



Program Book

**American Society of
Brewing Chemists
70th Annual Meeting**



**June 17-21, 2006
La Quinta Resort & Club
La Quinta, California**

**Refining the Science
of Brewing**

*Advances and innovations in the
distilled, malt-based, and fermented
beverage industries*





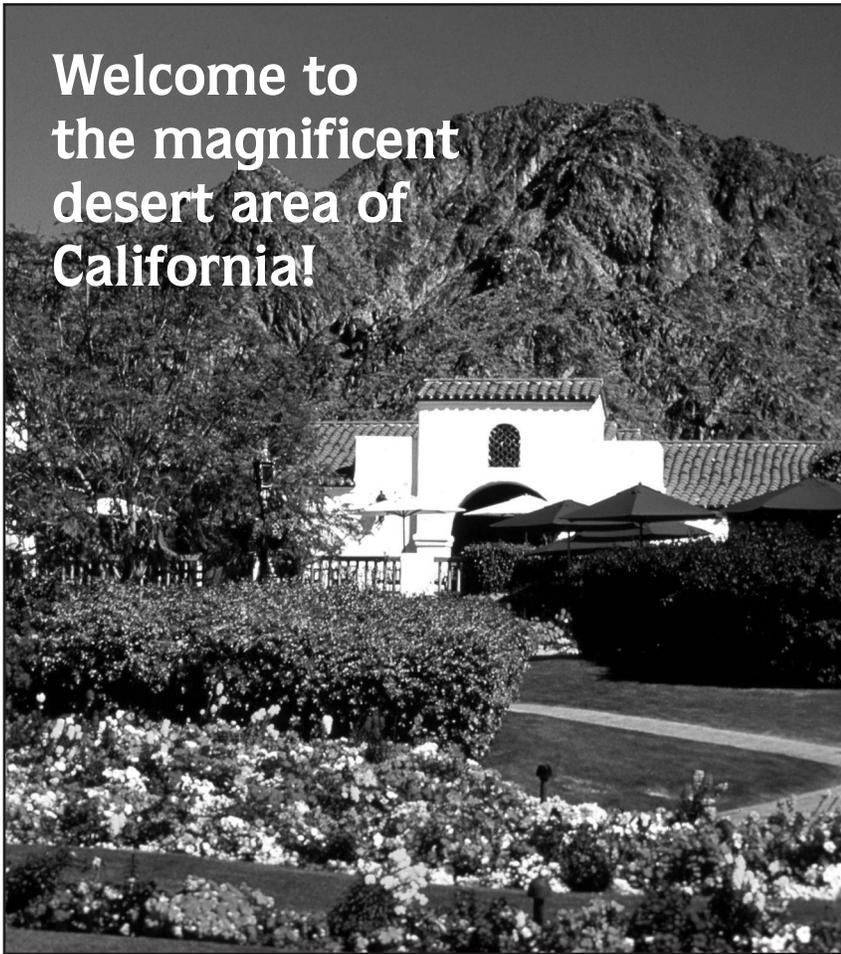
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Location Photo Credits:

Front Cover—Date palms by Arthur Coleman Photography, courtesy of the Palm Springs Bureau of Tourism. Pool at night by Tracy Breshears, courtesy of the La Quinta Resort & Club. ***Page 1***—La Quinta Resort, courtesy of La Quinta Resort. Palm Springs Golf Course, Horseback Riding in Indian Canyons, and Palm Springs Aerial Tramway courtesy of the Palm Springs Bureau of Tourism; ***Page 13***—Downtown Palm Springs by Arthur Coleman Photography, courtesy of the Palm Springs Bureau of Tourism.

Welcome to
the magnificent
desert area of
California!



Greetings from the ASBC Program Committee. It is our pleasure to welcome you to the 2006 ASBC Annual Meeting at the beautiful La Quinta Resort & Club.

There are great things planned for this meeting! From opening keynote speaker Norma Hill discussing nutrition labeling of malt products to closing speaker Chef Jim Fleishman's pairings of beer and food, there is something for everyone. An incredible program highlights nine technical sessions that feature 35 oral presentations. In addition, there are 33 posters, 2 workshops, and taste sessions on Sake, as well as beer and chocolate! Opportunities exist around every corner to network, learn, build business relationships, and hear first-hand the latest brewing science and related research. Plus, there will be ample time to connect with colleagues and suppliers while enjoying the exhibits and hospitality.

Take in all the information you can throughout the meeting, but also take time to view the exhibits, converse at the hospitality room, catch up on the latest news in the industry, and relax in the wonderful desert setting of La Quinta.

The 2006 ASBC Program Committee

General Information

Registration

Flores Ballroom Foyer

Saturday, June 17	2:00 – 5:00 p.m.
Sunday, June 18	7:00 a.m. – 5:00 p.m.
Monday, June 19	7:00 a.m. – 3:00 p.m.
Tuesday, June 20	7:00 a.m. – 3:00 p.m.
Wednesday, June 21	7:00 a.m. – 12:00 p.m.

Silent Auction

Flores Ballroom Foyer

Saturday, June 17	Drop-Off	2:00 – 5:00 p.m.
Sunday, June 18	Bidding Open	7:00 a.m. – 5:00 p.m.
Monday, June 19	Bidding Open	7:00 a.m. – 1:50 p.m.

Exhibits

Flores Ballroom 1–5

Saturday, June 17	Exhibit Set-Up	3:00 – 5:00 p.m.
Sunday, June 18	Exhibit Set-Up	9:00 – 11:00 a.m.
	Exhibits Open	3:30 – 6:30 p.m.
Monday, June 19	Exhibits Open	10:00 a.m. – 12:00 p.m.
Tuesday, June 20	Exhibits Open	10:30 a.m. – 1:00 p.m.
	Exhibit Take-Down	1:00 – 4:00 p.m.

Posters

Flores Ballroom 1–5

Saturday, June 17	Poster Set-Up	3:00 – 5:00 p.m.
Sunday, June 18	Poster Set-Up	9:00 – 11:00 a.m.
	Posters Available for Viewing	3:30 – 6:30 p.m.
	Authors Present	4:30 – 5:30 p.m.
Monday, June 19	Posters Available for Viewing	10:00 a.m. – 12:00 p.m.
	Authors Present	10:00 – 10:30 a.m. (even numbers) 11:30 a.m. – 12:00 p.m. (odd numbers)
Tuesday, June 20	Posters Available for Viewing	10:30 a.m. – 1:00 p.m.
	Authors Present	10:30 – 11:00 a.m. (odd numbers) 12:00 – 12:30 p.m. (even numbers)
	Poster Take-Down	1:00 – 4:00 p.m.

Meeting Attire

Business casual dress is encouraged for all meeting events.

Photo Release

By virtue of your attendance at the ASBC Annual Meeting, you agree to ASBC's use of your likeness in promotional materials.



The ASBC Foundation is hosting a Silent Auction to benefit the Brian Williams Scholarship Fund. The Foundation's goal is to build the fund to \$20,000 by the end of the Annual Meeting. This will allow the Foundation to present at least one \$1,000 Brian Williams scholarship every year.

Stop by the Silent Auction and bid on a wide array of items.

Medical Emergencies

Medical emergencies should be communicated to an ASBC staff member at the registration desk or the hotel staff by dialing the hotel operator.

The nearest hospital is:
John F. Kennedy Memorial Hospital
47111 Monroe Street
Indio, California
760.347.6191

Guest Program

Guests do not pay for registration. However, guests wishing to attend any of the receptions, ticketed food functions, or guest tours must have tickets purchased in advance or onsite. Guests must have name badges to attend technical sessions or the hospitality room. Badges can be obtained at the Registration Desk, Flores Ballroom Foyer.

ASBC is offering welcome activities, guest breakfast with a tour of the resort, and an optional aerial tram tour for guests and family members attending the meeting. Please note: the Guest Breakfast and Tour, and the Palm Springs Aerial Tram Tour required advanced registration prior to onsite.

There are additional tourist options in the area. ASBC encourages guests of meeting attendees to take full advantage of their time in this beautiful area.

Sunday, June 18

1:00 – 4:00 p.m.
Fred Render Pool Area

Get Acquainted Activities

Meet other family members and guests attending the meeting and join fun activities both in and out of the water.

Monday, June 19

9:00 – 11:00 a.m.
Capra B – C

Guest Breakfast and Tour of La Quinta Resort

A representative from the La Quinta Resort & Club will provide a tour of the resort and the various recreational facilities. (pre-registration and ticket required)

2:30 – 3:30 p.m.
Fiesta 8

Beer and Chocolate 101 Workshop

Guests are invited to attend this session during this time period. See workshop description in program. (pre-registration and ticket required)

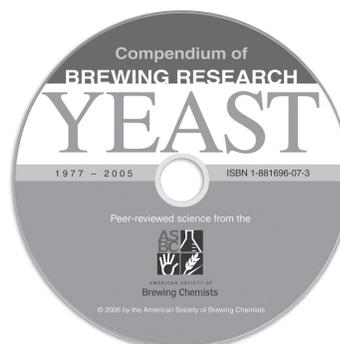
Tuesday, June 20

10:00 a.m. – 2:00 p.m.
Meet in Main Lobby

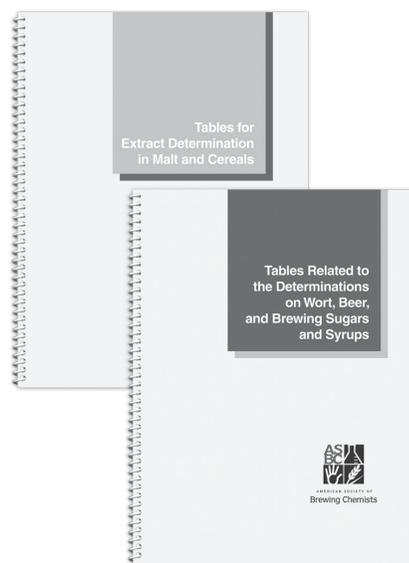
Palm Springs Aerial Tramway Tour

(pre-registration and ticket required, this tour will be cancelled if minimum numbers are not met)

NEW and ON SALE



This value-packed CD-Rom presents some of the most important yeast research ever published, organized by date, and available from your desktop. Each article is fully indexed and searchable back through 1977, so you can find exactly the information you need. For example, select research articles based on combinations of search terms to filter down to a specific area of interest: (“**volatile organics**” and “**higher alcohols**”); (“**oxygen uptake**” and “**carbohydrate metabolism**”); (“**yeast physiology**” and “**flocculation**”); (“**process control**” and “**flavor defects**”) and more. Add this CD-Rom to your personal collection today and build your knowledge of yeast and its functionality in brewing! From the peer-reviewed *Journal of the ASBC*.



Back by popular demand! These valuable *Tables for Extract Determination in Malts and Cereals* and *Tables Related to Determination on Wort, Beer, and Brewing Sugars and Syrups* are now spiral bound for ease of use at the bench.

Visit the ASBC Registration Desk during the meeting to purchase these new titles.

#2

American Society of Brewing Chemists

Schedule at a Glance

Saturday, June 17	Sunday, June 18	Monday, June 19	Tuesday, June 20	Wednesday, June 21
<p>Short Course: Getting the Most of Your Sensory Testing 1:00 – 5:00 p.m.</p> <p>Registration 2:00 – 5:00 p.m.</p> <p>Hospitality 4:00 – 11:00 p.m.</p> <p>Past Presidents/First Timers/Students Reception 6:00 – 7:00 p.m.</p>	<p>Speaker Orientation/ Breakfast (Orals 1–5, Posters 36–55) 7:00 – 8:00 a.m.</p> <p>Registration/Silent Auction 7:00 a.m. – 5:00 p.m.</p> <p>ASBC General Session and Opening Keynote Presentation: Nutrition Labeling of Malt Beverage Products 9:15 – 10:45 a.m.</p> <p>Technical Subcommittee Meetings 11:00 a.m. – 12:00 p.m.</p> <p>Beer Design Workshop 1:00 – 2:30 p.m.</p> <p>Welcome and Technical Session I—Barley/Malt 1:00 – 3:30 p.m.</p> <p>Exhibits and Hospitality/Poster Session 3:30 – 6:30 p.m.</p> <p>New Products and Services Session 3:40 – 4:40 p.m.</p> <p>Welcome Reception 7:00 – 9:30 p.m.</p> <p>Hospitality 9:00 – 11:00 p.m.</p>	<p>Speaker Orientation/ Breakfast (Orals 6–14, 56–68) 7:00 – 8:00 a.m.</p> <p>Silent Auction 7:00 a.m. – 1:50 p.m.</p> <p>Registration 7:00 a.m. – 3:00 p.m.</p> <p>Technical Session II—Hops 8:00– 10:00 a.m.</p> <p>Exhibits and Hospitality 10:00 a.m. – 12:00 p.m.</p> <p>Poster Session 10:00 a.m. – 12:00 p.m. Authors at Posters (even numbers) 10:00 – 10:30 a.m. Authors at Posters (odd numbers) 11:30 a.m. – 12:00 p.m.</p> <p>Technical Subcommittees Meetings 10:30 a.m. – 11:30 a.m.</p> <p>Recognition Lunch 12:15 – 1:45 p.m.</p> <p>Technical Session III—Micro/Yeast 2:00 – 4:25 p.m.</p> <p>Beer and Chocolate 101 2:30 – 3:30 p.m. and 4:30 – 5:30 p.m.</p> <p>Hospitality 4:00 – 11:00 p.m.</p>	<p>Speaker Orientation/ Breakfast (Orals 15–25) 7:00 – 8:00 a.m.</p> <p>Registration 7:00 a.m. – 3:00 p.m.</p> <p>Technical Session IV—Micro/Yeast 8:00 – 9:20 a.m.</p> <p>Total Package Oxygen Workshop 8:00 – 9:20 a.m.</p> <p>Technical Session V—Process 9:35 – 10:30 a.m.</p> <p>Exhibits and Hospitality 10:30 a.m. – 1:00 p.m. 11:30 a.m. – 1:00 p.m. (lunch)</p> <p>Poster Session 10:30 a.m. – 1:00 p.m. Authors at Posters (odd numbers) 10:30 – 11:00 a.m. Authors at Posters (even numbers) 12:00 – 12:30 p.m.</p> <p>Technical Subcommittee Meetings 11:00 a.m. – 12:00 p.m.</p> <p>Technical Session VI—Analytical 1:00 – 3:50 p.m.</p> <p>Statistics, Part Two: Validation of Analytical Methods Workshop 3:55 – 5:30 p.m.</p> <p>Hospitality 4:00 – 11:00 p.m.</p> <p>Sake One: An Americanized Sake Workshop 5:30 – 6:30 p.m.</p>	<p>Speaker Orientation/ Breakfast (Orals 26–35) 7:00 – 8:00 a.m.</p> <p>Registration 7:00 a.m. – 12:00 p.m.</p> <p>Technical Session VII—Stabilization 8:00 – 9:20 a.m.</p> <p>Technical Session VIII—Packaging 9:35 – 10:55 a.m.</p> <p>Technical Session IX—Flavor 1:30 – 3:15 p.m.</p> <p>Closing Keynote Presentation: Who Needs Wine? Beer and Food Pairing for Fine Dining 3:30 – 4:15 p.m.</p> <p>Closing Reception 7:00 – 10:00 p.m.</p> <p>Hospitality 9:00 – 11:00 p.m.</p>

Program

Friday, June 16		
8:00 a.m. – 5:00 p.m.	Technical Committee Meeting and Lunch	La Cita
Saturday, June 17		
8:00 a.m. – 5:00 p.m.	Board of Directors Meeting and Lunch	La Cita
1:00 – 5:00 p.m.	ASBC Short Course: Getting the Most from Your Sensory Testing	Fiesta 13 – 14
2:00 – 5:00 p.m.	Registration	Flores Ballroom Foyer
3:00 – 5:00 p.m.	Exhibit/Poster Set-Up	Flores 1 – 5
4:00 – 11:00 p.m.	Hospitality	Capra B – C
6:00 – 7:00 p.m.	Past Presidents/First Timers/Students Reception	Fiesta 3 – 4
Sunday, June 18		
7:00 – 8:00 a.m.	Speaker Orientation and Breakfast: Orals 1 – 5, Posters 36 – 55	La Cita
7:00 a.m. – 5:00 p.m.	Registration	Flores Ballroom Foyer
7:00 a.m. – 5:00 p.m.	Silent Auction Open	Flores Ballroom Foyer
8:00 – 8:30 a.m.	Program Committee Meeting and Breakfast	Fiesta 13
8:00 – 9:00 a.m.	Local Section Officers Meeting and Breakfast	Fiesta 14
8:00 – 9:00 a.m.	Past Presidents Meeting and Breakfast	Fountain Room
9:00 – 11:00 a.m.	Exhibit/Poster Set-Up	Flores 1 – 5
9:15 – 10:45 a.m.	ASBC General Session and Opening Keynote Speaker Norma Hill	Flores 7 – 8
11:00 a.m. – 12:00 p.m.	Technical Subcommittee Meetings	
	<ul style="list-style-type: none"> • Assessment of Malt Quality Parameters in High Gravity Wort • Can Packaging Methods • Check Services • Coordination of New and Alternate Methods of Analysis • Method for Preparation of Wort for Color Determination 	Fiesta 13 Fiesta 12 Fiesta 11 Fiesta 14 Fiesta 2
1:00 – 2:30 p.m.	Beer Design Workshop	Fiesta 6
1:00 – 3:30 p.m.	Welcome and Technical Session I – Barley/Malt	Flores 7 – 8
	Moderator: Rob McCaig, Canadian Malting Barley Technical Centre, Winnipeg, MB Canada	
1:05 – 1:30 p.m.	O-1. An alternative approach to assess the quality of new malting barley varieties. MICHAEL VOETZ (1), Frank Rath (1). (1) VLB Berlin, Germany	
1:30 – 1:55 p.m.	O-2. Behavior of malt astringent substances and their control in brewing. NORIHIKO KAGEYAMA (1), Nobuo Tada (2), Takako Inui (1), Susumu Furukubo (1), Akira Isoe (1). (1) Beer Development Department, Suntory Ltd., 1-1-1 Wakayamadai, Shimamoto-cho, Mishima-gun, Osaka 618-8503, Japan; (2) Musashino Brewery, Suntory Ltd., 3-1 Yazaki-cho, Fuchu, Tokyo 183-8533, Japan	
1:55 – 2:20 p.m.	O-3. Molecular characterization of the genetic basis for starch granule size distribution in barley. Monica Baga (1), Brian G. Rossnagel (1), RAVINDRA N. CHIBBAR (1). (1) University of Saskatchewan, 51 Campus Drive, Saskatoon, SK Canada	
2:20 – 2:40 p.m.	Break	
2:40 – 3:05 p.m.	O-4. New approaches in malting ecosystem research. ANNIKA K. WILHELMSON (1), Arja Laitila (1), Erja Kotaviita (2), Timo Huttunen (3), Silja Home (1). (1) VTT Technical Research Centre of Finland, Espoo, Finland; (2) Raisio plc, Raisio, Finland; (3) Viking Malt, Lahti, Finland	
3:05 – 3:30 p.m.	O-5. Effect of subcritical H ₂ O treated malt on beer quality (III). Koichi Nakahara (1), DAISUKE YAMADA (1), Koji Nagao (1), Norihiko Kageyama (2), Takako Inui (2), Nobuyuki Fukui (1). (1) Process Development Department, Suntory Ltd., 5-2-5, Yamazaki, Shimamoto-cho, Mishima-gun, Osaka, Japan; (2) Beer Development Department, Suntory Ltd., 1-1-1, Wakayamadai, Shimamoto-cho, Mishima-gun, Osaka, Japan	

3:30 – 6:30 p.m.	Exhibits/Posters and Hospitality Authors Present 4:30 – 5:30 p.m.	Flores 1 – 5
3:40 – 4:30 p.m.	New Products and Services Session Robert Maruyama, Moderator	Flores 7 – 8
3:45 – 3:52 p.m.	A Revolutionary New Technology for Measuring Dissolved Oxygen Haffmans BV, Venlo	
3:55 – 4:02 p.m.	Yeast DNA Fingerprinting: Siebel Institute Microbiology Services	
4:04 – 4:11 p.m.	Brewing Analysis with Hach DR5000 UV-VIS Spectrophotometer: Hach Company	
4:13 – 4:20 p.m.	The COMPLETE Wine Analysis and Consulting Service: BRI	
4:22 – 4:29 p.m.	Automatic Steinfurth Foam Stability Tester: Steinfurth, Inc.	
4:31 – 4:38 p.m.	Permeation through PET Bottles - Development of a Quick Test to Measure Permeation of Gases: VLB Berlin	
7:00 – 9:30 p.m.	Welcome Reception	Main Lawn Area
9:00 – 11:00 p.m.	Hospitality	Capra B – C

Sunday Sessions



Keynote Presentation

Nutrition Labeling of Malt Beverage Products: Science Must Provide a 21st Century Solution

Norma Hill, Alcohol & Tobacco Trade and Tax Bureau
9:30 – 10:45 a.m.

Market pressures, product evolution, consumer action lobbyists, and regulatory initiatives are rapidly changing the marketplace for the brewing industry. Much of the information that is required for labeling now must come from the analytical laboratory and the requirements are growing. Norma Hill will discuss some of the regulatory history behind the malt beverage nutrition label and the history of the cooperative efforts of AOAC and ASBC to meet past regulatory requirements. She will also outline the current methodology used to assess compliance and enumerate a number of the analytical and regulatory challenges that new product lines have and will present.

Beer Design Workshop

1:00 – 2:30 p.m.

Join renowned brew masters Keith Villa, Peter Bouckaert, Matt Brynildson, and Terence Sullivan as they discuss their unique points of view regarding the design of award winning beers. This workshop will be filled with informational aspects unique to micro/pub brewers, medium-sized craft brewers, regional craft brewers and major brewers. If you've ever wanted to hear about beer design from the artisanal point of view to the scientific, don't miss this panel.

New Products and Services Sessions

3:40 – 4:30 p.m.

Descriptions

Haffmans BV, Venlo – “A Revolutionary New Technology for Measuring Dissolved Oxygen.”

Presentation description: The quality and taste of a beer is most important, since it is the consumer who ultimately decides for or against a beer. The shelf life of a beer is strongly dependant on these two critical factors. To enhance the shelf life, it is not only important to control the dissolved CO₂ (carbon dioxide) content in a beverage but also the O₂ content, because oxygen negatively affects the best before dates and flavour. Breweries control and measure the quantities of O₂ and CO₂ continuously during the production of their beverages. For the first time in many years now a completely new O₂ measuring technology is available for the brewing industry. The principle of measurement is based on the effect of dynamic luminescence quenching by molecular oxygen. The measurement excels through a long term stability; a high accuracy even at very low oxygen values; and a high response time.

In combination with the CO₂ measurement, this new oxygen measurement enables breweries to control the two most important gasses in a very efficient way. F. VERKOELEN.

Siebel Institute Microbiology Services – “Yeast DNA Fingerprinting.”

Presentation description: Siebel Institute has developed a selection of DNA fingerprinting services that make this important technology available to breweries of any size. With a full range of affordably-priced testing services, the Siebel Institute can give your brewery the genetic analytical capabilities employed by the worlds most advanced brewing institutions. S. VAN ZANDYCKE.

Hach Company – “Brewing Analysis with Hach DR5000 UV-VIS Spectrophotometer.”

Presentation description: During June of 2005 Hach introduced the new DR5000 UV-VIS Spectrophotometer, the next

generation in a long line of easy to use, accurate, and reliable lab instrumentation. The DR5000 now has the added benefit of TNTplus™ Reagents which form a fully integrated analytical solution that delivers enhanced ease-of-use, precision, accuracy, and built-in error elimination, resulting in time and cost savings, as well as unprecedented confidence in test results. As of June 2006, this fully integrated instrument/reagent analysis system, which has typically been used solely for water analytics, will now offer the capability of performing many of the most common analytical tests for brewing applications – Including Bitterness units, Total Polyphenols, Reductones, Anthocyanogens, Beer Color and many more. C. BENEDICT.

Brewing Research International (BRi) – “The COMPLETE Wine Analysis and Consulting Service.”

Presentation description: BRi has recently purchased the Corkwise company. This company specializes in wine analysis and wine consulting all over the world. The company has qualified Masters of Wine and also specializes in spirits analysis. The offering includes full consulting on all aspects

of production, quality, legislative compliance, labeling, etc. all over the world. F. R. SHARPE

Steinfurth, Inc. – “Automatic Steinfurth Foam Stability Tester.”

Presentation description: The automatic Foam Stability Tester is developed in cooperation with the German Brew Institutes, VLB, and Weihenstephan. The results correlate to the method of Ross & Clark. J. ANGRES.

Research and Teaching Institute for Brewing in Berlin (VLB Berlin) – “Permeation Through PET Bottles - Development of a Quick Test to Measure Permeation of Gases.”

Presentation description: A prototype to measure the permeation of hydrogen through plastic bottles will be presented. This prototype considered a quick test, because of a measurement time duration of less than two hours. The principle of this quick test bases on a hydrogen sensor with a MIS-FET microchip. M. ORZINSKI.

Monday, June 19		
7:00 – 8:00 a.m.	Speaker Orientation and Breakfast: Orals 6–4, Posters 56–68	La Cita
7:00 a.m. – 1:50 p.m.	Silent Auction Open	Flores Ballroom Foyer
7:00 a.m. – 3:00 p.m.	Registration	Flores Ballroom Foyer
8:00 – 10:00 a.m.	Technical Session II – Hops	Flores 7 – 8
	Moderator: Gil Sanchez, Sierra Nevada Brewing Co., Chico, CA	
8:05 – 8:30 a.m.	O-6. Factors affecting formation of the volatile thiols 3-methyl-2-butene-1-thiol and 2-mercapto-3-methyl-1-butanol during fermentation. MINORU KOBAYASHI (1), Ayako Iida (1), Katsunori Kono (1), Kazunori Shibata (1). (1) Asahi Breweries, Ltd. 1-21, Midori 1-Chome, Moriya-shi, Ibaraki, Japan	
8:30 – 8:55 a.m.	O-7. Bitterness of Galena and Zeus hop polyphenols. Ian Mclaughlin (1), Takeshi Kunimune (1), THOMAS H. SHELLHAMMER (1). (1) Oregon State University, Corvallis, OR, USA	
8:55 – 9:10 a.m.	Break	
9:10 – 9:35 a.m.	O-8. Relative bitterness of reduced iso-alpha acids to iso-alpha acids in lager beer. ANNETTE N. FRITSCH (1), Thomas H. Shellhammer (1). (1) Oregon State University, Corvallis, OR, USA	
9:35 – 10:00 a.m.	O-9. Identifying antiradical hop compounds. PATRICK L. TING (1), Lance Lusk (1), Jay Reffling (1), Sue Kay (1), David Ryder (1). (1) Miller Brewing Company, Milwaukee, WI, USA	
10:00 a.m. – 12:00 p.m.	Exhibits and Hospitality	Flores 1 – 5
10:00 a.m. – 12:00 p.m.	Poster Session – Authors Present Authors: Even numbers 10:00 – 10:30 a.m. Authors: Odd numbers 11:30 a.m. – 12:00 p.m.	Flores 1 – 5
10:30 – 11:30 a.m.	Technical Subcommittee Meetings <ul style="list-style-type: none"> • Craft Brewers • Determination of Alpha-Amylase by Automated Flow Analysis • Method for Measurement of Resistance of Free-Radical Oxidation in Beer by Electron Paramagnetic Resonance • Method for Reference Standard for Total Packaged Oxygen 	Fiesta 13 Fiesta 11 Fiesta 12
12:15 – 1:45 p.m.	Recognition Lunch	Fiesta 14 Fiesta 1, 2, 5, 7
2:00 – 4:25 p.m.	Technical Session III – Micro/Yeast	Flores 7 – 8
	Moderator: Jennifer Helber, Boulevard Brewing Co., Kansas City, MO	
2:05 – 2:30 p.m.	O-10. Induction of viable but nonculturable state of <i>Lactobacillus lindneri</i> DSM 20692 and <i>L. paracollinoides</i> JCM 11969 ^T . KOJI SUZUKI (1), Kazumaru Iijima	

2:30 – 2:55 p.m.	(1), Kazutaka Ozaki (1), Hidetoshi Kuriyama (1), Yasushi Kitagawa (1), Hiroshi Yamashita (1). (1) Asahi Breweries, Ltd., Analytical Technology Laboratory, Midori 1-1-21, Moriya-shi, Ibaraki-ken, 302-0106, Japan O-11. Analysis of the gene expression related to methionine metabolism during fermentation by shotgun DNA microarray (SDM) of lager yeast. MASAHIDE SATO (1), Naoyuki Kobayashi (1), Syunsuke Fukuhara (1), Katsuaki Maeda (1), Toshio Kurihara (1), Junji Watari (1), Takahide Yokoi (2), Yoshiko Kaku (2), Toshiro Saito (2). (1) Frontier Laboratories of Value Creation, Sapporo Breweries Ltd., Yaizu, Shizuoka, Japan; (2) Hitachi, Ltd., Life Science Group, Kawagoe, Saitama, Japan	
2:55 – 3:20 p.m.	O-12. Can flocculation be controlled during full-scale fermentations? Stephen Lawrence (1), Brian Gibson (1), KATHERINE A. SMART (1). (1) University of Nottingham, School of Biosciences, Sutton Bonington Campus, Loughborough, LE12 5RD, UK	
3:20 – 3:35 p.m.	Break	
3:35 – 4:00 p.m.	O-13. Development of a SNPs-based method to identify brewing yeasts. SHIGEHITO IKUSHIMA (1), Keiko Tanaka (1), Emiko Shimada (1), Tatsuji Ishiguro (1), Satoru Mizutani (1), Osamu Kobayashi (1). (1) Central Laboratories for Frontier Technology, Kirin Brewery Co., Ltd., Yokohama-shi, Kanagawa, Japan	
4:00 – 4:25 p.m.	O-14. Location of <i>Lg-FLO1</i> gene in bottom-fermenting yeast chromosome and its implications in yeast flocculation. TOMOO OGATA (1), Mami Izumikawa (1), Katsunori Kono (1), Kazunori Shibata (1). (1) Asahi Breweries, Ltd.	
2:30 – 3:30 p.m.	Beer and Chocolate 101 Workshop	Fiesta 8
4:30 – 5:30 p.m.	Beer and Chocolate 101 Workshop	Fiesta 8
4:30 – 11:00 p.m.	Hospitality	Capra B – C
Evening	Open – Free Time	

Monday Sessions



Beer and Chocolate 101

2:30 – 3:30 p.m. and
4:30 – 5:30 p.m.

Pete Slosberg, founder of Pete's Wicked Ale and Cocoa Pete's Chocolate Adventures, is an expert in understanding the fine flavors of beer and chocolate and now he has gone that extra step, to pair the two. This year, Cocoa Pete's adventure is a sweet one, Beer and Chocolate. The presentation is designed for audience participation, discussion, and sheer delight!
Pre-registration is required, prior to meeting arrival.

Tuesday, June 20

7:00 – 8:00 a.m.	Speaker Orientation and Breakfast: Orals 15–25	La Cita
7:00 a.m. – 3:00 p.m.	Registration	Flores Ballroom Foyer
8:00 – 9:20 a.m.	Technical Session IV – Micro/Yeast	Flores 7 – 8
8:05 – 8:30 a.m.	Moderator: Andy Diacetis, BridgePort Brewing Co., Portland, OR O-15. Studies on maltotriose assimilation by lager yeast. HARUYO HATANAKA (1), Fumihiko Omura (1), Nobuyuki Fukui (1), Hiroto Kondo (1). (1) Suntory Ltd. Shimamoto-sho, Mishima-gun, Osaka, Japan	
8:30 – 8:55 a.m.	O-16. The antioxidant response of yeast during brewery handling: A genomic perspective. BRIAN R. GIBSON (1), Stephen J. Lawrence (1), Chris A. Boulton (2), Wendy Box (2), Katherine A. Smart (1). (1) School of Biosciences, University of Nottingham, Loughborough, LE12 5RD, UK; (2) Coors Brewers Ltd., 137 High Street, Burton-on-Trent DE14 1JZ, UK	

8:55 – 9:20 a.m.	O-17. Yeast vitality – A holistic approach towards an integrated solution to predict yeast performance. ELIZABETH J. LODOLO (1), Ian C. Cantrell (1). (1) SABMiller Group Brewing Research, P.O. Box 782178, Sandton, 2146, South Africa	
8:00 – 9:20 a.m.	Total Package Oxygen - How to Measure, Validate, and Troubleshoot TPO Workshop	Flores 6
9:20 – 9:35 a.m.	Break	
9:35 – 10:30 a.m.	Technical Session V – Process	Flores 7 – 8
	Moderator: Kelly Tretter, Coors Brewing Co., Golden, CO	
9:40 – 10:05 a.m.	O-18. The oxidation of thiol groups in the brew house. JEREMY R. ROZA (1), Charles W. Bamforth (1). (1) Department of Food Science and Technology, University of California, Davis	
10:05 – 10:30 am.	O-19. Overcoming oxidation events in mashing. MARCO A. GARCIA (1), Charles W. Bamforth (1). (1) Department of Food Science and Technology, University of California, Davis	
10:15 – 11:30 a.m.	Author Signing – Meet Charlie Bamforth, author of the new ASBC book <i>Principles of Malting and Brewing Science</i> (on sale during the meeting)	Flores Ballroom Foyer
10:30 a.m. – 1:00 p.m.	Exhibits and Hospitality	Flores 1 – 5
10:30 a.m. – 1:00 p.m.	Poster Session – Authors Present Authors: Odd numbers 10:30 – 11:00 a.m. Authors: Even numbers 12:00 – 12:30 p.m.	Flores 1 – 5
11:00 a.m. – 12:00 p.m.	Technical Subcommittee Meetings <ul style="list-style-type: none"> • Anton Paar Alcoyser for Measurement of Alcohol and Original Extract in Flavoured Alcoholic Beverages • Elemental Analysis of Beer and Wort by Inductively Coupled Plasma-Atomic Emission Spectroscopy • Methods for Measurement of Yeast Vitality • Soluble Starch 	Fiesta 12 Fiesta 14 Fiesta 11 Fiesta 13
11:30 a.m. – 1:00 p.m.	Lunch Available in Exhibit Hall	Flores 1 – 5
1:00 – 3:50 p.m.	Technical Session VI – Analytical	Flores 7 – 8
	Moderator: Cecil Giarratano, Coors Brewing Co., Lakewood, CO	
1:05 – 1:30 p.m.	O-20. A new ‘EAP determination’ method to ascertain the endogenous antioxidative potential of beer and other beverages using ESR spectroscopy. FRANK-JUERGEN METHNER (1), Thomas Kunz (2). (1) Berlin University of Technology/VLB Berlin, Berlin, Germany; (2) VLB Berlin, Berlin, Germany	
1:30 – 1:55 p.m.	O-21. A novel enzyme-based assay for quantifying diacetyl in fermenting wort. BARRY VAN BERGEN (1), John D. Sheppard (1), Maxime Blanchette (1), John Carvell (2), Armando Jardim (3). (1) Dept. Bioresource Eng. McGill University, Montreal, Quebec, Canada; (2) Aber Instruments, Aberystwyth, UK; (3) Institute of Parasitology, McGill University, Montreal, QC, Canada	
1:55 – 2:20 p.m.	O-22. A TOC-instrument in a brewery lab – General aspects and a new way for effective analysis of carbon dioxide in drinks. DIEDRICH HARMS (1), Frank W. Nitzsche (1). (1) König Brauerei GmbH, Duisburg, Germany	
2:20 – 2:35 p.m.	Break	
2:35 – 3:00 p.m.	O-23. Analysis of volatile components in beer using automated solid-phase micro-extraction (SPME) and high-speed GC-TOFMS. MARK LIBARDONI (1), Jack Cochran (1). (1) LECO Corporation, Las Vegas, NV	
3:00 – 3:25 p.m.	O-24. Effect of beer degassing methods on analytical results. KARL J. SIEBERT (1), P. Y. Lynn (1). (1) Cornell University, Dept. of Food Sci. & Tech., Geneva, NY, USA	
3:25 – 3:50 p.m.	O-25. Development of an on-line mass spectrometry technique to monitor the generation of aroma compounds during thermal processing of malted barley. DAVID J. COOK (1), Guy A. Channell (1). (1) University of Nottingham, Sutton Bonington Campus, Loughborough, Leics., UK	
1:00 – 4:00 p.m.	Exhibit/Poster Take-Down	

3:55 – 5:30 p.m.	Statistics, Part Two: Validation of Analytical Methods Workshop	Flores 7 – 8
4:00 – 11:00 p.m.	Hospitality	Capra B – C
5:30 – 6:30 p.m.	Sake One: An Americanized Sake Workshop	Fiesta 8
Evening	Open – Free Time	

Tuesday Sessions

Total Package Oxygen – How to Measure, Validate, and Troubleshoot TPO Workshop

8:00 – 9:20 a.m.

Total Package Oxygen (TPO) is quickly becoming the standard used by the brewing industry to determine the amount of oxygen trapped in a package after filling. Join Charles Benedict as he discusses what is needed to get an accurate TPO measurement, how to quickly validate most TPO results, and how to use the data to troubleshoot oxygen contamination sources.

Statistics, Part Two: Validation of Analytical Methods Workshop

3:55 – 5:30 p.m.

During this workshop Jim Munroe will discuss the validation of methods used in the laboratory for estimating concentrations or amounts of substances. Emphasis will be on conducting practical ways of constructing and using linear calibrations, limits of detection and quantification, and accuracy and precision. These parameters will be placed in the context of ASBC collaborative testing and everyday use.

Sake One: An Americanized Sake Workshop

5:30 – 6:30 p.m.

Greg Lorenz—sakemaster, at Sake One, in Forest Grove, Oregon—will outline methods used in the production of sake and provide background on sake production in America, outlining the differences between American-made and Japanese sakes. A variety of Sake styles will be served during the presentation for tasting and discussion.

Pre-registration is required, prior to meeting arrival.

Wednesday, June 21

7:00 – 8:00 a.m.	Speaker Orientation and Breakfast: Orals 26–35	La Cita
7:00 – 8:00 a.m.	Technical Committee Breakfast	Fountain Room
7:00 a.m. – 12:00 p.m.	Registration	Flores Ballroom Foyer
8:00 – 9:20 a.m.	Technical Session VII – Stabilization	Flores 7 – 8
8:05 – 8:30 a.m.	Moderator: Fred Strachan, Sierra Nevada Brewing Co., Chico, CA O-26. Further studies on the use of a proline-specific protease to prevent chill-haze in beers. HARRY D. CRAIG (1), Jeroen van-Roon (1). (1) DSM, Netherlands	
8:30 – 8:55 a.m.	O-27. A new beer finings: A natural, non-animal, alternative to collagen and isinglass. PETER J. ROGERS (1). (1) Foster's Australia	
8:55 – 9:20 a.m.	O-28. On the mechanisms of adsorbent interactions with haze-active constituents of beer. KARL J. SIEBERT (1), P. Y. Lynn (1). (1) Cornell University, Dept. of Food Sci. & Tech., Geneva, NY, USA	
9:20 – 9:35 a.m.	Break	
9:35 – 10:55 a.m.	Technical Session VIII – Packaging	Flores 7 – 8
9:40 – 10:05 a.m.	Moderator: Dirk Bendiak, Molson Breweries, Etobicoke, ON Canada O-29. Do oxygen-scavenging sealants reduce beer oxidation? GREGORY S. POLLOCK (1), Joseph P. Ciccone (1). (1) Grace Performance Chemicals	
10:05 – 10:30 a.m.	O-30. The new system for the measurement of oxygen concentration in sealed packages with fiber-optic oxygen sensor. SATORU KINOSHITA (1), Akihiko Matsuda (1). (1) Kirin Brewery Co., Ltd. Tsurumi-ku, Yokohama, Japan	

10:30 – 10:55 a.m.	O-31. New results on permeation of volatile organic compounds (VOCs) through plastic bottles and closures of beverage and particularly beer. MARTIN ORZINSKI (1), Alexander Wuertz (2), Leif-A. Garbe (1), Jan Schneider (3). (1) VLB Berlin; (2) TU Berlin; (3) University Lippe and Höxter	
11:30 a.m. – 1:15 p.m.	Program Committee Meeting and Lunch	Fiesta 12
11:30 a.m. – 1:15 p.m.	Publications Committee Meeting and Lunch	Fiesta 13
11:30 a.m. – 1:15 p.m.	Technical Committee and Subcommittee Chairs Meeting and Lunch	Fiesta 14
1:30 – 3:15 p.m.	Technical Session IX – Flavor Moderator: Alex Speers, Dalhousie University, Halifax, NS Canada	Flores 7 – 8
1:35 – 2:00 p.m.	O-32. Effect of beer flavors on human emotion. HIROTAKA KANEDA (1), Hidetoshi Kojima (1), Junji Watari (1). (1) Sapporo Breweries Ltd., Yaizu, Shizuoka, Japan	
2:00 – 2:25 p.m.	O-33. Influence of protein-carbonyl interactions on the flavor stability of beer. LEIF A. GARBE (1), Konrad Neumann (1), Christian T. Piechotta (1), Roland Tressl (1). (1) TU Berlin / VLB, Berlin, Germany	
2:25 – 2:50 p.m.	O-34. Control of LOX activity in malt for improvement of beer flavor stability. MASAKO SAWADA (1), Takako Inui (1), Seisuke Takaoka (2), Susumu Furukubo (1), Akira Isoe (1), Akira Kogin (2). (1) Beer Development Department, Suntory Ltd, Osaka, Japan; (2) Beer Production Department, Suntory Ltd, Tokyo, Japan	
2:50 – 3:15 p.m.	O-35. Measurement of swallowing motion during drinking. HIDETOSHI KOJIMA (1), Hirotaka Kaneda (1), Toshio Kurihara (1), Junji Watari (1), Ai Murayama (2), Shohei Fujita (2), Toyohiko Hayashi (2). (1) Sapporo Breweries Ltd., Yaizu, Shizuoka, Japan; (2) Niigata University, Niigata, Niigata, Japan	
3:15 – 3:30 p.m.	Break	
3:30 – 4:15 p.m.	Closing Keynote Presentation with Chef Jim Fleishman	Flores 7 – 8
7:00 – 10:00 p.m.	Closing Reception: Beer and Food Tasting, Extraordinaire!	La Casa Complex
9:00 – 11:00 p.m.	Hospitality	Capra B – C

Wednesday Session



Keynote Presentation

Who Needs Wine? Beer and Food Pairing for Fine Dining

Jim Fleishman, Tournant Chef, La Quinta Resort & Club

3:30 – 4:15 p.m.

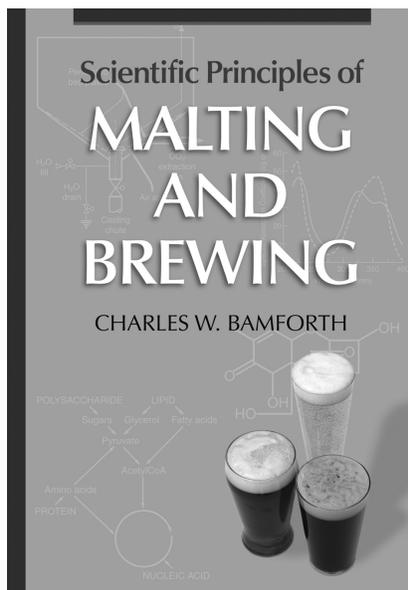
Wine has its place. But so, too, does beer! The great array of available beers, with their broad spectrum of complex flavors and aromas can enhance any culinary experience, often more effectively than wine. Thoughtfully selected, the right beer not only complements a meal, but makes it a memorable one. During the Closing Keynote Presentation, Chef Jim Fleishman will address the art of successful beer and food pairing and include a series of taste pairings using audience volunteers. Learn the essentials of beer and food pairing, then experience them yourself at the closing reception. Cheers!

Thursday, June 22

8:00 a.m. – 12:00 p.m.	Board of Directors Meeting	La Cita
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NEW and ON SALE

ANNOUNCING
an essential
reference from one
of our foremost
brewing science
educators.



This peer-reviewed, reader-friendly book provides a refreshing update for brewing professionals and a primer on brewing science for anyone new to the industry.

Meet the Author - Charlie Bamforth Book Signing -Tuesday 10:15 -11:30 a.m. *Flores Ballroom Foyer*



Charlie Bamforth, Ph.D., D.Sc., is Chair of the Department of Food Science and Technology and Anheuser-Busch Endowed Professor of Malting and Brewing Sciences at the University of California, Davis, and has been part of the brewing industry since 1978. He is the former Deputy Director-General of Brewing Research International, Research Manager and Quality Assurance Manager of Bass Brewers, and Visiting Professor of Brewing at Heriot-Watt University. He is a fellow of the Institute of Brewing and Distilling and of the Institute of Biology. Bamforth is editor-in-chief of the *Journal of the American Society of Brewing Chemists* and has published innumerable papers, articles, and books on beer and brewing.

Visit the ASBC Registration Desk during the meeting to purchase this new book at the introductory sale price.

Educators - Ask about Student Pricing when you adopt this book for your brewing science course.



AMERICAN SOCIETY OF
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Relax and Enjoy Your Stay: Tourism Opportunities

La Quinta Resort & Club

Golf

Experience 90 holes of world-class golf on five courses at the resort and nearby PGA WEST®. Golf instruction is also available at the Jim McLean Golf School located at the resort and PGA WEST.

Salon Services

A full-service beauty salon is available at Yamaguchi Salon, located in Spa La Quinta. Experience the Yamaguchi interpretation of Feng Shui in each of the salon services. All services begin with a consultation. Call for appointments.

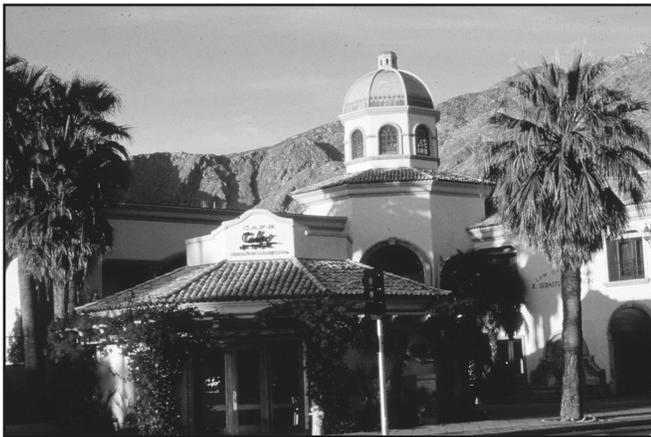
Shopping

For one-of-a-kind shopping at Polo Ralph Lauren, Tommy Bahama Bungalow, Brighton Desert Hearts, and so much more, visit The Plaza, the centerpiece of La Quinta Resort & Club. Walk along pathways punctuated by hand-painted ceramic tiles and cool fountains while taking in the colorful flower gardens and early California architecture. All stores open seven days a week.

Spa

In a quiet, natural landscape, Spa La Quinta offers you the ultimate retreat. The ambiance and many of the treatments were borrowed from the area's citrus groves. The outdoor spa experience takes precedence. From a therapeutic soak to a signature Celestial Shower under the stars, only the desert sky adds another dimension to serenity and relaxation. Call for reservations.

See the Sights: La Quinta and Palm Springs Area



The Palm Springs Aerial Tramway

The Aerial Tramway is one of the most thrilling and unique activities in Southern California. The large cable car gondola elevates from the desert floor to the top of Mt. San Jacinto, rising over 8,516 feet in just 15 minutes! Dine at the peak of San Jacinto with breathtaking views of the valley. The mountain station at the top has a restaurant, cocktail lounge, gift shop, picnic area, and movie theater.

Jeep Tours

The beauty of the California desert landscape is often missed by the casual observer. One way to fully discover this natural wonder is on a guided Jeep Tour. By exploring the path less traveled, the Jeep Tour takes each passenger to the heart of the desert and creates a truly memorable experience.

Horseback Riding

One of the best ways to truly connect with the desert environment is to ride the trails on horseback. Riding through the scenic foothills of the Santa Rosa Mountains, the guide will point out unusual rock formations left by the ancient Salton Sea. And all riders are warmly greeted along the way by the local desert denizens, including rabbits, coyotes, and roadrunners.

Polo Grounds

Polo Grounds offers the ambience of lush green polo fields, white picket fences, and stables of thoroughbred polo ponies set against the tall palm trees and majestic Santa Rosa mountains.

The Indio Desert Circuit

This world-renowned show jumping event attracts the top international horses and riders who journey to Indio, California, to compete under the watchful eye of some of the country's foremost hunter, jumper, and equitation judges. This spectacular seven-week hunter/jumper show first began in Indio in 1992 and is one of the Circuit's biggest and best!

Bicycle Adventure

"May the road rise up to meet you, may the wind be always at your back," as you bicycle over challenging desert trails designed to revitalize the soul and body.

The Living Desert

Billed as the desert's natural attraction, a guide at this wildlife and botanical park will introduce you to mountain lions, bobcats, Mexican wolves, and golden eagles of the Colorado Desert.

Art Galleries

Visit The Studios Art Gallery in the La Quinta Resort Plaza. Take a short trip to nearby galleries, where you can surround yourself with contemporary art, jewelry, sculpture, furniture, and objects d'art. Whether you're a serious collector or a novice buyer, you'll enjoy browsing works by both emerging and established artists. You can also visit the Palm Springs Desert Museum, located at the base of majestic Mt. San Jacinto, featuring exhibition galleries, outdoor sculpture courts, and a 450-seat theater.

Shopping

This "journey into elegance" is a world-class shopping experience at El Paseo, the Rodeo Drive of the desert.

Rock Climbing

Now you can experience the rush of adrenaline your very first day at Uprising Rock Climbing Center in Palm Springs. People of all ages and abilities can learn the ropes at America's most unique rock climbing facility. Friendly and professional staff will make your experience an adventure to remember.

Posters

Susan Kay, Moderator

- P-36** Application of two-dimensional J-resolved nuclear magnetic resonance spectroscopy to differentiation of beer. ALFI KHATIB (1), Hye K. Kim (1), Young H. Choi (1), Robert Verpoorte (1). (1) Dept. Pharmacognosy, Section Metabolomics, Institute of Biology, Leiden University, The Netherlands
- P-37** Development of a headspace solid-phase microextraction - GC/MS method for the analysis of citrus volatiles in flavoured alcoholic beverages. DAVID J. MARADYN (1). (1) InBev, London, Ontario, Canada
- P-38** High performance liquid chromatography method using pure iso-alpha-acids as the calibration standard. ALFI KHATIB (1), Hye K. Kim (1), Erica G. Wilson (1), Robert Verpoorte (1). (1) Dept. Pharmacognosy, Section Metabolomics, Institute of Biology, Leiden University, The Netherlands
- P-39** Identification of foam- and haze-forming barley proteins using chromatographic and MALDI-TOF mass spectrometry techniques. Marta S. Izydorczyk (1), Werner Ens (2), Yuwei Qian (2), Sharon Bazin (1), TRICIA CHORNICK (1). (1) Canadian Grain Commission, Winnipeg, MB, Canada; (2) University of Manitoba, Winnipeg, MB, Canada
- P-40** Method for the assay of alpha-acetolactate using alpha-acetolactate decarboxylase. KEN KOBAYASHI (1), Kazutaka Kusaka (1). (1) National Research Institute of Brewing, Higashi Hiroshima, Japan
- P-41** On-line analysis for beer to determine the adsorption of polyphenols during PVPP stabilization. FRANK W. NITZSCHE (1), Diedrich Harms (2), Guido Offer (3). (1) EasyProof Laborbedarf GmbH, Voerde, Germany; (2) Xanten, Germany; (3) MST - Systems, Düsseldorf, Germany
- P-42** Variation of phenolic compounds in Taiwanese millet wine through processing, maturation and stabilization. JING-IONG YANG (1). (1) National Kaohsiung Marine University, Kaohsiung, Taiwan
- P-43** Wine flavor and aroma analysis by comprehensive two-dimensional gas chromatography with time-of-flight mass spectrometry (GCxGC-TOFMS). Jack Cochran (1), Tincuta Veriotti (2), MARK LIBARDONI (1). (1) LECO Corporation, Las Vegas, NV; (2) LECO Corporation, St. Joseph, MI
- P-44** The influence of surface-active compounds on head retention. OLIVER W. MEINHOLD (1). (1) Technische Universitaet Berlin, Berlin, Germany
- P-45** Withdrawn
- P-46** Maximal attenuation: How to measure and how to achieve. NIELS ELVIG (1), Barrie E. Norman (1), Jesper Brask (1). (1) Novozymes A/S
- P-47** Effect of low-phytate barley on malt quality including mineral loss during fermentation. MICHAEL J. EDNEY (1), Brian Rossnagel (2), Victor Raboy (3). (1) Grain Research Laboratory, Canadian Grain Commission, Winnipeg, Manitoba, Canada; (2) Crop Development Centre, University of Saskatchewan, Saskatoon, Saskatchewan, Canada; (3) USDA, ARS, Aberdeen, Idaho, USA
- P-48** Genetic variation in hardness genes and their impact on malt quality. GLEN P. FOX (1), Robert J. Henry (2), Peter A. Inkerman (3), David M. Poulsen (3). (1) Department of Primary Industries & Fisheries/GFCRC; (2) Southern Cross University/GFCRC; (3) Department of Primary Industries & Fisheries
- P-49** Limit dextrinase: The key to Harrington's success? DENNIS E. LANGRELL (1). (1) Canadian Grain Commission, Winnipeg, Manitoba, Canada
- P-50** Malting barley improvement in Eritrea. BEREKET T. NIGUSSE (1). (1) Barley and Wheat Breeder in Eritrean Agricultural Research Institute, Eritrea
- P-51** Sodium bisulfite treatment as a method to detoxify deoxynivalenol infected barley. JOSEPH C. LAKE (1), Marcia Browers (2), Xiang S. Yin (2), Alex Speers (1). (1) Dalhousie University, Halifax, Nova Scotia, Canada; (2) Prairie Malt Limited, Biggar, Saskatchewan, Canada
- P-52** A community research effort to apply genomics approaches to understand and exploit the genetics of malting quality in barley. KEVIN P. SMITH (1). (1) University of Minnesota, Saint Paul, Minnesota, USA
- P-53** The (9S,12S,13S)-9,12,13-trihydroxy-10E-octadecenoic acid (THOE) from barley induced by mechanical stress possesses intrinsic antifungal properties. LEIF A. GARBE (1), Daniela Minuth (1), Roland Tressl (1). (1) TU Berlin / VLB, Berlin, Germany
- P-54** Volatile phenolic flavor compounds in beer: Control of phenolic acid extraction and hydrolysis during mashing. NELE VANBENEDEN (1), Frederik Gils (1), Filip Delvaux (1), Freddy R. Delvaux (1). (1) Catholic University of Leuven, Centre for Malting and Brewing Science, Leuven, Belgium
- P-55** Foam-stabilizing effects and cling-formation patterns of iso-alpha acids and reduced iso-alpha acids in lager beer. TAKESHI KUNIMUNE (1), Thomas H. Shellhammer (1). (1) Oregon State University, Corvallis, OR, USA
- P-56** Bioflavoring in beer: Flavor enhancement through hydrolysis of hop glycosides by yeast beta-glucosidase. LUK DAENEN (1), Daan Saison (1), Luc De Cooman (2), Hubert Verachtert (1), Freddy Delvaux (1). (1) Centre for Malting and Brewing Science (CMBS), K.U. Leuven, Belgium; (2) Laboratory of Enzyme and Brewing Technology, KaHo Sint-Lieven, Belgium

- P-57** Application of multiplex PCR to the detection of beer-spoilage bacteria. SHIZUKA ASANO (1), Koji Suzuki (1), Kazutaka Ozaki (1), Hidetoshi Kuriyama (1), Hiroshi Yamashita (1), Yasushi Kitagawa (1). (1) Asahi Breweries, Ltd.
- P-58** Which membrane is the right choice? – A microbiological membrane quality test. FRANK W. NITZSCHE (1), Sabine Mirbach (1), Diedrich Harms (1), Andreas Jonas (2). (1) König Brauerei GmbH, Duisburg, Germany; (2) Dinslaken, Germany
- P-59** A new concept for a hygienic inspection of filling plants with on-site analysis. FRANK W. NITZSCHE (1), David Jones (2). (1) EasyProof Laborbedarf GmbH, Voerde, Germany; (2) Dept. Experimental Orthopaedics and Biomechanics, Philipps University, Marburg, Germany
- P-60** Comparison of treatments to reduce iron pickup in beer on first fill of new kegs. HILLERY R. HIGHT (1), James I. Mellem (1), Gilbert W. Sanchez (1), Ken Grossman (1). (1) Sierra Nevada Brewing Co., Chico, CA USA
- P-61** Better control of dissolved gas measurements around the brewery. BARRY G. FITZGERALD (1). (1) Headmaster Limited, Bramshill, Hampshire, UK
- P-62** PDX for major energy savings in brewing. FREDERICK R. SHARPE (1), Gary Freeman (1). (1) Brewing Research International, UK
- P-63** Identification of top-fermenting yeast. MASAHIRO GOMI (1), Chikako Akihisa (1), Mayura Mochizuki (1), Shigehito Ikushima (2), Takeo Imai (1), Yutaka Ogawa (1), Keiko Tanaka (2), Osamu Kobayashi (2). (1) Research Laboratories for Brewing, Kirin Brewery Co. Ltd, Yokohama, Japan; (2) Central Laboratories for Frontier Technology, Kirin Brewery Co. Ltd, Yokohama, Japan
- P-64** Investigation of the premature yeast flocculation factor in malt. ASHLEY V. PORTER (1), Alex Speers (1), Tom Gill (1), Leigh Glaser (1). (1) Dalhousie University, Halifax, NS, Canada
- P-65** Sucrose fermentation through *MAL* genes: Switching the mode of sucrose metabolism by *Saccharomyces cerevisiae*. Fernanda Badotti (1), Marcelo G. Dario (1), Maria Luiza A. Cordioli (1), Sergio L. Alves (1), Luiz C. Miletti (1), Paulo S. Schlogl (1), BORIS U. STAMBUK (1). (1) Departamento de Bioquímica, Universidade Federal de Santa Catarina, Florianópolis, SC 88040-900, Brazil
- P-66** Vicinal diketone production and reduction during beer fermentation using active dry lager yeast. NORMAND CYR (1), Maxime Blanchette (1), John D. Sheppard (1). (1) Department of Bioresource Engineering, McGill University, Montréal, Québec, Canada
- P-67** Yeast mitochondrial DNA mutant formation during yeast handling processes. STEPHEN J. LAWRENCE (1), Katherine A. Smart (1). (1) Division of Food Sciences, School of Biosciences, University of Nottingham, Loughborough, Leicestershire, UK
- P-68** Yeast preoxygenation: A true alternative for wort aeration in beer production?. SOFIE A. DEPRAETERE (1), Filip Delvaux (1), Joris Winderickx (2), Freddy R. Delvaux (1). (1) Centre for Malting and Brewing Science, KULeuven, Heverlee, Belgium; (2) Functional Biology, KULeuven, Heverlee, Belgium

Cheers to you, ASBC members!

Thank you for contributing your knowledge, expertise, and professional involvement to the American Society of Brewing Chemists. You make ASBC the thriving association it is today!

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www.asbcnet.org/membership



AMERICAN SOCIETY OF
Brewing Chemists

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ASBC Corporate Members contribute their knowledge, expertise and professional involvement to ensure the continued strength of ASBC and promote excellence in the science and technology of brewing. We appreciate their support of ASBC and encourage you to contact them directly for detailed information on their company-specific products.

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AMC Technologies Inc	Intl Specialty Products
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BASF Corporation	Kirin Brewery Co Ltd
Beer Ind Assoc Shandong China	Miller Brewing Co
Bio-Chem Lab Inc	Molson Breweries
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Briess Malting Co	Neogen Corp
Bruker BioSpin Corp	Northern Breweries Ltd
Busch Agric Resources Inc	Novozymes North America Inc
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Coors Brewing Co	Profamo Inc
Crochiere & Associates LLC	PureMalt Products Ltd
D D Williamson and Co Inc	R-Biopharm Inc
Danisco A/S	Rahr Malting Co
DB Breweries Ltd	Sierra Nevada Brewing Co
EcoLab Inc	Skalar Inc
Enzyme Development Corp	Sleeman Brewing and Malting
Firestone Walker Brewing Co	The PQ Corporation
Foss North America	Thermo Electron Corp
GE Analytical Instruments	Union de Cervecerias Peruanas
Gusmer Enterprises Inc	Vicam
Hach Ultra	World Minerals Inc
Haffmans North America	Wyeast Laboratories Inc
High Falls Brewing Co LLC	Yakima Chief Inc
	Yuengling Brewing Co of Tampa Inc

Exhibition

Flores Ballroom 1 – 5

We welcome the following 2006 ASBC Annual Meeting Exhibitors and thank them for their participation at this year's meeting.

The Exhibition showcases the latest products and services in the brewing industry. Exhibitors will demonstrate items ranging from ingredients and instruments to equipment and services. In addition to serving as your resource to leading industry suppliers, the exhibit hall provides a great opportunity to network with peers over refreshments.



Snacks will be available on Sunday and a buffet lunch will be served in the hall on Tuesday. On Monday following the close of exhibits, attendees and exhibitors are invited to ASBC's annual Recognition Lunch in Fiesta 1, 2, 5, 7.

Drawings for prizes will also take place in the Exhibit Hall on Monday, June 19, at 10:15, 11:45, and 11:50 a.m. You must be present to win!

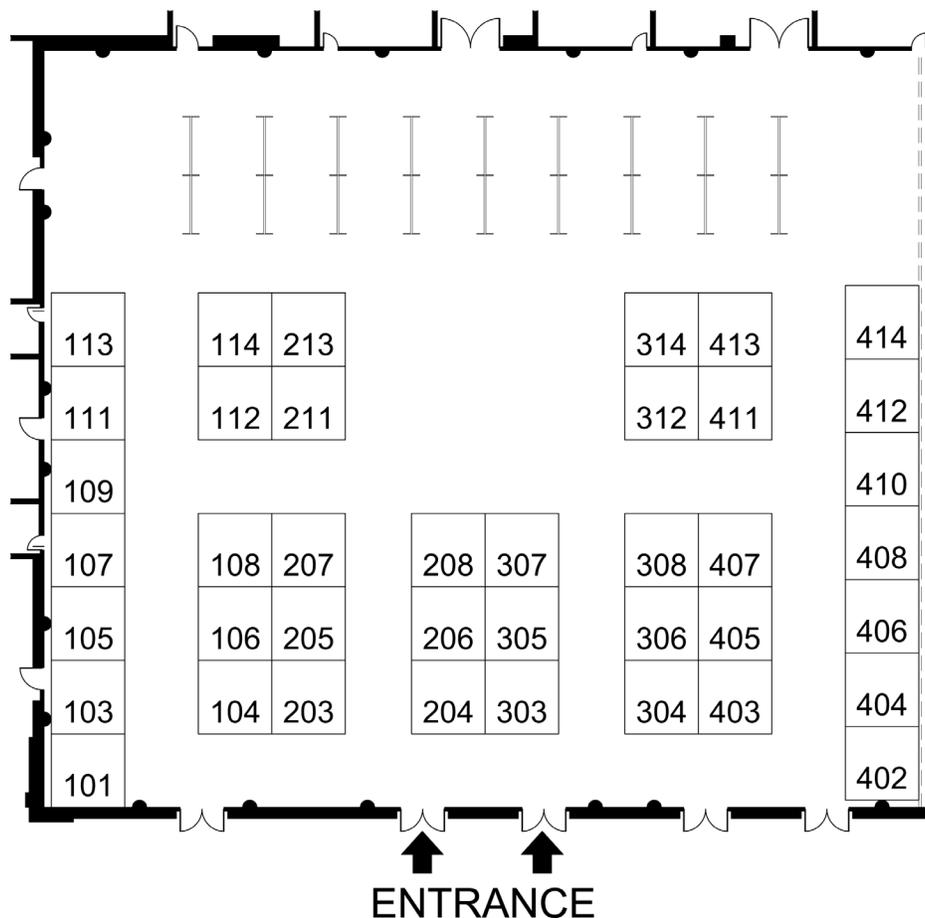
Show your support for the contributions of these suppliers by visiting the exhibits at every opportunity.

2006 Exhibitors Numerical Listing

101	BASF Corporation	213	VLB Berlin
103	Enzyme Development Corporation	303	Pall Corporation
104	Steinfurth, Inc.	304	Skalar, Inc.
105	Kalsec Inc.	305	Ecolab Inc.
106	DIAGNOSTIX LTD.	306	MecSens USA
107	Hach and Hach Ultra	307	Anton Paar USA
108	Bio-Chem Laboratories, Inc.	308	PureMalt Products Ltd.
109	Phenomenex	312	Gusmer Enterprises, Inc.
111	Analytical Process, Inc.	402	Brewing Research International (BRi)
112	Advanced Instruments, Inc.	403	Novozymes
203	Profamo Inc.	404	ISP (International Specialty Products)
204	optek-Danulat, Inc.	405	Cargill
205	Danisco USA Inc.	406	Norit Haffmans
206	Siebel Institute of Technology & World Brewing Academy	407	GenPrime, Inc.
207	LaMotte Co.	408	PerkinElmer Life and Analytical Sciences
208	White Labs, Inc. Pure Yeast & Fermentation	410	Thermo Electron Corporation
211	Bruker BioSpin Corporation, EPR Division	411	DSM Food Specialties USA, Inc.

As of May 11, 2006

Exhibit Hall Floor Plan



Exhibitor Descriptions

† *Indicates Corporate Member*

Advanced Instruments, Inc. Booth 112

2855 Metropolitan Place, Pomona, CA 91767; Telephone: +1.909.392.6900, Fax: +1.909.392.3665, Website: www.aii1.com, E-mail: info@aii1.com. Advanced Instruments Inc. offers the most reliable oxygen sensors on the market along with a wide range of on-line and portable analyzers and sample conditioning systems for accurate analysis of oxygen levels ranging from 1 part-per-billion to 100% pure oxygen, which can significantly impact production yields and improve user profits.

Analytical Process, Inc. Booth 111

P.O. Box 131301, Houston, TX 77219-1301; Telephone: +1.713.526.6552, Fax: +1.713.522.1563, Website: www.analyticalprocess.com, E-mail: api@analyticalprocess.com. The Liquisonic® Plato Monitor is a highly sophisticated online analyzer for the brewing process that provides: direct and accurate determination of initial extract concentration in the wort boiler; precise control of the lautering/mash filtering process; original gravity control in the filtering process, optimizing filtering time; brand-specific blending control for consistent quality; final online beer analysis showing extract, alcohol content, original gravity, and temperature.

† Anton Paar USA Booth 307

10215 Timber Ridge Dr., Ashland, VA 23005; Telephone: 1.800.722.7556, Fax: +1.804.550.9074, Website: www.anton-paar.com, E-mail: info.us@anton-paar.com. Anton Paar specializes in developing and producing highly accurate instrumentation to measure CO₂, alcohol, real and original extract of beer both online and in the lab. Our density meters, sound velocity sensors, and carbonation meters are designed for the most demanding of environments. We offer an accurate and easy-to-use viscometer for measuring the dynamic viscosity of congress wort (MEBAK approved). Our high-quality, high-performance products deliver reliable and accurate results, ensuring control of product quality within tight tolerance limits.

† BASF Corporation Booth 101

100 Campus Dr., Florham Park, NJ 07932; Telephone: 1.800.527.9881, Fax: +1.973.245.6843, Website: www.humannutrition.basf-corp.com, E-mail: nutrition@basf.com. Divergan®. Beer haze is caused primarily by polyphenol-protein complexes. Divergan F and RS stabilizers selectively adsorb the polyphenols that cause turbidity. Removing these polyphenols reduces the turbidity and improves the colloidal stability of beer. The use of Divergan also improves the stability of the taste, as the flavonoid polyphenols, in particular, are prone to polymerize to products of higher molecular weight that have a bitter taste. Divergan HM polymer is an excellent absorber of heavy metal and is used to remove unwanted heavy metals from beverages. It alleviates metallic bitterness, oxidative changes in taste and appearance, haze, and turbidity.

† Bio-Chem Laboratories, Inc. Booth 108

1049 28th St. SE., Grand Rapids, MI 49508; Telephone: +1.616.248.4900, Fax: +1.616.248.4904, Website: www.bio-chem.com.

† Brewing Research International (BRI) Booth 402

Coopers Hill Rd., Nutfield, Surrey, RH1 4HY, United Kingdom; Telephone: +44.1737.822272, Fax: +44.1737.822747, Website: www.brewingresearch.co.uk, E-mail: bri@brewingresearch.co.uk. BRI is the premier technology and information provider to the global brewing, malting and wine industries. BRI the consultant provides beer consumer research, flavor evaluation, analysis, auditing, troubleshooting, new product development, technical research, benchmarking, dispense, and microbiological services. BRI's masters of wine offer wine analysis, troubleshooting, flavor evaluation, and technical advice. BRI also has a membership package, like an insurance policy, including an international beer safety information and alert service, a safety research portfolio and 24/7 emergency response, a health information and research service, and the world's most-comprehensive technical information provision available on-line through their website.

† Bruker BioSpin Corporation, EPR Division Booth 211

44 Manning Rd., Billerica, MA 01821; Telephone: +1.978.663.7406, Fax: +1.978.670.8851, Website: www.bruker-biospin.com, E-mail: epr@bruker-biospin.com. Bruker BioSpin Corporation manufactures EPR spectrometers for use in flavor-stability applications. Bruker's EMX Spectrometer is a high-throughput research system for both liquid and solid samples. The e-scan benchtop spectrometer provides rapid, automated analysis for optimizing your beer's shelf life.

† Cargill Booth 405

15407 McGinty Rd. W., MS 62, Wayzata, MN 55391; Telephone: 1.800.344.1633, Fax: +1.630.505.7846, Website: www.cargill.com. Cargill is a leading provider of malt, liquid and solid brewing adjuncts and innovative solutions to the worldwide brewing industry. Products featured include the world's most complete line of high-maltose and Clearbrew liquid adjuncts, IsoClear 42% and 55% high-fructose corn syrups, highly fermentable dextrose syrups, and refined grits (brewing starch). All products can be shipped anywhere beer or a beverage is made. Let the Cargill team help you create great beverages for your customers. Feel free to visit the Cargill booth at the ASBC annual convention or call!

† Danisco USA Inc. Booth 205

Four New Century Pkwy, New Century, KS 66031; Telephone: +1.913.764.8100 or +1.800.255.6837, Fax: +1.913.764.8239, Website: www.danisco.com.

DIAGNOSTIX**Booth 106**

Suite 15, 400 Matheson Blvd. E., Mississauga, ON L4Z 1N8, Canada; Telephone: 1.800.282.4075, Website: www.diagnostix.ca.

DSM Food Specialties USA, Inc.**Booth 411**

2675 Eisenhower Ave., Eagleville, PA 19403; Telephone: +1.610.650.8480, Fax: +1.610.650.8599, Website: www.brewersclarex.com, E-mail: info.beer-ingredients@dsm.com. DSM's vision for the brewing industry is the "particle free" process. Brewers Clarex™ is an innovative, extremely reliable, cost-effective, and easy to use "particle free" concept for beer stabilization. Compatible with kieselguhr-free filtration, it sets new standards for beer processing such as simplified layout and avoidance of both beer losses and filter aids. Brewers Clarex™ is environmentally friendly, requires no maintenance, allows reduced energy consumption, and decreases handling/storage costs. Quality of beer improves with the concept by preventing oxygen ingress into the process, hence ensuring flavor stability. Make your future today with Brewers Clarex™.

† Ecolab Inc.**Booth 305**

370 Wabasha St. N., St. Paul, MN 55102; Telephone: +1.651.293.2233, Fax: +1.651.293.2260, Website: www.ecolab.com. Ecolab is the leading provider of critical environment sanitation products and systems to the brewery industry, delivering superior brand protection and improved operational efficiencies. Products and programs include brewhouse cleaning, fermentation and maturation cleaning, bottle cleaning, conveyor lubrication technologies, and CIP engineered systems and services.

† Enzyme Development Corporation Booth 103

360 West 31st St., Ste. 1102, New York, NY 10001-2727; Telephone: +1.212.736.1580, Fax: +1.212.279.0056, Website: www.enzymedevelopment.com, E-mail: info@enzymedevelopment.com. Enzyme Development Corporation has been serving the needs of enzyme users since 1953. Team members are stationed across the country with the head office in New York City and primary production in Scranton, PA. Our people provide technical analysis to help you select the best options. Whether you need multiple truckloads or only a few kilograms, the care, the attention, and the commitment are the same. We offer a full range of enzyme solutions for enhanced brewing performance.

GenPrime, Inc.**Booth 407**

157 S. Howard, Suite 605, Spokane, WA 99201; Telephone: +1.509.624.9855, Fax: +1.509.462.2847, Website: www.genprime.com, E-mail: info@genprime.com. GenPrime's Easy Count enumerates active yeast cells for the brewing industry in less than 10 minutes, eliminating the need for subjective analysis using a hemacytometer or methylene blue. The Easy Count allows brewers to determine pitching rates (based on culture activity) and monitor fermentation performance.

† Gusmer Enterprises, Inc.**Booth 312**

1165 Globe Ave., Mountainside, NJ 07092; Telephone: +1.908.301.1811, Fax: +1.908.301.1812, Website: www.gusmerenterprises.com, E-mail: sales@gusmerenterprises.com. For more than eighty years, Gusmer Enterprises has been dedicated to providing service with knowledge to the brewing industry. Gusmer Enterprises supplies the brewing, malting, and distilling industries with a wide variety of products. Instrumentation, malt mills, malting equipment, filtration media, processing aids, and spent-grain handling equipment are just a few examples of our product line. Gusmer Enterprises represents the product lines of Aber Instruments, AB Vickers, Cellulo, D.D. Williamson, Mettler-Toledo, Millipore, Novozymes, Paguag Schlauchtechnik, PQ Corporation, Ponndorf, and Schmidt-Seeger AG.

† Hach and Hach Ultra**Booth 107**

P.O. Box 389, Loveland, CO 80539; Telephone: +1.970.669.3050, Fax: +1.970.669.2932, Website(s): www.hach.com or www.hachultra.com, E-mail: cbenedict@hachultra.com. Hach Ultra and Hach Company are sister companies that manufacture and distribute analytical instruments and reagents used to analyze beer, water and effluent. Hach Ultra focuses its core business on dissolved gas measurement for O₂, CO₂, and N₂ with Orbisphere instrumentation. Hach Company focuses on lab and process instrumentation for alkalinity, mineral analysis, BOD, COD, and spectroscopy specifically for brewing parameters. All of our systems are designed to simplify analysis, including complete, easy-to-follow methods, high-quality prepared reagents, accurate instrumentation, and lifetime technical support. Our goal is to offer quality products and competent, friendly support.

† ISP (International Specialty Products)**Booth 404**

1361 Alps Rd., Wayne, NJ 07470; Telephone: +1.973.872.4403, Fax: +1.973.628.3886, Website: www.ispcorp.com, E-mail: info@ispcorp.com. ISP is recognized worldwide for its Polyclar line of products (PVPP) used for stabilization and clarification of beer. The line includes products to remove haze-causing polyphenols (Polyclar 10 and Polyclar Super R), and for the simultaneous balanced removal of haze-causing polyphenols and proteins (Polyclar Plus 730). ISP is also a basic supplier of alginates (PGA) to enhance and stabilize foam in beer. Polyclar Brewbrite is a new addition to our product line; it is a wort clarifier and stabilizer and also gives higher wort yield, reduced fermentation time, and longer filter run lengths.

† Kalsec Inc.**Booth 105**

P.O. Box 50511, Kalamazoo, MI 49006; Telephone: +1.269.349.9711, Fax: +1.269.382.3060, Website: www.kalsec.com. Kalsec®, a privately owned company located in Kalamazoo, MI, is a major producer of pre-isomerized and reduced hop products marketed worldwide. We are a primary supplier of specialty hop products (including Tetralone®, Hexalone®, Reduced Isolone®, and others) to the world's leading brewers. The applications vary, but our products are

used for precise bitterness control, light-stability, beer foam enhancement, hop aroma, and flavor. Kalsec® holds numerous patents for specialty hop products and is the originator of tetra-hydroisohumulone derived from beta-acids and hexa-hydroisohumulone. We are proud of our quality commitment, technology leadership, and customer service.

LaMotte Co.**Booth 207**

P.O. Box 329, Chestertown, MD 21620; Telephone: +1.410.778.3100, Fax: +1.410.778.6394, Website: www.lamotte.com, E-mail: mkt@lamotte.com. LaMotte manufactures meters, test kits, test strips, and reagents for analysis of process waters and finished product. These include meters for chlorine, turbidity (ASBC and EBC turbidity), metals, pH, DO, and TDS. The new TC-3000 reads free and total chlorine at 0.02–10 ppm, turbidity at 0.05–4,000 NTU, and APHA color. It allows the user to display results in ASBC or EBC units. Titration tests for alkalinity, hardness, chloride, etc. are also available. Test strips include chlorine dioxide, peracetic acid, chlorine, and QAC.

MecSens USA**Booth 306**

8617 Fair Oaks Pkwy., Fair Oaks Ranch, TX 78015; Telephone: +1.210.698.5446, Fax: +1.866.333.5965, Website: www.mecsensusa.com, E-mail: sales@mecsensusa.com. MecSens manufactures portable and process oxygen measurement systems in Geneva, Switzerland. MecSens' systems offer numerous advantages, e.g., 1) a robust membrane fixation and protection, resulting in longer service intervals and facilitating the harshest measurements such as oxygen in wort; 2) temperature measured at the membrane face (rather than on the side of the sensor), thus improving accuracy, reducing hygienic impact, and eliminating unneeded mechanical seals; 3) calibration stored in the sensor, allowing convenient laboratory calibration for inline systems.

† Norit Haffmans**Booth 406**

1330 Anvil Dr., Rockford, IL 61115; Telephone: +1.815.639.0322, Fax: +1.815.639.1135, Website: www.norit.com, E-mail: info@haffmansna.com. Norit Haffmans manufactures a wide range of quality control equipment to measure CO₂, O₂, foam, and turbidity and for monitoring pasteurization and bottle and keg washing processes. Haffmans has also developed the first-ever combined CO₂/O₂ unit enabling brewers to measure these vital quality parameters with one instrument. The Norit Group also offers CO₂ recovery systems, beer membrane filtration, beer de-colorization systems, a wide range of process valves, and water-reuse solutions.

† Novozymes**Booth 403**

77 Perry Chapel Church Rd., Franklinton, NC 27525; Telephone: +1.919.494.3096, Fax: +1.919.494.3415, Website: www.novozymes.com. The key to reducing costs—malt quality, lautering, and beer filtration times have impact on the process and costs. Brewing enzymes from Novozymes provide the solutions you need to expand your options for your brewing operations and reduce your costs—even with the best of malts.

Use enzymes to improve capacity and efficiency while retaining the high quality of the beer in every brew. Enzymes are natural processing aids and the key to ensuring consistent processes and results. Breweries have used enzyme solutions from Novozymes for over forty years. Meet us at the ASBC and let's discover how.

† optek-Danulat, Inc.**Booth 204**

N118 W18748 Bunsen Dr., Germantown, WI 53022; Telephone: 1.800.371.4288, Fax: +1.262.437.3699, Website: www.optek.com/brewing, E-mail: aworley@optek.com. optek's process control instrumentation provides advanced and precise inline analysis of product color, turbidity, haze, and constituent concentration. Our inline sensors and insertion probes, engineered in Germany, provide real-time results through UV-VIS-NIR absorption-based photometers and scattered-light turbidimeters, to monitor and control fermentation, filtration, separation, yeast pitching, wort color and clarity, DE and PVPP dosing, sanitizer concentrations, and more. optek has recently introduced the "Haze Control" series of dual-angle lab and process turbidimeters for QA/QC, as well as NIST calibration solution standards.

† Pall Corporation**Booth 303**

25 Harbor Park Dr., Port Washington, NY 11050; Telephone: +1.866.905.7255, Fax: +1.516.625.3610, Website: www.pall.com, E-mail: foodandbeverage@pall.com. Pall Corporation is the largest and most diverse filtration, separations, and purifications company in the world. You can rely on Pall for a proven solution to all your filtration or separations needs. We design, develop, and manufacture an unparalleled range of advanced filter media, associated equipment, separation systems, and membrane processes. For the food and beverage industries, Pall has developed filtration and advanced filtration systems that meet market needs for reliability and cost effectiveness. Easy to install, and simple to use, the space-saving systems satisfy a wide variety of filtration requirements. Pall filters remove particulate contamination, ensure the absence of spoilage microorganisms, and provide high-quality air and gases. Membrane processes can additionally concentrate products without heat, purify and clarify, selectively remove components, and even deal with process effluent. Contact us today!

† PerkinElmer Life and Analytical Sciences**Booth 408**

710 Bridgeport Ave., Shelton, CT 06484; Telephone: 1.800.762.4000, Fax: +1.203.944.4914, Website: www.perkinelmer.com, E-mail: productinfo@perkinelmer.com. PerkinElmer serves a number of growing industries and markets, including the environmental, pharmaceutical, chemical, petrochemical, semiconductor, academic research, biotechnology, and clinical screening segments. Our instruments, reagents, consumables, and service offerings help our customers solve complex analytical problems that require innovation, precision, and reliability. Our instruments and related software applications measure a range of substances from biomolecular matter to organic and inorganic materials. Our total application-driven laboratory solutions help our

customers speed drug discovery, enhance research productivity, meet strict regulatory requirements, improve time-to-market, and increase manufacturing efficiencies.

Phenomenex **Booth 109**

411 Madrid Ave., Torrance, CA 90501; Telephone: +1.310.212.0555, Fax: +1.310.328.7768, Website: www.phenomenex.com, E-mail: info@phenomenex.com. Phenomenex is a global leader in providing top-quality separation devices. Featured HPLC columns include high pH stable Gemini™, Synergi™ for method development, and top-selling Luna®. Featured SPE products include Strata® tubes and plates. Featured GC products include Zebtron™ columns and accessories. Also, Phenomenex offers application-specific EZ:faast™, for rapid amino acid analysis, and Clarity™, for purification of synthetic oligonucleotides.

† Profamo Inc. **Booth 203**

7506 Albert Tillinghast Dr., Sarasota, FL 34240; Telephone: +1.941.379.8155, Fax: +1.941.379.8699, Website: www.profamo.com, E-mail: profamo@comcast.net. Profamo Inc. is pleased to present at ASBC 2006 some of its fine line of equipment from its various manufacturing partners, including, among others, the new Digox 6 portable dissolved oxygen meter from Dr. Thiedig; Rotech's keg monitoring system; Headmaster's dissolved oxygen and CO₂ calibrators, ACM's degasser and in-line beer monitor, OxySense's non-invasive oxygen meter, Pfeuffer's Tannometer, Friabilimeter, Sortimat, and Viscomat; Lg Automatic's foam tester, mash bath, sampling device, bottle turner and hazemeter; Keofitt's sterile sampling systems, and finally Gerhardt's systems for sample digestion, distillation, shakers, and hot plates.

† PureMalt Products Ltd. **Booth 308**

Victoria Bridge, Haddington, Scotland EH41 4BD, United Kingdom; Telephone: +44 1620 824696, Fax: +44 1620 822018, Website: www.puremalt.com, E-mail: info@puremalt.com. Following on from the successful range of BrandMakers, which deliver flavor and color management for variety beers in the cellar, PureMalt's program of continuous improvement has developed an outstanding malt base for the production of malternatives, non-alcoholic and reduced-alcohol beers. This will be demonstrated on our stand.

Siebel Institute of Technology & World Brewing Academy **Booth 206**

1777 N. Clybourn Ave., Suite 2F, Chicago, IL 60614; Telephone: +1.312.255.0705, Fax: +1.312.255.1312, Website: www.siebelinstitute.com, E-mail: info@siebelinstitute.com. Siebel Institute of Technology is pleased to introduce new services for the brewing industry. We now offer a range of yeast DNA fingerprinting services through our Montreal-based Microbiology Services Division. Our Chicago-based Laboratory Services Division features a new service for analyzing staling aldehydes that will give you critical information about the staling that has occurred in your beer. We also offer a complete range of brewing courses including our TwinTrack Brewing

Microbiology Program and our web-based training courses, which allow students to take professional-level brewing courses without the cost of travel.

† Skalar, Inc. **Booth 304**

5995 Financial Dr., Suite 180, Norcross, GA 30071; Telephone: 1.800.782.4994, Fax: +1.770.416.6718, Website: www.skalar.com, E-mail: info@skalar.com. Come to the Skalar booth to see the malt/beer automated analyzer for fast and accurate automation of time-consuming and difficult wet-chemistry methods. Skalar offers complete automation for simultaneous determination of any combination of: alpha-amylase, anthocyanogen, bitterness, carbon dioxide, color, density, diacetyl, diastatic power, ethanol, free amino nitrogen, beta-glucan, pH, polyphenols, sulfur dioxide (total and free), thiobarbituric acid value, turbidity, and viscosity. Skalar also manufactures the Primacs-SN analyzer for total nitrogen/protein analysis of malt and wort samples. Last, the Formacs TN is available for a TKN alternative (no reagents).

Steinfurth, Inc. **Booth 104**

Suite 120, 530 Means St., Atlanta, GA 30318; Telephone: +1.404.586.6817, Fax: +1.404.586.6824, Website: www.steinfurthinstruments.com, E-mail: info@steinfurthinstruments.com. Steinfurth has been producing special measuring systems for the beverage industry worldwide for more than 30 years. We provide solutions for the quality control of beverages and beverage packages. Our product groups are as follows: CO₂-measuring systems, measuring systems for pressure and temperature, pressure/temperature/pasteurization logger, packaging testing devices, measuring devices for beer foam stability, sampling devices, and laboratory carbonization systems. During the ASBC meeting, we will show our brand new developments for breweries: a fully automatic foam stability tester, an automatic sampling device, and a logger system for monitoring of pasteurization.

† Thermo Electron Corporation **Booth 410**

501-90th Ave. NW., Minneapolis, MN 55433; Telephone: +1.763.783.2500, Fax: +1.763.780.2315, Website: www.thermo.com.

VLB Berlin **Booth 213**

Seestrasse 13, Berlin, 13353, Germany; Telephone: +49.30.45080.255, Fax: +49.30.45080.210, Website: www.vlb-berlin.org. Versuchs- und Lehranstalt fuer Brauerei in Berlin (VLB): research, teaching, consulting, information, and service for the brewing, malting, and beverage industries since 1883. The VLB Berlin (Research Teaching Institute of Brewing in Berlin - Germany) provides training, research, and service for the brewing industry. Customers all around the world take advantage of our training courses and of our broad experiences in the fields of research, analyses, and consulting. Specials this year: ESR analyses for the determination of endogenous antioxidative potential of beer and other beverages, testing of gas permeation thorough plastic bottles, and "Excellence in Brewing Technology"—an advanced training

course for brewing professionals, November 6–24 in Berlin. Further information: www.vlb-berlin.org.

White Labs, Inc. Pure Yeast & Fermentation

Booth 208

7564 Trade St., San Diego, CA 92121; Telephone: +1.858.693.3441, Fax: +1.858.693.3441, Website: www.whitelabs.com. Since 1995, White Labs has specialized in, and has been producing, certified pure cultured liquid yeast for brewers, distillers, and vintners. Our full-service laboratory provides product and microbial analysis, proprietary yeast banking, lab media, and lab supplies as well as easy-to-use quality control test kits and brewing accessories. Our mission is to provide the highest-quality products at a fair price with unparalleled service. White Labs' corporate office is based in San Diego, with our sales staff operating out of Boulder, Colorado.

Ensure Laboratory Quality and Accuracy

ASBC Check Sample Service

Laboratories rely on these services to:

- Test equipment
- Monitor methodology among laboratory personnel
- Qualify the work of contract laboratories
- Ensure the accuracy of labeling information

Test samples are available for beer, hops, barley, and malt.

Pick up literature or speak with ASBC staff at the meeting.



AMERICAN SOCIETY OF
Brewing Chemists

###4

www.asbcnet.org/checksample

Connect with ASBC

2005-2006 ASBC Board Members

The following individuals, through their leadership on the Board of Directors, generously donate their time and talents to guide ASBC. Board members play a major role in determining what programs and services should be provided by ASBC in order to advance the industry and you professionally. ASBC is an association run by the members, for the members – an association where your voice is not only welcome, but considered vital. If you have input, please do not hesitate to contact a board member or staff member.

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Thank you

ASBC volunteer members tackle important issues, keep members informed, manage the details, and basically make things happen.

A sincere thanks to everyone who has given their time and talents to make a difference in ASBC and the brewing industry!

ASBC especially thanks the following committee and section chairs:

David P. Barr, *Method for Measure of Resistance of Oxidation in Beer by EPR*

Dirk S. Bendiak, *Coordination of New and Alternate Methods of Analysis*

Scott K. Brendecke, *Can Packaging Methods*

Adrienne N. Caruso, *St Louis Local Section #2*

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Michael J. Joyce, *Awards Committee, Society Procedures Committee*

Gina P. Kelly, *Craft Brewers*

Timothy J. Kostelecky, *Constitution & Bylaws Committee, Emerging Issues Committee, Nominating Committee*

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Jolanta Menert, *Determination of Alpha -Amylase by Automated Flow Analysis, Soluble Starch*

Ronald J. Mihalko, *Milwaukee/Chicago Local Section #4*

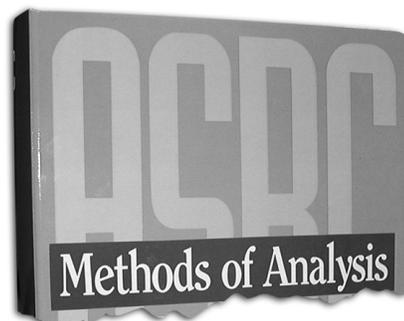
Nona M. Mundy, *Foundation Board*

Rebecca T. Newman, *Finance Committee*

Dana L. Sedin, *Elemental Analysis of Beer and Wort by ICP-AES*

Robert J. Stewart, *Canada Local Section #6*

Sylvie M. Van Zandycke, *Methods for Measurement of Yeast Vitality*



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A 12-pack of reasons why you should buy the NEW ASBC Methods 2006 Edition CD-Rom:

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#3

American Society of Brewing Chemists

2006-2007 ASBC Foundation Scholarship Recipients

Scholarships are supported by funds of the ASBC Foundation and annual contributions by individuals and companies. ASBC congratulates all scholarship recipients on their accomplishments! The Foundation Board also thanks the donors for making these scholarships possible.

Takeshi Kunimune
Oregon State University
\$2,500 EcoLab, Inc.
Scholarship

Xinrong Dong
North Dakota State
University
\$2,500 Anheuser-Busch Inc.
Quality Assurance
Scholarship

Blaise Nic Phiarais
University College Cork
\$2,000 Miller Brewing Co.
Scholarship

Annette Fritsch
Oregon State University
\$2,500 Brian Williams
Scholarship

Monique Simair
University of
Saskatchewan
\$1,000 Coors
Brewing Co.
Scholarship

Joseph Lake
Dalhousie University
\$1,000 Sierra-
Nevada Brewing Co.
Scholarship

Ashley Porter
Dalhousie University
\$1,000 Past
Presidents
Scholarship

2006 Eric Kneen Memorial Award Recipients



Mark Goldsmith



Peter Rogers



Ken Ghiggino



Nuno Miguel
Cabral



Felicity Roddick

The Eric Kneen Memorial Award is given to members who authored the year's best paper in the *ASBC Journal*. Goldsmith, Rogers, Ghiggino, Cabral, and Roddick won for their article entitled "Riboflavin Triplet Quenchers Inhibit Lightstruck Flavor Formation in Beer" from *ASBC Journal* Vol. 63, No 4.

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71st Annual Meeting of the American Society of Brewing Chemists



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