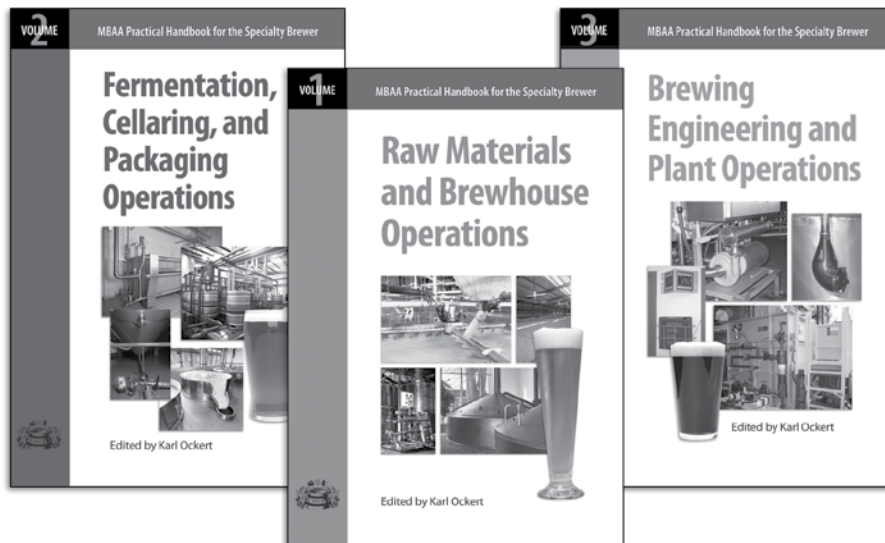


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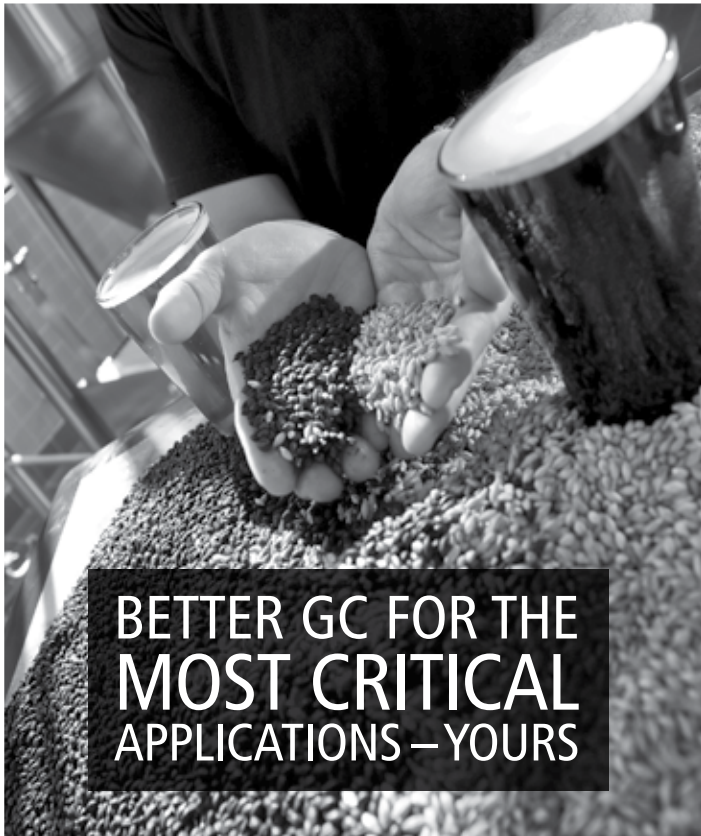


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Check out the Brewery Safety Committee Tool Box Talks!

Tool Box Talks are easy-to-use one-page overviews of common brewery hazards and how to mitigate them. There are over 25 TBT's available for download.

Topics include:

- Accident Investigation
- Confined Spaces
- Dust Handling
- Fire Safety
- Keg and Valve Repair
- Lockout Tagout
- Protecting Your Hearing
- What To Do When OSHA Shows Up

Check out Tool Box Talks and other brewery safety resources on the Master Brewers Brewery Safety Website.

The Master Brewers Brewery Safety Committee is dedicated to promoting safe brewing practices by providing resources and education to brewers.

Tool Box Talks



mbaa.com/brewresources/brewsafety

Schedule and Highlights



Tuesday, October 10

8:00 a.m.–5:00 p.m. **Preconference Course: Hazard Analysis and Critical Control Point (HACCP)*** M304

Wednesday, October 11

8:00 a.m.–12:00 p.m. **Preconference Workshop: How to Use qPCR in your Brewery QC*** M101
 8:00 a.m.–12:00 p.m. Executive Committee Meeting M106–M107
 8:00 a.m.–5:00 p.m. **Preconference Course: Hazard Analysis and Critical Control Point (HACCP)*** M304
 10:00 a.m.–5:00 p.m. **Tour: Schaefer Containers & Monday Night Brewing*** *Bus departs from Atlanta Marriott Marquis*
 1:00–4:00 p.m. Board of Governors Meeting M106–M107
 1:00–5:00 p.m. **Tour: SweetWater Brewing Co.*** *Bus departs from Atlanta Marriott Marquis*
 1:00–6:00 p.m. **Preconference Workshop: Process Piping Considerations and Design*** M101
 2:00–7:00 p.m. Registration Open *Imperial Foyer*
 2:00–8:00 p.m. Exhibit Set-up *International Ballroom*
 3:00–11:00 p.m. Bierstube Open M301–M303
 *Advance registration and additional payment is required

Hazard Analysis and Critical Control Point (HACCP) Course*

Tuesday, October 10–Wednesday, October 11,

8:00 a.m.–5:00 p.m. • M304

Moderator: Tatiana Lorca, Ecolab, Inc.; Speaker: Brian Wiersema, Virginia Tech Food Science & Technology

Hazard Analysis and Critical Control Point (HACCP) is a scientific, systematic, and preventive approach to identifying, analyzing, and controlling significant food safety hazards within a food production system from raw material acquisition through consumption of a finished product. HACCP is a regulatory requirement for some food industries and has become a condition of doing business for many parts of the food supply chain. Although HACCP is designed to be very general and does not address the specific details for beer or spirit manufacturing, many breweries have implemented HACCP in their facilities. This course was developed with the assistance of Master Brewers members and is intended to help brewers understand and apply HACCP within their operations. The workshop will also cover the basics of the U.S. Food Safety Modernization Act (FSMA) as it applies to the brewing and alcoholic beverage industry. Join colleagues from the brewing industry and learn how to develop and implement a practical HACCP program within a brewery operation. The course is delivered in collaboration with Ecolab, Inc., and is accredited by the International HACCP Alliance.

How to Use qPCR in Your Brewery QC*

Wednesday, October 11, 8:00 a.m.–12:00 p.m. • M101

Speaker: Gudrun Vogeser, PIKA Weihenstephan GmbH

In this hands-on course participants will learn the full qPCR testing workflow used in brewery quality control, including performing DNA extraction and analyzing a brewery sample

using qPCR to detect beer spoilage bacteria. This course will give participants an idea about the basic equipment and space needed to establish a workplace for real time PCR analysis, demonstrate how to organize a working area, provide handling recommendations and how to avoid DNA contamination, perform a sample preparation pre PCR with 4e Detection Kits, run a real time PCR on an Open qPCR instrument, and explore differences in results from PCR analysis and conventional microbiology. If they choose to do so, participants may bring their own brewery samples to work on in the class.

Process Piping Considerations and Design*

Wednesday, October 11, 1:00–6:00 p.m. • M101

Moderator: Travis Audet, AB InBev; Speakers: Bryan Downer, Sani-Matic, Inc.; Ashton Lewis, BSG CraftBrewing; Patrick Lombard, Briem Engineering; Dave Medlar, GEA Tuchenhausen US, LLC; Craig Zeni, Fristam Pumps USA

This preconference workshop is a great opportunity to become more informed on an essential part of the brewing process. As facility complexity and needed throughput increase, breweries often find solid process design can be an enabler towards greater consistency and throughput. Process piping that is installed optimally is easily maintained, ensures micro stability, diminishes the risk of contamination, and delivers reduced product loss while improving safety. Whether you are a part of a small brewery looking to make the jump from a few hoses or a part of an established brewery looking to take the next step toward best practices, this course will have something for all. Areas covered will include stainless steel selection and care, welding and repairs, pump and valve selection, CIP considerations, and piping layout. Don't miss this information-packed preconference workshop certain to deliver lots of practical content for you to bring back to your facility.

Thursday, October 12

7:00–8:00 a.m.	Speaker Breakfast	<i>M303–M304</i>
7:30 a.m.–6:30 p.m.	Registration Open	<i>Imperial Foyer</i>
8:00–11:00 a.m.	Poster Set-up	<i>International Ballroom</i>
8:00–11:00 a.m.	Exhibitor Set-up	<i>International Ballroom</i>
8:15–9:30 a.m.	Opening Session and Keynote	<i>Imperial Salon B</i>
9:45–11:00 a.m.	Technical Session: World Class Manufacturing <i>Moderator: Tom Eplett, MillerCoors</i>	<i>Imperial Salon B</i>
9:45 a.m.	5. Kristopher Scholl. Small and efficient—Crafting a world-class performance culture	
10:10 a.m.	6. Martin Lutz. Layout of a standard brewing process data management	
10:35 a.m.	7. Justin Shingleton. Reach your manufacturing goals for safety, quality, and productivity using continuous improvement <i>kata</i>	
9:45–11:30 a.m.	Technical Session: Brewhouse Operations I <i>Moderator: George Reisch, Anheuser-Busch Inc.</i>	<i>M301–M302</i>
9:45 a.m.	1. John Hoxmeier. A cloud-based database application to support brewhouse analytics for small craft breweries	
10:10 a.m.	2. Brian Faivre. Utilizing predictive analytics to improve quality and maximize capacity at Deschutes Brewery	
10:35 a.m.	3. Stephen Carter. Long-term system sustainability considerations for small brewing operations when transitioning from operator tended brewing to a semi or fully automated brewhouse	
11:00 a.m.	4. Tobias Becher. The transformation of old tradition—A novel brewhouse concept	
9:45–11:30 a.m.	Workshop: Yeast Propagation—How to Nurture Happy Yeast!	<i>Imperial Salon A</i>
11:30 a.m.–1:30 p.m.	Lunch with Exhibits and Posters	<i>International Ballroom</i>
11:30 a.m.–4:30 p.m.	Exhibits and Poster Viewing	<i>International Ballroom</i>
	<i>12:00–12:30 p.m.: Even-numbered poster authors at posters</i>	
	<i>12:30–1:00 p.m.: Odd-numbered poster authors at posters</i>	
12:30–1:30 p.m.	Book Signing – <i>How to Brew: Everything You Need to Know to Brew Great Beer Every Time, 4th Edition</i>	<i>International Ballroom, Master Brewers Booth</i>
1:30–2:45 p.m.	Technical Session: Yeast, Fermentation, and Microbiology I <i>Moderator: Mitch Steele, New Realm Brewing Co.</i>	<i>M301–M302</i>
1:30 p.m.	12. John Giarratano. Yeast laboratory basics for small to mid-sized breweries	
1:55 p.m.	13. Devin Tani. Dry hopping's correlation with diacetyl	
2:20 p.m.	14. David Morris. Real-time dynamic analysis of fermentation parameters to enhance fermentation control and yeast health	
1:30–3:15 p.m.	Technical Session: Cleaning and Sanitation <i>Moderator: Jens Voigt, University of Applied Sciences Trier</i>	<i>Imperial Salon B</i>
1:30 p.m.	8. Dirk Loeffler. Mechanical problems and their impact on sanitation	
1:55 p.m.	9. Dana Johnson. Keg cleaning and brite tank cleaning using acid and detergent only	
2:20 p.m.	10. Matthew Bilski. The benefits of using a persulfonated oleic acid solution for cleaning bright beer tanks	
2:45 p.m.	11. Elliot Parcels. Efficacy of sanitizers in the brewery	

1:30–3:15 p.m. **Brewing Fundamentals: Centrifugation in the Brewery I** *Imperial Salon A*
 3:30–5:15 p.m. **Technical Session: Packaging** *Imperial Salon B*

Moderator: Fred Scheer, Kronen Inc.

- 3:30 p.m. 16. Cynthia Schultz. Brewing process spoilage hurdles and packaging end results
- 3:55 p.m. 17. Thomas Soukup. A new novel solution to pasteurizer safety and cleanliness—Vapor and water phase
- 4:20 p.m. 18. Andrew Brewer. One-way kegs
- 4:45 p.m. 19. Simon Arch. How RFID can improve your keg management and your beer quality and save you money on top!

3:30–5:15 p.m. **Technical Session: Yeast, Fermentation, and Microbiology II** *M301–M302*

Moderator: Ryan Dunnavant, Oskar Blues Brewery

- 3:30 p.m. 20. Kristen Kahle. Spoilage risk-based analysis of *Lactobacillus* and *Pediococcus* brewery isolates in beers having diverse properties
- 3:55 p.m. 21. Joan Montasell. Sour beers made easy
- 4:20 p.m. 22. Nicholas Mader. Results of co-fermentation trials with *S. cerevisiae* and *B. bruxellensis*, and the organoleptic benefits from mixed culture fermentations
- 4:45 p.m. 23. Joe Kinney. Zinc in fermentation

3:30–5:15 p.m. **Brewing Fundamentals: Centrifugation in the Brewery II** *Imperial Salon A*
 5:15–6:45 p.m. **Opening Happy Hour with Exhibits*** *International Ballroom*
 6:45–11:00 p.m. Bierstube Open *M301–M304*

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

Opening Session and Keynote

8:15–9:30 a.m. • *Imperial Salon B*

Andrew J. Thomas, Chief Executive Officer, Craft Brew Alliance



Andy Thomas has served as chief executive officer for Craft Brew Alliance (CBA) since January 1, 2014. Thomas brings more than two decades of leadership experience in consumer packaged goods and the beer and beverage industries to his role as CEO for CBA. From 2011 to 2013, he was president of commercial operations for CBA, where he helped establish the

company's distinctive portfolio strategy, which combines the power of national lifestyle brands such as Kona Brewing Co. with an expanding stable of dynamic local craft brands. Prior to joining CBA, Thomas served as an independent consultant and senior advisor to The Monitor Group, a global management consulting firm. From 1995 to 2007, he spent 12 years at Heineken, working with brewers and beers in more than 55 countries across four continents, and served as president and CEO of Heineken USA from 2005 to 2007. Thomas holds an MBA from the Simon Graduate School of Business, University of Rochester, and a Bachelor of Science degree, with a concentration in marketing, from Bryant University.

Workshop: Yeast Propagation—How to Nurture Happy Yeast!

9:45–11:30 a.m. • *Imperial Salon A*

Moderator: David Ryder, University of Wisconsin; Speakers: Helmut Kuehnl, Esau & Hueber GmbH; Graham Stewart, G.G. Stewart Associates; Hiro Yoshimoto, Kirin Brewery Company Ltd.

For a number of decades we have spoken about the need to ensure that the yeast we use in fermentation is “happy.” But what is happy yeast? Many things can go wrong in fermentation: under-aeration of the wort, under/over pitching of the yeast, poor temperature control, yeast stress through high osmotic conditions (higher gravity fermentations) and (lack of) ethanol tolerance, and static dead zones in the fermenter. How do we ensure the yeast we have propagated is the healthiest it can be in order to stand the very best chance of successfully using it over a number of generation cycles? This workshop aims to answer those questions. Acclaimed international yeast experts will join us to cover a wide range of topics associated with successful yeast propagation and, in fact, this is the very first time that these experts will all be assembled in the same place in the same workshop. Professor Graham Stewart will speak to the need to propagate yeast, differences between yeast growth and yeast fermentation, maintenance of yeast strains in culture collections, sequences in yeast propagation procedures, and stresses imposed on yeast strains during and between propagation cycles. Dr. Hiroyuki Yoshimoto from Kirin Brewery Company will

Thursday continued on next page

Thursday continued from previous page

speak to the differences between propagating top-fermenting and bottom-fermenting yeast strains, the importance of the correct nutrients during yeast propagation, and the use of fed batch culture systems rather than the more traditional yeast propagation methods. Helmut Kuehnl from Esau-Hueber will describe the need for properly designed yeast propagation systems to guarantee the healthiest propagated yeast. This international panel guarantees vital technical discussion and lively debate. The yeast propagation workshop is not to be missed by any serious brewer!

Brewing Fundamentals: Centrifugation in the Brewery I

1:30–3:15 p.m. • Imperial Salon A

Moderator: Tim Barnett, GEA Process Engineering; Speakers: Ken McCullough, GEA; Christian Pettit, Flottweg; Richard Schildwachter, Separators Inc.

This year, the Brewing Fundamentals track will focus on centrifugation. This first session covers topics surrounding the theory, basics of design, and common applications for centrifuges in the brewery. This track will be an excellent opportunity for attendees to gather practical knowledge that can be brought back to their daily routine to help make the best quality beers in the most efficient manner possible.

Brewing Fundamentals: Centrifugation in the Brewery II

3:30–5:15 p.m. • Imperial Salon A

Moderator: Tim Barnett, GEA Process Engineering; Speakers: Darren Goodlin, Goodlin Process Solutions LLC; Alyce Hartvigsen and Rok Podobnikar, Alfa Laval

In this second session focused on the use of centrifugation in the brewery, the presentations and discussion will revolve around process optimization and alternative applications with the centrifuge. The traditional methods of wort and beer clarification have been challenged by new beer styles and ingredients, opening up opportunities for using separators and decanters in new processes. Attendees will be introduced to both practical and theoretical knowledge in these applications.

Opening Happy Hour with Exhibits*

5:15–6:45 p.m. • International Ballroom

Wrap up the first day of the conference with a Happy Hour in the Exhibit Hall. Browse the newest innovations, connect with suppliers, engage with poster authors, and network with your peers, all over a beer. The Exhibit Hall will be packed with resources to fulfill all your brewing needs. Don't miss your chance to find the solutions that are right for you!

MEET THE AUTHOR OF *HOW TO BREW!*



John Palmer, Master Brewers Publications Director and author of *How to Brew: Everything You Need to Know to Brew Great Beer Every Time*, is here to take your questions, discuss article ideas for the *Technical Quarterly*, and sign your books!

Two events to choose from:

■ **Book Signing**

Thursday, October 12 • 12:30 p.m. – 1:30 p.m.
Limited quantity of *How to Brew* available for purchase onsite.

■ **TQ Articles & Book Proposals**

Friday, October 13 • 12:45 p.m. – 1:45 p.m.
Bring your ideas for potential Master Brewers books and/or *Technical Quarterly* articles!

See you in the Exhibit Hall!



Friday, October 13

7:00–8:00 a.m.	Speaker Breakfast	<i>M303–M304</i>
7:30 a.m.–5:30 p.m.	Registration Open	<i>Imperial Foyer</i>
8:00–9:45 a.m.	Technical Session: Malt and Grains I <i>Moderator: Andy Tveekrem, Market Garden Brewery</i>	<i>Imperial Salon B</i>
8:00 a.m.	28. Lawrence Worde. Internet of Things approach to increase starch and proteins in malt	
8:25 a.m.	29. Jens Voigt. A new analytical approach to malt aroma identification	
8:50 a.m.	30. Eric Stockinger. Breeding and developing winter malting barley for the U.S. Midwest	
9:15 a.m.	31. Jordan Geurts. Malting and brewing naked...oats	
8:00–9:45 a.m.	Technical Session: Brewhouse Operations II <i>Moderator: John Palmer, Master Brewers</i>	<i>M103–M105</i>
8:00 a.m.	24. Lee Marotta. Characterization and measuring attributes and defects in beer by headspace trap/gas chromatography/mass spectrometry (HStrap/GC/MS)	
8:25 a.m.	25. Joe Walts. Brewhouse water and mash chemistry management at Ale Asylum	
8:50 a.m.	26. Aaron Justus. The effect of sulfate to chloride ratio on the flavor, aroma, and mouthfeel of a pilsner	
9:15 a.m.	27. Ryan Schmiege. Craft brewer influence on craft distillation and the creation of unique spirit washes	
8:00–9:45 a.m.	Workshop: PCR Curious? Part I: Principle of PCR Analyses	<i>Imperial Salon A</i>
9:45 a.m.–1:45 p.m.	Exhibits and Poster Viewing <i>12:15–12:45 p.m.: Odd-numbered poster authors at posters</i> <i>12:45–1:15 p.m.: Even-numbered poster authors at posters</i>	<i>International Ballroom</i>
10:00–11:15 a.m.	Technical Session: Automation <i>Moderator: Ashton Lewis, BSG CraftBrewing</i>	<i>M103–M105</i>
10:00 a.m.	To Be Announced	
10:25 a.m.	34. Martin Lutz. Process optimization by integration of utility plant into the process control system architecture	
10:50 a.m.	98. Allie Schwertner. Developing a brewing process strategy to ensure the long-term success of your business	
10:00–11:45 a.m.	Technical Session: Malt and Grains II <i>Moderator: Molly Browning, Trophy Brewing Company</i>	<i>Imperial Salon B</i>
10:00 a.m.	35. Masako Sawada. Innovative malting process involving acidic steeping	
10:25 a.m.	36. Xiaoyuan Shan. Improving quality of malt by new malting process involving acidic steeping	
10:50 a.m.	37. Masaru Kato. Influence of high-molecular-weight polypeptides on the smoothness and mouthfeel of beer and applications for commercial beer products	
11:15 a.m.	38. Sebastian Wolfrum. Malt roasting—An introduction to equipment, process, and production	
10:00–11:45 a.m.	Workshop: PCR Curious? Part II: PCR Users Panel and Demonstration	<i>Imperial Salon A</i>
11:45 a.m.–1:45 p.m.	Lunch with Exhibits and Posters	<i>International Ballroom</i>
12:45 a.m.–1:45 p.m.	Meet & Greet with John Palmer	<i>International Ballroom,</i>
1:15–1:45 p.m.	Giveaway Friday	<i>International Ballroom</i>
1:45–2:00 p.m.	Poster Take-down	<i>International Ballroom</i>

Friday continued on next page

Friday continued from previous page

1:45–3:00 p.m.	Technical Session: Sensory <i>Moderator: Walter Heeb, MillerCoors</i> 1:45 p.m. 43. Steven Munger. Smell, taste, and the biology of flavor 2:10 p.m. 44. Cassie Liscomb. Progress in malt sensory evaluation: ASBC Hot Steep Method 2:35 p.m. 45. Anna Sauls. Troubleshooting using sensory data	M103–M105
1:45–3:30 p.m.	Technical Session: Engineering <i>Moderator: Darren Goodlin, Goodlin Process Solutions LLC</i> 1:45 p.m. 39. Stephen Carter. A simplified discussion and explanation of the impact of proper tuning of PID loops on your process 2:10 p.m. 40. Dave Baughman. Is boiler training really necessary, or how to relocate my brewery 2:35 p.m. 41. Rob Bailey. Four ways to better manage small capital projects 3:00 p.m. 42. Joseph Trombley. Brewery master planning—The importance of strategizing growth	Imperial Salon B
1:45–3:30 p.m. 1:45–5:00 p.m.	Workshop: An Examination of Pilot Brewing Operations Exhibit Take-down	Imperial Salon A International Ballroom
3:45–5:00 p.m.	Technical Session: Hops <i>Moderator: John Bryce, Master Brewers</i> 3:45 p.m. 47. Andreas Gahr. What are “auxiliary bitter compounds” in hops and how do they affect the quality of bitterness in beer? 4:10 p.m. 48. Brett Taubman. A comparison of dry-hop and distilled hop oil additions to the flavor, aroma, and essential oil composition of beer 4:35 p.m. 49. Rudolf Michel. The use of hops in brewhouse and cold block	Imperial Salon B
3:45–5:30 p.m. 3:45–5:30 p.m.	Workshop: Brewing Engineering Workshop: Food Safety	Imperial Salon A M103–M105
5:00–7:15 p.m. 5:30–6:15 p.m.	Bierstube Open NEW! Volunteer Opportunity Fair	M301–M304 International C
7:15–9:45 p.m. 9:45–11:00 p.m. 9:45–11:30 p.m.	Celebration Reception* Afterglow Party* Bierstube Open	Skyline Level Marquis C M301–M304

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

Workshop: PCR Curious? Part I: Principle of PCR Analyses

8:00–9:45 a.m. • Imperial Salon A

Moderator: Tobin Eppard, MillerCoors LLC; Speakers: Lily Chen and Josh Perfetto, Chai Biotechnology; Jermaine Lindsey, Invisible Sentinel; Peter Trabold, Rheonix; Gudrun Vogeser, PIKA Weihenstephan GmbH

PCR as a brewery QC method will be briefly explained. Emphasis will be placed on the usability of PCR results throughout the whole production process as well as on the different PCR techniques currently available. A number of PCR test kit suppliers will explain how their testing methods work.

Workshop: PCR Curious? Part II: PCR Users Panel and Demonstration

10:00–11:45 a.m. • Imperial Salon A

Moderator: Tobin Eppard, MillerCoors LLC; Speakers: Lily Chen and Josh Perfetto, Chai Biotechnology; Jermaine Lindsey, Invisible Sentinel; Peter Trabold, Rheonix; Gudrun Vogeser, PIKA Weihenstephan GmbH

A panel of brewers will discuss their experiences with routine PCR testing and share information about when, where, and how PCR fits into their QC program. The equipment required for various PCR techniques, from traditional to automated applications, will be explained and demonstrated.

Meet & Greet with John Palmer

12:45–1:45 p.m. • International Ballroom, Booth 49A

Calling all aspiring and veteran authors! Don't miss the opportunity to meet with John Palmer, the new Master Brewers Publications Director. Potential authors can use this time to discuss article ideas for the *Technical Quarterly*, as well as share ideas for books for possible publication/distribution with Master Brewers.

Workshop: An Examination of Pilot Brewing Operations1:45–3:30 p.m. • *Imperial Salon A*

Moderator: Chris Williams, Sleeman Breweries Ltd.; Speakers: Brian Faivre, Deschutes Brewery; Michael Miziorko, BSG CraftBrewing; Johannes Tippmann, TU Munchen

Pilot brewing has been part of the brewing landscape for generations, but recently there seems to be increased activity around the use of small-scale brewing systems for experimentation. This workshop will examine pilot operations from three perspectives: brewery, industry supplier, and academic institution. Discussion will center on the types of systems used, the research objectives, research outcomes, and relevance of results. This program should provide valuable information to researchers, those actively working with pilot brewing plants, those considering such systems, and those interested in small-scale brewing technology.

Workshop: Brewing Engineering3:45–5:30 p.m. • *Imperial Salon A*

Moderator: Fred Scheer, Krones Inc.; Speakers: Dave Duff, Barry-Wehmiller Co.; Darren Goodlin, Goodlin Process Solutions LLC; Johannes Tippmann, TU Munchen

This engineering workshop is an immersion into the science and technology of brewery systems and their engineering design. The overall objective of this workshop, beyond the exchange of years of knowledge and involved networking, is for participants to leave with a greater understanding of why processes occur or are needed and how engineering technology principles define the groundwork for brewery utility system design and operation.

Workshop: Food Safety3:45–5:30 p.m. • *M103–M105*

Moderator: Brian Wiersema, Virginia Tech Food Science & Technology; Speakers: Dustin Hesel, Founders Brewing Co.; Tatiana Lorca, Ecolab, Inc.; Mary-Jane Maurice, Malteurop North America; Daniel Voce, F.X. Matt Brewing Co.

The topic of food safety for breweries is one that is becoming very prevalent as pressures increase from regulatory agencies and customers. We have assembled a panel covering the spectrum of brewery sizes as well as an industry expert to help us translate the requirements for breweries. The panel will answer some of the biggest questions on topics such as their experiences with FDA inspections thus far, GMP/GBP and prerequisite programs, HACCP, training programs, anticipated roadblocks, and cultural barriers. Attendees will benefit from well-rounded answers of various points of view from brewers at different stages in their journey with food safety. There will also be an open period to address questions from the audience.

NEW! Volunteer Opportunity Fair5:30–6:15 p.m. • *International C (International Level)*

Join us for this exciting new event. Hear about the strategic roadmap guiding our association's future and how it drives

our varying volunteer needs at all levels of the organization. Network with people who share your interests and passions and learn more about the many opportunities available and the support you will receive as a volunteer. Attend and be entered into a drawing for one of the new *How to Brew: Everything You Need to Know to Brew Great Beer Every Time* books by John Palmer. Get involved!

Celebration Reception*7:15–9:45 p.m. • *Skyline Level*

Join your colleagues as we celebrate another successful Master Brewers conference! Kick back and connect with friends over food, beer, and hospitality. The Skyline level provides stunning views of Atlanta, a vibrant backdrop for fun and entertainment. Guests and Single Day attendees must purchase a ticket to attend this event.

Afterglow Party9:45–11:00 p.m. • *Marquis C*

Before you turn in or step out to enjoy the lively Atlanta nightlife, join your colleagues for a nightcap with Irish coffee and networking.

The Afterglow Party is a Master Brewers conference tradition sponsored by Malteurop North America.

Malteurop
North America

Do you need help with the Mobile App?

Learn how to set appointments, build your schedule, and navigate the program, all on your smartphone. Look for the black App Ambassador ribbons to find someone who can show you how!



Would you like to be an App Ambassador?



If you know your way around the Mobile App, become an App Ambassador to share your knowledge with your fellow attendees! Stop by the registration desk to pick up a ribbon.



Saturday, October 10

7:45–8:30 a.m.	Speaker Breakfast	<i>Sear Restaurant</i>
8:00 a.m.–12:00 p.m.	Registration Open	<i>Imperial Foyer</i>
8:30–10:15 a.m.	Technical Session: Sustainability Moderator: Todd Webster, Envirogen Technologies	<i>M103–M105</i>
8:30 a.m.	51. Frank DeOrio, Sara Martin. Critical decisions in selecting wastewater treatment technology—A third party view	
8:55 a.m.	52. Matthew Seng. Essential factors to consider in planning for biological pretreatment of wastewater at craft breweries	
9:20 a.m.	54. Jeff Tocio. Sustainable gas recovery solutions for brewers—Biomethane and green CO ₂	
9:45 a.m.	87. Matt Huddleston. Brewery effluent treatability study using a microcosm-scale constructed wetland system	
8:30–10:15 a.m.	Workshop: Practical Tools of Engineering Economics Applied to Brewery CapEx Decisions	<i>Imperial Salon A</i>
8:30–10:15 a.m.	Workshop: A Discussion on Packaging Quality Assurance	<i>Imperial Salon B</i>
10:30 a.m.–12:15 p.m.	Closing Session and Award Ceremony	<i>Imperial Salon B</i>

Workshop: Practical Tools of Engineering Economics Applied to Brewery CapEx Decisions

8:30–10:15 a.m. • *Imperial Salon A*
Speaker: Jaime Jurado, Abita Brewing Co.

Simple mathematical techniques often illuminate which decisions make the most sense and can guide us in prudent use of investment funds. Pragmatic examples are presented that illustrate application of robust tools applied to evaluating hardware investments including life cycle cost calculation, ROI/payback, adjusting for present worth, and annual budgeting calculation.

Workshop: A Discussion on Packaging Quality Assurance

8:30–10:15 a.m. • *Imperial Salon B*
Moderator: Andy Tveekrem, Market Garden Brewery;
Speakers: Steve Bradt, Micro Matic Packaging; David Garab, CFT Packaging USA

This workshop will bring a glass expert, a can expert, and a keg expert together to discuss, share, and view QA metrics and procedures for their specific brewery

packages, including their HACCP-related notes. Panelists will discuss authoritatively what breweries can and should do to ensure packaging integrity for the downstream customer. The focus is to share important deliverables that attendees can take back and implement.

Closing Session and Award Ceremony

10:30 a.m.–12:15 p.m. • *Imperial Salon B*

The Closing Session will feature speakers Mitch Steele of New Realm Brewing Company and Award of Merit recipient Alex Speers of the Canadian Institute of Fermentation Technology, Dalhousie University. We will also honor the 2017 Distinguished Life Service awardee, Mike Sutton; Inge Russell Best Paper awardee, Leo Li-Yang Chan; and the Brewery Award of Excellence Award recipients, Kona Brewing Company. The Presidential Awards for Best Paper and Best Poster presented at this year's conference will also be announced. Following the award ceremony outgoing Master Brewers Executive Committee members will be recognized and the installation of new officers will take place.

Exhibits



Don't miss the latest products and services offered by industry suppliers! Representatives from leading industry suppliers will be available in the International Ballroom during the following times to answer questions and share information.

Exhibit Hall Hours

Wednesday, October 11	2:00–8:00 p.m.	Exhibit Set-up
Thursday, October 12	8:00–11:00 a.m.	Exhibit Set-up
	11:30 a.m.–4:30 p.m.	Exhibits Open
	5:15–6:45 p.m.	Opening Happy Hour with Exhibits
Friday, October 13	9:45 a.m.–1:45 p.m.	Exhibits Open
	1:45–5:00 p.m.	Exhibit Take-down

Numerical Exhibitor Listing

1 Baswood Corporation	31 Albert Handtmann Armaturenfabrik GmbH & Co. KG	63 A.B.E. – American Beer Equipment
1A EMG International	32 FILTEC	64 San Francisco Herb Company
2 Donaldson Company, Inc.	33 CFT Packaging USA	65 Flowmation Systems Inc.
3 Petainer Manufacturing USA Inc.	34 Fulton	66 Amoretti
4 Loeffler Chemical Corp.	35 Siebel Institute/Lallemand Brewing	67 ADI Systems
5 Sani-Pump Inc.	37 AFCO/ZEP	68 GEA North America
6 ANDRITZ Separation Inc.	38 Rack & Maintenance Source	70 Country Malt Group
7 MIDI Labs, Inc.	39 Cellix Ltd.	71 BSG CraftBrewing
8 Schaefer Container Systems	40 Alfa Laval	73 BMT USA LLC
9 Nexcelom Bioscience LLC	41 Esau & Hueber GmbH	74 Weyermann Specialty Malts
10 Kusters Water	42 Gusmer Enterprises	75 Ashland
11 Day & Zimmermann	43 Christian Gresser GmbH	76 EP Minerals
12 AEG ID	44 Weber Scientific	77 Profamo Inc.
13 Cargill Craft Malt	45 Kagetec Industrial Flooring	78 ATPGroup
14 Prospero Equipment Corp.	46 Gastrograph AI	80 Pentair
15 Diversy	47 Bratney Companies	82 optek-Danulat, Inc.
16 Palmer Canning Systems	48 PicoBrew Inc.	83 Hopsteiner
17 Murphy & Son	49 PerkinElmer	84 HEUFT USA, Inc.
18 Separators Inc.	49A Master Brewers	85 Symbiont Science, Engineering and Construction, Inc.
19 PQ Corporation	50 Rheonix Inc.	87 Zee Company, A Member of the Vincit Group
20 Hamilton Company	51 Bühler Inc.	89 Commodity Specialists Company
21 DSM Food Specialties USA, Inc.	53 Fermentis, Division of S.I. Lesaffre	90 Briggs of Burton, Inc.
23 Flottweg Separation Technology, Inc.	55 Thermo Fisher Scientific	91 BIOTECON Diagnostics
24 GKD-USA	56 Crosby Hop Farm	92 ABS Commercial
25 Shimadzu Scientific Instruments, Inc.	57 ChemTreat	94 Invisible Sentinel
26 Centec LLC	58 Pall Corporation	95 Ecolab Inc.
27 Allied Boiler & Supply, Inc.	59 Hach	95A Malteurop North America
28 The Barrel Mill	60 ZIEMANN HOLVRIEKA	96 Anton Paar USA
29 Hygiena	61 Proximity Malt LLC	
30 ProLeiT Corp.	62 John I. Haas, Inc.	

Exhibitor Descriptions



Exhibitor descriptions received as of August 30, 2017. Remaining descriptions can be found in the mobile app. Descriptions below are listed as supplied by exhibitor, in alphabetical order.

- 63 A.B.E. – American Beer Equipment**, 2001 SW 6th St., Lincoln, NE 68522 U.S.A.; +1.402.475.2337; Fax: +1.402.742.0069; Web: www.americanbeerequipment.com; E-mail: info@americanbeerequipment.com; Facebook: @americanbeerequip; Twitter: @AmericanBeerEq. A.B.E. is the global leader in designing, manufacturing and supplying craft brewing equipment. We support craft brewers with high quality, innovative equipment, and personal service that provides Honest American Value.
- 92 ABS Commercial**, 3707 Neil St., Raleigh, NC 27607 U.S.A.; +1.919.400.9087 x1017 or +1.919.400.9087 x1005; Web: www.abs-commercial.com; E-mail: scott@abs-commercial.com; Facebook: @ABSCommercialLLC. ABS Commercial designs and sells brewhouses and brewing vessels to clients across North America. The sister to Raleigh Brewing Company, a 7500+ BBL/yr brewery in North Carolina, we use the same equipment we sell every day and offer industry expertise, insight, and guidance to new and existing breweries.
- 67 ADI Systems**, 370 Wilsey Road, Fredericton, NB E3B 6E9 Canada; +1.506.452.7307 or 1.800.561.2831; Fax: +1.506.452.7308; Web: www.adisystemsinc.com; E-mail: systems@adi.ca; Twitter: @ADISystems. With more than 35 years of experience, ADI Systems offers innovative, custom-designed technologies to digest tough-to-treat yeast and spent grains in wastewater. By investing in an on-site wastewater treatment solution, your brewery can meet strict effluent limits to comply with environmental regulations, conserve water, and tap into green energy.
- 12 AEG ID**, Hoervelsinger Weg 47; Ulm BW 89081 Germany; +49.731.140088.0; Fax: +49.731.140088.9000; Web: www.aegid.de; E-mail: info@aegid.de. RFID can improve your keg management and your beer quality and save you money on top! RFID is one of the key technologies for future logistics. With more than 6 million kegs equipped with RFID transponders in over 70 breweries, AEG ID presents those benefits also for your brewery.
- 37 AFCO/ZEP**, 5121 Coffey Avenue, Chambersburg, PA 17201 U.S.A.; +1.717.264.9147; Fax: +1.717.263.9182; Web: www.afcocare.com; E-mail: socialmedia@afco.net. Since 1855, AFCO has been delivering chemical, process, training, equipment, and distribution solutions to leaders in the food, beverage, and hospitality industries that help them operate at the best and highest levels of sanitation, productivity, and profitability.
- 31 Albert Handtmann Armaturenfabrik GmbH & Co. KG**, Arthur-Handtmann-Strasse 11; Biberach/Riss 88400 Germany; +49.735.13420; Web: www.handtmann.de; E-mail: sales.fittings@handtmann.de. Handtmann Armaturenfabrik is one of the leading suppliers of fittings, valves, and process technology to the beverage industry, as well as the biotechnology and chemical-pharmaceutical industries. Their safety and vacuum valves especially ensure effective tank protection. Handtmann engineers and manufactures the complete cellar area, from brewhouse to bottling, including piping, yeast management, beer filtration, stabilization, CIP, and caustic recovery.
- 40 Alfa Laval**, 955 Mearns Road, Warminster, PA 18974 U.S.A.; 1.866.253.2528; Fax: +1.215.443.4234; Web: www.alfalaval.us/brewery; E-mail: customerservice.usa@alfalaval.com. We're here to optimize your cold block project and/or brewery—from a fully hermetic, bottom feed BREW Series separator; to an Intelligent Whirlpool System to reduce wort losses and recover finished beer; ALDOX, the industry leading DA water module; CARBOBLEND for inline beer blending/carbonation; and FLEXITHERM beer Flash Pasteurizers.
- 27 Allied Boiler & Supply, Inc.**, 419 S Front St., Murfreesboro, TN 37129 U.S.A.; +1.615.890.5385; Web: www.alliedboiler.com; Facebook: @alliedboiler; Twitter: @brewhouseboiler. Third-generation family-owned company assembling boilers from 4HP to 1500HP, along with providing all the boiler room equipment and expertise you require. Commissioning and operational training are included with boiler purchases, plus one spot in our Boiler Training School. Not just a different boiler, but a different kind of boiler company.
- 66 Amoretti**, 451 Lombard St., Oxnard, CA 93030 U.S.A.; 1.855.855.3505; Web: www.amoretti.com; E-mail: brewers@amoretti.com; Facebook: @amorettifoods; Twitter: @amorettifoods. Amoretti is a California-based company specializing in super concentrated natural infusions for artisan craft breweries. Sourcing the freshest and tastiest fruits, herbs, spices, chocolates, vanillas, and peppers from around the world, we pay meticulous attention to quality and consistency to ensure an impeccable, creative, consistent brew in every barrel.

- 6 ANDRITZ Separation Inc.**, 1010 Commercial Blvd. So., Arlington, TX 76001 U.S.A.; +1.817.465.5611; Web: www.andritz.com; E-mail: separation.us@andritz.com. ANDRITZ offers a portfolio of separation equipment for a broad range of brewery applications. The Clarifier Skid system from ANDRITZ is the beer & wort clarification solution for your brewery. Our technology is of the highest value in North America with more than 70 proven installations in craft breweries.
- 96 Anton Paar USA**, 10215 Timber Ridge Dr., Ashland, VA 23005 U.S.A.; +1.804.550.1051; Fax: +1.804.550.1057; Web: www.anton-paar.com; E-mail: lillianne.hall@anton-paar.com; Facebook: @AntonPaarUSA; Twitter: @AntonPaarUSA. Anton Paar is a leading supplier of instrumentation for key analytical parameters with over 30 years of experience and many long-term partnerships with the biggest names in the craft beverage industry. Precisely determine and monitor the alcohol content and numerous other quality parameters in wine, beer, spirits, and countless more.
- 75 Ashland**, 1005 Route 202/206, Bridgewater, NJ 08807 U.S.A.; 1.877.546.2782; Web: www.ashland.com. Visit Ashland at booth #75 to learn how we're always solving challenges for the brewing industry. With over 50 years of experience providing beer stabilizers and wort clarifiers, Ashland's Polyclar stabilizers are the leading choice in clarification and stabilization technology for beer.
- 78 ATP Group**, 2 Madison Ave., Suite 210, Larchmont, NY 10538 U.S.A.; +1.914.834.1881; Web: www.atpgroup.com; E-mail: atpbeer@atpgroup.com. ATPGroup has a division dedicated to the brewing industry. We proudly present a wide product range that includes processing aids, anti-foams, cartridges and housings, clarifiers/stabilizers, enzymes, yeasts, filtration aids (cellulose, DE, Perlite), filter sheets, filtration equipment, glassware, packaging equipment, analytical equipment, and more. ATP represents well respected and established companies such as Alfatek, Ajinomoto, Ashland, Eaton/Begerow, Birko, EP Minerals, Fermentis, Padovan, SPX, Stölzle, and WeissBiotech.
- 91 BIOTECON Diagnostics**, Hermannswerder 17, Potsdam, Brandenburg 14473 Germany; +49.331.2300.200; Web: www.bc-diagnostics.com; E-mail: bcd@bc-diagnostics.com; Twitter: @biotecon. BIOTECON Diagnostics is a leading partner for molecular and microbiological methods in food, beverage, and pharmaceutical industries. Founded in 1998, we focus on development, production, and international marketing of real-time PCR-based, rapid detection technologies, including sample preparation and DNA extraction.
- 73 BMT USA LLC**, 14532 169th Drive SE, Ste 142, Stanwood, WA 98272 U.S.A.; +1.360.863.2252; Web: www.bmtusa.com; E-mail jeffh@bmtusa.com. BMT USA is the premier supplier of clean steam generators utilized for the sterilization of kegs. Available in electric and steam-to-steam designs with capacities from 50–5,000 lb./hr. BMT also provides incubators and autoclaves for the QC lab. BMT USA—Assuring your quality.
- 47 Bratney Companies**, 3400 109th Street, Des Moines, IA 50322 U.S.A.; +1.515.270.2417; Fax: +1.515.276.2067; Web: www.bratney.com; E-mail: info@bratney.com. Bratney Companies specializes in the design, build, and supply of equipment for cleaning, sorting, pelletizing, handling, packaging, and storing grains used in the malt and brewing industries. We provide the best in the processing of grains to provide expert advice and offer the most efficient solution to your needs.
- 90 Briggs of Burton, Inc.**, 400 Airpark Drive, Suite 40, Rochester, NY 14624 U.S.A.; +1.585.426.2460; Fax: +1.585.426.0250; Web: www.briggsplc.co.uk; E-mail: sales@briggsusa.com; Twitter: @BriggsOfBurton. 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.
- 71 BSG CraftBrewing**, 800 West First Ave., Shakopee, MN 55379 U.S.A.; 1.800.374.2739; Web: www.bsgcraftbrewing.com; E-mail: sales@bsgcraft.com; Facebook: @BSGCraftbrewing; Twitter: @BSGCraftBrewing. BSG has earned the trust of our customers by delivering the finest brewing ingredients at competitive values, all backed by excellent customer service and a depth of industry experience. Whether it's exclusive specialty malts, in-demand hop varieties, or premium brewing aids, we have you covered.
- 51 Bühler Inc.**, 13,105 12th Avenue North, Plymouth, MN 55441 U.S.A.; +1.763.847.9900; Fax: +1.763.847.9911; Web: www.buhlergroup.com; E-mail: Buhler.Minneapolis@buhlergroup.com; Facebook: @buhlergroup. Bühler offers a wide variety of equipment for grain processing: cleaning machines, mechanical and pneumatic conveyors, hammer mills, roller mills, sifters, and laboratory equipment. Bühler also stands out for its process knowledge, supply of automation systems, and service portfolio, enabling the brewing industry to have the most profitable grain processing installation.

- 13 Cargill Craft Malt**, 15407 McGinty Road West, MS 55391, Wayzata, MN 55391 U.S.A.; 1.800.669.6258; Fax: +1.920.458.9034; Web: www.cargillcraftmalt.com; E-mail: cargillspecialtymalts@cargill.com; Twitter: @cargillmaltUS. We are true to our craft. Producing and distributing a wide assortment of the highest-quality, most consistent malt available, we've helped craft brewers like you create distinctive, creative craft beer for decades. Our malts are made to help you consistently deliver the high-quality flavor your customers expect from your beer...every time.
- 26 Centec LLC**, W140N9103 Lilly Rd., Menomonee Falls, WI 53051 U.S.A.; +1.262.251.8209; Fax: +1.262.251.8209; Web: www.centec-usa.com; E-mail: lisa.delano@centec-usa.com. Centec provides inline process measurement and process skids. From water treatment to product preparation such as water deaeration, carbonating, flash-pasteurization, and CIP. We also provide a wide range of butterfly valves, pipe connections, reducers, bends, tank equipment, and HyCom-fittings.
- 33 CFT Packaging USA**, 1033 Butterfield Road, Vernon Hills, IL 60061 U.S.A.; +1.847.247.0233; Web: www.cft-group.com; E-mail: david@cftpackagingusa.com. CFT Packaging USA specializes in monoblock rinser-filler-crowners and monoblock can filler/seamer applications. CFT is your main source for filling and packaging equipment.
- 57 ChemTreat**, 5640 Cox Road, Glen Allen, VA 23060 U.S.A.; +1.804.935.2000; Web: www.chemtreat.com. ChemTreat is one of the world's largest providers of water treatment products and services. We develop customized programs with sustainable solutions to improve operating efficiencies, minimize expenditures, reduce carbon footprints, and improve energy and water management delivered through the most experienced sales and service team in the industry.
- 43 Christian Gresser GmbH**, Auweg 34, Regensburg 93055 Germany; +49.941.6037114 or +49.175.5631497; Web: www.gresser.net; E-mail: sgresser@gresser.net; Facebook: @openfermenting. Since 1872, Gresser Company, family-owned for four generations in Bavaria, manufactures high quality tanks and vessels. Gresser does continuous research and is famous as an expert in open fermentation with an automatic CIP system. Those open fermentation vats enable breweries to produce distinct and aromatic beers of highest quality.
- 89 Commodity Specialists Company**, 10733 Sunset Office Drive, Suite 260, St. Louis, MO 63038 U.S.A.; +1.314.626.4580; Web: www.csc-world.com; E-mail: twilkinson@csc-world.com. A national marketer of feed by-products and for 40 years the largest marketer of wet brewers in the United States, serving large and craft brewers alike. Experienced marketing and trucking personnel nationwide with understanding of the logistic needs of breweries and farmers as well as feed values.
- 70 Country Malt Group**, 16 Beeman Way, Champlain, NY 12919 U.S.A.; 1.844.637.7106; Web: www.countrymaltgroup.com; E-mail: info@countrymalt.com; Facebook: @countrymalt; Twitter: @CountryMalt. Country Malt Group has grown to be one of the leading providers of quality ingredients and supplies to the craft beer industry. Spanning the United States and Canada, Country Malt Group has eleven distribution centers located strategically across North America.
- 56 Crosby Hop Farm**, 8648 Crosby Road NE, Woodburn, OR 97071 U.S.A.; +1.503.598.25166; Web: crosbyhops.com; E-mail: hops@crosbyhops.com; Facebook: @CrosbyHops; Twitter: @crosbyhops. Crosby Hop Farm grows, sources, and processes premium hop products from around the world. Focused on quality, sustainability, innovation, and community, we are committed to the customers and stakeholders we serve and the land that supports us.
- 11 Day & Zimmermann**, 125 The Parkway, Suite 400, Greenville, SC 29615 U.S.A.; +1.864.241.6700; Web: www.dayzim.com. D&Z specializes in engineering and construction, staffing, and defense solutions for leading corporations and governments. With 150 worldwide locations, a workforce of 42,000 and \$2.4 billion in revenue, D&Z is one of the largest private companies in the U.S.
- 15 Diversey**, 2415 Cascade Pointe Boulevard, Charlotte, NC 28208 U.S.A.; +1.905.808.4103; Web: www.sealedair.com/divercraft; E-mail: troy.matteotti@sealedair.com. The Diversey brewing hygiene platform is designed specifically for the needs of the brewery, from complex cleaning procedures to reducing operational costs and supporting food safety initiatives, equipment, and knowledge-based services related to the brewing industry.
- 2 Donaldson Company, Inc.**, PO Box 1299, Minneapolis, MN 55440 U.S.A.; 1.800.543.3634; Web: www.donaldsonprocessfilters.com; E-mail: processfilters@donaldson.com. Donaldson Company is a leading worldwide provider of process filtration, providing filtration for sterile air, liquids, and steam used in the food and beverage processing and aseptic packaging, inks, paints, coatings, pharmaceuticals, and other processing industries. Donaldson is committed to protecting people and processes using leading filtration technology.

- 21 DSM Food Specialties USA, Inc.**, 3502 North Olive Road, South Bend, IN 46628 U.S.A.; +1.574.232.5000; Web: www.dsm.com/food; E-mail: info.food@dsm.com. DSM Food Specialties is a global supplier of food ingredients. We offer a range of brewing enzymes and support from our global team of brewmasters to ensure you gain maximum control over your production processes, improve your brewing efficiency, and deliver consistently clear, higher quality beer at a lower cost.
- 76 EP Minerals**, 9785 Gateway Drive, Reno, NV 89521 U.S.A.; +1.775.824.7624; Fax: +1.775.824.7694; Web: www.epminerals.com; E-mail: incredible_minterals@epminerals.com. EP Minerals is a worldwide industrial minerals leader in diatomaceous earth (DE), bleaching clays, calcined clay adsorbents, and perlite. Our innovative solutions, technical filtration experience, and extensive filtration portfolio of products makes EP Minerals the brewing expert.
- 53 Fermentis, Division of S.I. Lesaffre**, 137 Rue Gabriel Peri, Marcq En Baroeul 59700 France; +33.(0)3.20.81.62.75; Web: www.fermentis.com. Fermentis works with everyone in the world of beer, wine, spirits, and other fermented beverages. Its range of products and services covers almost all professional requirements. Its mission? Become the obvious choice for brewers, winemakers, and all producers of fermented beverages, helping them express their inventiveness and creativity.
- 32 FILTEC**, 3100 Fujita Street, Torrance, CA 90505 U.S.A.; 1.888.434.5832; Fax: +1.310.530.1000; Web: www.filtec.com; E-mail: askfiltec@filtec.com. Founded in 1958, FILTEC is a leading provider of inline inspection solutions for the beverage and brewery industries. With local offices and support in over twenty international territories, FILTEC has served some of the world's most iconic brands on a global scale for over half a century.
- 23 Flottweg Separation Technology, Inc.**, 10700 Toebben Drive, Independence, KY 41051 U.S.A.; +1.859.448.2300; Fax: +1.859.448.2333; Web: www.flottweg.com; E-mail: sales@flottweg.net. With over 40 years of experience in the U.S. and Canadian markets, Flottweg offers high performance industrial centrifuges, belt presses, and complete custom-designed processing systems for all types of liquid-solid and liquid-liquid-solid separation applications.
- 65 Flowmation Systems Inc.**, 2275 Upper Middle Rd. E., # 101, Oakville, ON L6H 0C3 Canada; +1.416.782.2828 or +1.905.849.1910; Fax: +1.810.882.5530; Web: www.flowmation.com; E-mail: Info@flowmation.com. Flowmation Systems; for the brewery industry, built with leadership and collaboration by brewers. Our software systems are fast, efficient, and cost-effective. We deliver real-time data on operational activities and metrics, so you can plan and track operations, reduce inventory, and improve profits—all while maintaining target flavor profiles.
- 34 Fulton**, 972 Centerville Rd., Pulaski, NY 13142 U.S.A.; +1.315.298.5121; Web: fulton.com; E-mail: joe.singerling@fulton-steam.com; Facebook: @FultonBoiler; Twitter: @FultonBoiler. Fulton Steam Solutions and Fulton Boiler Works manufacture premier-quality steam boilers tailored to brew processes. With seven decades of experience, Fulton understands the unique needs of the brewing industry, offering options suitable for small batch microbrewers, large-scale facilities, and breweries of all sizes in between.
- 46 Gastrograph AI**, 200 Water St., Suite 2314, New York, NY10038 U.S.A.; +1.305.794.8392; Web: www.gastrograph.com; E-mail: info@gastrograph.com; Facebook: @gastrograph; Twitter: @gastrograph. Gastrograph AI enables food and beverage producers control over their outcomes—from conception to consumption based on tasting and production data. By understanding consumers preferences, their platform delivers innovation management, deep market insights, and predictive manufacturing.
- 68 GEA North America**, 9165 Rumsey Road, Columbia, MD 21045 U.S.A.; 1.844.432.2329; Web: www.gea.com; E-mail: sales.northamerica@gea.com. GEA's comprehensive portfolio includes over 50 solutions developed to meet the needs of today's brewers. We design and engineer turnkey breweries and provide individual solutions and components to enhance existing operations. Our separator systems, hygienic pumps, and tank cleaners meet all industry requirements.
- 24 GKD-USA**, 825 Chesapeake Drive, Cambridge, MD 21613 U.S.A.; 1.800.453.8616; Web: gkdusa.com; E-mail: sales@gkdusa.com; Facebook: @GKD-metalfabrics; Twitter: @metalfabric. We supply the beverage industry with high-strength, cleaned stainless steel meshes, semi-finished products, and replacement screens, as well as on-site installation and assembly services. Our stainless steel meshes are suitable for all standard filter systems, such as Schenk, Steinecker, Funda, Della Toffola, Padovan, and US-Filter.
- 42 Gusmer Enterprises**, 1165 Globe Ave., Mountainside, NJ 07092 U.S.A.; +1.908.301.1811; Web: www.gusmerbeer.com; E-mail: sales@gusmerenterprises.com; Facebook: @gusmerenterprises; Twitter: @gusmerbeer. For over 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

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- 20 Hamilton Company**, 4970 Energy Way, Reno, NV 89502 U.S.A.; 1.800.648.5950; Web: www.hamiltoncompany.com/sensors; E-mail: sensors@hamiltoncompany.com. Hamilton Company is a global leader in the design and manufacture of sterilizable dissolved oxygen, conductivity, pH, and ORP sensors. Our Beverly portable monitor with the VisiFerm optical sensor is designed for quick and reliable at-line control of DO in brewing applications. Come see us at Booth #20.
- 84 HEUFT USA, Inc.**, 2820 Thatcher Road, Downers Grove, IL 60515 U.S.A.; +1.630.968.9011; Web: www.heuft.com; E-mail: usa@heuft.com. HEUFT is a premier supplier of inspection equipment to the beer industry. HEUFT has excelled in providing solutions for sustainable quality inspection for both bottles and cans. Our product line covers full and empty container inspection, and full case and empty case inspection as well as sorting, laning, and rejection systems.
- 83 Hopsteiner**, 1 West Washington Avenue, Yakima, WA 98903 U.S.A.; +1.509.453.4731; Fax: +1.509.457.4638; Web: www.hopsteiner.com; E-mail: sales@hopsteiner.com; Facebook: @Hopsteiner. Since 1845 Hopsteiner has supplied brewers, large and small, throughout the world with high quality hops, hop pellets, CO₂ hop extract, hop oils, and downstream products to assist in the production of the best beers. Visit us as booth #83 to learn about new and experimental hops available.
- 29 Hygiena**, 941 Avenida Acaso, Camarillo, CA 93012 U.S.A.; +1.805.465.5317; Fax: +1.805.465.5317; Web: www.hygiena.com/beer; E-mail: info@hygiena.com; Twitter: @HygienaUSA. Recognized worldwide for accuracy, ease of use, and affordability, Hygiena's ATP Sanitation Monitoring System is used extensively throughout the food and beverage industries to validate sanitation protocols and determine whether equipment is truly clean. The EnSURE Monitoring System measures ATP from surface and liquid samples. Free trials are available!
- 94 Invisible Sentinel**, 3711 Market Street, Suite 910, Philadelphia, PA 19104 U.S.A.; +1.215.966.6118; Fax: +1.215.921.5091; Web: www.invisiblesentinel.com; E-mail: info@invisiblesentinel.com; Twitter: @Invisible_Sntl. Invisible Sentinel is a global molecular solutions company, dedicated to providing first-in-class microbial detection tools. The company's suite of detection tools for the brewing industry, including brewPAL, allows brewers to protect beer quality by providing on-site detection of spoilage organisms from post-boil to bottle in 3 hours.
- 62 John I. Haas, Inc.**, 1600 River Road, Yakima, WA 98902 U.S.A.; +1.509.469.4000; Web: www.johnihaas.com; E-mail: Roy.Johnson@johnihaas.com. John I. Haas, Inc., is a member of the Barth-Haas Group—the world's largest supplier of hops, hop products, and services. Haas has the reach to offer the products, tools, services, and supply assurance you need to brew successful beers.
- 45 Kagetec Industrial Flooring**, 24631 Saint Benedict Rd., Jordan, MN 55352 U.S.A.; +1.612.435.7640; Fax: +1.612.435.7643; E-mail: info@kagetecusa.com; Facebook: @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.
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- 7 MIDI Labs, Inc.**, 125 Sandy Drive, Newark, DE 19713-1148 U.S.A.; +1.302.737.4297; Fax: +1.302.737.7781; Web: www.midilabs.com; E-mail: info@midilabs.com; Twitter: @MIDI_Group. For 25+ years, MIDI Labs has been providing accurate and reliable contract microbiology services for the fermented beverage and natural product industries. Our services include: identification of bacteria, yeast, and fungi using fatty acid analysis (strain tracking), DNA sequencing, and MALDI-TOF (protein expression) analysis. MIDI Labs is a veteran-owned small business.
- 17 Murphy & Son**, 39 North St., Apt 1, Northampton, MA 01060-3232 U.S.A.; +1.413.404.4830; Web: www.murphyandson.co.uk; E-mail: jamie.carmichael@murphyandson.com; Facebook: @murphyandsonltd; Twitter: @MurphyAndSonLtd. Murphy and Son have supplied processing aids to breweries since 1887. With 130 years of experience as consulting brewers and manufacturing chemists, every one of our products is formulated and manufactured to perform to the highest standard and will give you consistent results every time you brew.

- 9 Nexcelom Bioscience LLC**, 360 Merrimack Street, Lawrence, MA 01843 Country: U.S.A.; +1.978.327.5340; Web: www.nexcelom.com; E-mail: info@nexcelom.com. Nexcelom's Cellometer X1/X2 image cytometers are simple-to-use cell counters optimized for yeast samples, automating cell counting procedures by obtaining accurate counts, viability, and cell size in less than 30 seconds and only 20uL of sample. Fluorescence detection capabilities enable fast and simple determination of viability and vitality for brewing fermentation.
- 82 optek-Danulat, Inc.**, N118W18748 Bunsen Dr., Germantown, WI 53022 U.S.A.; 1.888.837.4288 or +1.262.437.3600; Web: www.optek.com; E-mail: brew@optek.com; Facebook: @optek. Inline photometers provide precise, real-time control for brewing optimization. Monitor color, haze, and yeast and solids concentration. 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.
- 16 Palmer Canning Systems**, 3759 N. Ravenswood Ave., Suite 233, Chicago, IL 60613 U.S.A.; +1.773.394.4913; Web: www.palmercanning.com; E-mail: info@palmercanning.com. Palmer Canning Systems is an American made and assembled manufacturing company offering complete rotary counter pressure filling systems at speeds of 45–300 CPM. Starting with our de-pal to conveyance and weight checkers each line is custom. We have partnered with WaveGrip to bring you innovative multi-packaging solutions.
- 80 Pentair**, 175 S. Wright St., Delavan, WI, 53115 U.S.A.; +1.262.725.9026; Web: www.foodandbeverage.pentair.com; E-mail: hnsales@pentair.com; Facebook: @gehaltebus; Twitter: @gehaltebus. Pentair's Haffmans, Südmo, and Union Engineering brands specialize in quality control equipment, water deaeration, blending and carbonation units, and CO₂ recovery plants, valves and components, and beer membrane filtration (BMF). Our product portfolio includes equipment for measuring CO₂, O₂, air, alcohol/extract, foam, and turbidity and monitoring pasteurization and bottle/keg washing.
- 49 PerkinElmer**, 940 Winter St., Waltham, MA 02461 U.S.A.; 1.800.782.4000; E-mail: chevents@perkinelmer.com; Facebook: @PerkinElmer; Twitter: @pki_events. PerkinElmer is innovating for the breakthroughs of tomorrow, today. We are pushing the limits of discovery and analytical solutions to determine known and unknown contaminants in our food, water, air, and nutraceuticals to ensure our health and the health of our environment. Visit us at booth #49 for more information.
- 3 Petainer, Manufacturing USA Inc.**, 515 N. River Street, Suite 206, Batavia, IL 60510 U.S.A.; +1.630.326.9921; Fax: +1.630.326.9921; Web: www.petainerkeg.com; E-mail: Jerry.beaudion@petainer.com; Facebook: @petainerkeg; Twitter: @petainerkeg. petainerKeg is a low-cost option to open new markets by lowering your overall cost of ownership by eliminating the reverse logistics within the supply chain. It reduces initial capital investment and allows you to use the resources of managing a steel keg fleet to grow your business.
- 48 PicoBrew Inc.**, 2121 N. 35th Street, Seattle, WA 98103 U.S.A.; +1.310.721.2624; Web: www.picobrew.com; E-mail: sales@picobrew.com; Facebook: @picobrewbeer; Twitter: @picobrewbeer. Leading the brewing world in automated technology with Zymatic, the world's first small-batch, all-grain brewing appliance: ideal for proofing ingredients and piloting new beer ideas. And Pico, automated home cartridge brewing bringing your brewery-fresh beer to craft beer drinkers throughout the globe.
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- 77 Profamo Inc.**, 26329 Basswood Ave., Rancho Palos Verdes, CA 90275 U.S.A.; +1.941.284.7990; Web: www.profamo.com; E-mail: info@profamo.com. Profamo supplies QA, process control, and keggings equipment. Our product line includes Lambrechts keg washers and fillers, the Rotech test keg, Sigrist turbidity meters, density meters, trace verifiers to check the accuracy of your DO, CO₂ and N₂ analyzers, malt QA equipment from Pfeuffer, and Advanced Instruments' CO₂ Purity analyzer.
- 30 ProLeiT Corp.**, 1801 W. Warner Ave., Chicago, IL 60613 U.S.A.; +1.224.880.6536; Web: www.proleit.com; E-mail: corp@proleit.com; Facebook: @ProLeiTGroup. ProLeiT offers a brewing specific automation solution, brewmaxx, with integrated MES functions for the brewing industry. brewmaxx is, with more than 700 installations in breweries worldwide, one of the leading automation solutions for the brewer. Recipes, brew orders, reports, Track & Trace, video functionality, outstanding control—at your fingertips.

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- 38 Rack & Maintenance Source**, 400 W. Whitman Dr., College Place, WA 99324 U.S.A.; +1.509.524.8500 or +1.509.540.9248; Web: www.rackandmaintenance.com; E-mail: steven@wegotracks.com. Your source for used, refurbished, and new barrel racks for all barrel sizes.
- 50 Rheonix Inc.**, 10 Brown Road, Suite 103, Ithaca, NY 14850 U.S.A.; +1.607.257.1242; Web: rheonix.com/food-beverage-testing/beer-spoilage-testing/; E-mail: sales@rheonix.com. Rheonix's beer SpoilerAlert assay is the only automated test for the multiplexed detection of bacteria, yeast, and hop resistance genes. Multiplexed detection determines spoilage potential, significantly reduces the cost/target, and provides actionable results days faster than traditional techniques. No technical expertise required to run the system or interpret results.
- 64 San Francisco Herb Company**, 250 14th Street, San Francisco, CA 94103 U.S.A.; 1.800.227.4530; Web: www.sfherb.com; E-mail: info@sfherb.com; Facebook: [@sfherbco](https://www.facebook.com/sfherbco). For over 40 years San Francisco Herb Company has provided specialty ingredients to the brewing industry. Family owned and operated, we take great pride in helping other small businesses live their dream. Stop by our booth, grab some samples, and share how we can help you live your dream. Cheers!
- 5 Sani-Pump, Inc.**, 103 Ravenwood Lane NE, Cleveland, TN 37312 U.S.A.; +1.616.914.5530; Fax: +1.616.914.5530; Web: www.sani-pump.com; E-mail: jmccormick3@att.net. With more than fifty years of experience with C-Series and other sanitary stainless steel pumps, Sani-Pump offers top quality equipment at the best pricing you'll find anywhere. Also offering valves, fittings, filters, and other needs to the brewing, beverage, and food processing industries. We guarantee quality, value, delivery, and accuracy on every order.
- 8 Schaefer Container Systems**, 5275 Westgate Drive, Suite D, Atlanta, GA 30336 U.S.A.; +1.404.349.4524 or +1.336.681.7883; Fax: +1.404.349.4526; Web: www.schaefercontainers.com; E-mail: jfast@schaefercontainers.com; Facebook: [@schaefercontainers](https://www.facebook.com/schaefercontainers). Schaefer is a world leader in manufacturing stainless steel kegs and tanks for the brewing industry. Come by our booth for a beer and check out the latest and greatest in Schaefer Kegnology!
- 18 Separators Inc.**, 5707 W. Minnesota St., Indianapolis, IN 46241 U.S.A.; 1.800.233.9022; Fax: +1.317.484.3755; Web: www.separatorsinc.com. With more than 30 years of experience, Separators Inc. is North America's leading independent centrifuge remanufacturer and service provider specializing in Alfa Laval, Tetra Pak, and Westfalia centrifuge equipment. In addition, Separators Inc. offers a full array of startup, maintenance, and repair services and stocks over 4,000 parts with 24/7 availability.
- 25 Shimadzu Scientific Instruments, Inc.**, 7102 Riverwood Drive, Columbia, MD 21046 U.S.A.; 1.800.477.1227; Fax: +1.410.381.1222; Web: www.ssi.shimadzu.com. Shimadzu provides total support for beer analysis from farm to stein, with rugged instruments ideal for analysis of color, bitterness, diacetyl, alcohol content, esters, carbohydrates, mycotoxins, and more. Regardless of your analysis requirements, Shimadzu provides you with robust, reliable instrumentation and comprehensive support to meet your current and future needs.
- 85 Symbiont Science, Engineering and Construction, Inc.**, 6737 W. Washington Street, Ste. 3440, Milwaukee, WI 53214 U.S.A.; 1.800.748.7423; Fax: +1.414.291.8840; Web: www.symbiontonline.com. Symbiont is an engineer-led design/build firm specializing in the brewing industry. Capabilities include facility expansion, process design and modifications, utility design and upgrades, water and wastewater treatment, and energy efficiency. Installation of several waste-to-energy projects.
- 28 The Barrel Mill**, 640 Chinook Ave. SW, Avon, MN 56310 U.S.A.; 1.800.201.7125; Web: InfusionSpiral.com; E-mail: info@thebarrelmill.com. The Barrel Mill is a leading designer and builder of barrels and Infusion Spirals made from oak and a variety of exotic woods for the purpose of aging and elevating premium beverages, including beer, wine, spirit, and cider. Choice of four toasts and two chars.

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- 74 **Weyermann Specialty Malts**, Brennerstrasse 17-19, Bamberg 96052 Germany; +49.951.9322012; Fax: +49.951.93220970; Web: www.weyermannmalt.com; E-mail: info@weyermann.de; Facebook: @weyermannspecialtymalts; Twitter: @Weyermann_Malts. Weyermann, now in its fourth generation as a successful family business, has been bringing color and flavor to beer since 1879. Built on a tradition of quality and consistency, Weyermann offers more than 85 different malt varieties to brewers all around the world, in 135 countries, on all continents.
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Poster Hours

Posters highlighting the latest research are located in the International Ballroom, with poster authors available at posted times to answer your questions and discuss their results.

Thursday, October 12	8:00–11:00 a.m.	Poster Set-up
	11:30 a.m.–4:30 p.m.	Open Poster Viewing <i>12:00–12:30 p.m.: Even-numbered poster authors at posters</i> <i>12:30–1:00 p.m.: Odd-numbered poster authors at posters</i>
	5:15–6:45 p.m.	Opening Happy Hour with Exhibits <i>5:30–6:00 p.m.: All poster authors at posters</i>
Friday, October 13	9:45 a.m.–1:45 p.m.	Open Poster Viewing <i>12:15–12:45 p.m.: Odd-numbered poster authors at posters</i> <i>12:45–1:15 p.m.: Even-numbered poster authors at posters</i>
	1:45–2:00 p.m.	Poster Take-down

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Moderator: Fred Scheer, Kronos, Inc.

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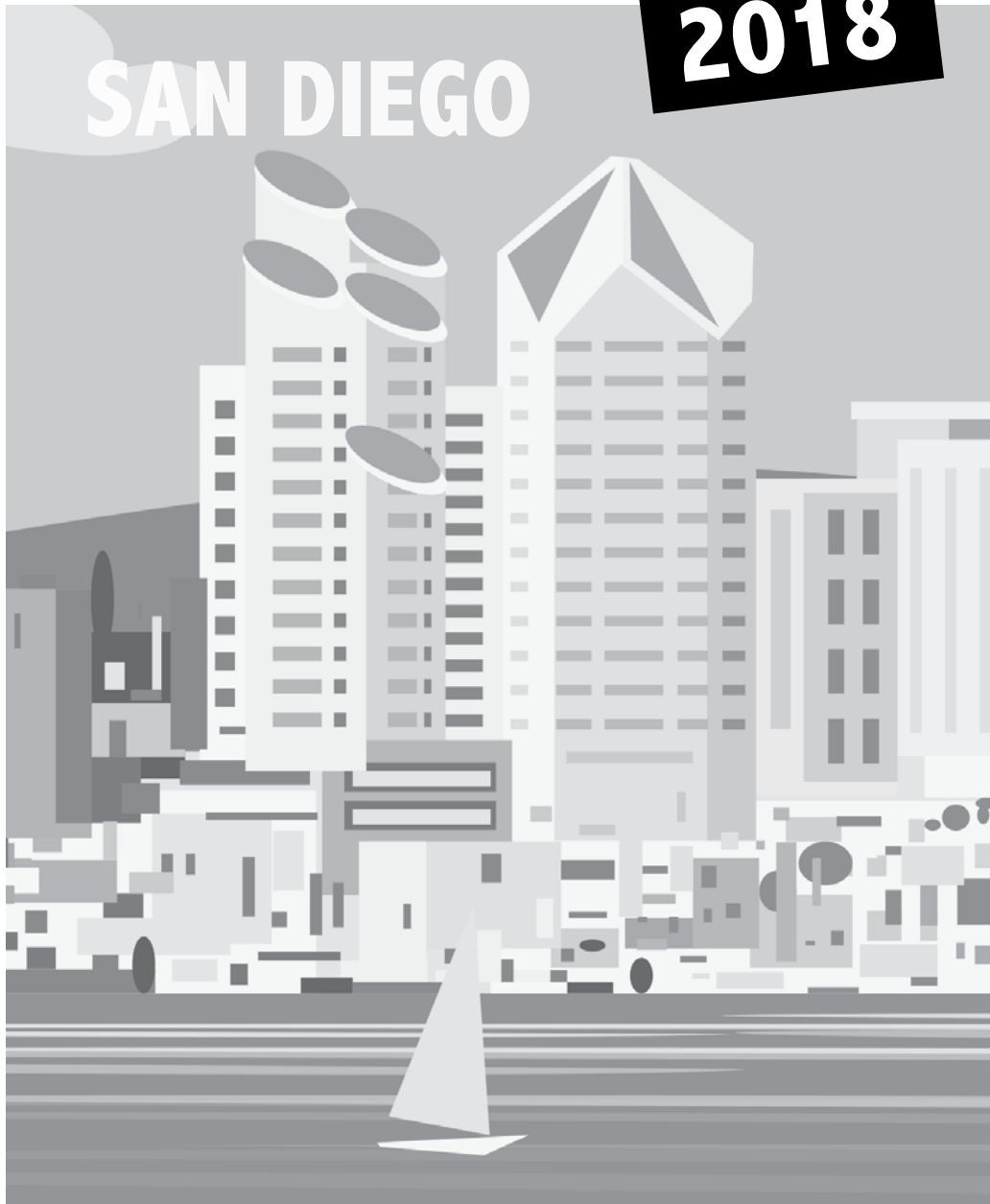
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