Dr. Vladimir Cherney and his assistant in the lab. 1940s
WHO WE ARE

LALLEMAND BREWING

LALLEMAND BREWING IS A DIVISION OF LALLEMAND INC., A GLOBAL LEADER IN THE DEVELOPMENT, PRODUCTION AND MARKETING OF YEAST, BACTERIA AND SPECIALTY INGREDIENTS.

Lallemand’s presence in the brewing industry dates from the early 1970s when the company started producing dried pure culture brewing yeasts for beer kit manufacturers in Canada. In subsequent years, this activity was expanded to the production of other specific ale and lager beer yeast strains for different clients in the United States, Europe and Australia and Asia.

Lallemand’s extensive and unique knowledge in the propagation of different yeast strains led us to be consulted on yeast nutrition by a number of international breweries. As a result of this expertise, we developed – and continue to perfect – a specialized range of yeast and yeast nutrients that target brewing industry’s specific challenges.

Lallemand’s activities in the brewing industry have continued to grow, expanding beyond yeast-related production for the industrial, micro and home brewer. The acquisition of both the Siebel Institute of Technology and AB Vickers Ltd. allowed for the creation of a broader portfolio of products and services aimed at supporting the industry’s needs.

Today, Lallemand Brewing is a global business serving all segments of the brewing industry with products, services and education.
SIEBEL INSTITUTE

THE SIEBEL INSTITUTE OF TECHNOLOGY IS AN INTERNATIONALLY RECOGNIZED BREWING INDUSTRY EDUCATION AND SERVICE PROVIDER.

Founded in 1872 by Dr. J. E. Siebel, the Siebel Institute of Technology’s objective is, in the founder’s own words, to promote progress of the brewing industry “based on fermentation, which is done by instruction, investigation, analysis and otherwise.” True to this promise, the Siebel Institute of Technology rapidly became one of the world’s most respected brewing schools and analytical laboratories.

AB VICKERS

AB VICKERS IS A GLOBAL LEADER IN THE FIELD OF BREWING PROCESS AIDS AND RELATED SERVICES.

Some of the largest and smallest brewing companies benefit from using the AB Vickers product lines from tapping into the significant expertise and resources offered by our team of brewmasters and R&D capabilities.
LALLEMAND INC. IS A PRIVATELY-OWNED COMPANY THAT RESEARCHES, DEVELOPS, PRODUCES AND MARKETS YEASTS, BACTERIA AND OTHER MICROORGANISMS WITH THE AIM OF REPRODUCING, MANAGING AND OPTIMIZING NATURAL FERMENTATION PROCESSES IN THE AGRI-FOOD INDUSTRIES.

The company is organized into 11 technically-driven business units focusing on various applications of yeast and bacteria in baking, fermented beverages, human and animal nutrition, fuel ethanol and for agricultural and pharmaceutical uses.

The global vision of Lallemand Inc. is to be a world leader in markets that utilize our cutting-edge solutions while contributing to the prosperity of our clients and partners.

We take pride – individually and collectively – in the quality of our work, the advanced processes we use, the products and services we provide, and in the recognized and validated efficacy of our continuous improvement programs. We take pride in meeting our customer’s needs ahead of our competition.

For additional information about Lallemand and our research centers, plants, global contacts, and much more please visit www.lallemand.com
WHAT WE OFFER
WITH OUR LONG STANDING INDUSTRY EXPERIENCE AND EXTENSIVE NETWORK OF TECHNICAL EXPERTISE, WE ARE POSITIONED TO HELP YOUR BREWERY ACHIEVE ITS GROWTH AND QUALITY GOALS.

Along with global technical support, we offer an extensive range of products, services and education. Whether you are a small startup, a global leader in beer production or anywhere in between, we have something for you. In the following pages we have provided a comprehensive list of the products, services and educational opportunities offered by Lallemand Brewing.
WHAT WE OFFER

OUR PRODUCTS

BREWING YEASTS  BACTERIA FOR BREWING  ENZYMES  YEAST NUTRIENTS  PROCESS AIDS  MICROBIOLOGY MEDIA  SENSORY KITS
OUR PRODUCTS

Lallemand Brewing offers a large range of products to help your brewery achieve its growth and quality goals.

COMMERCIAL BREWING YEASTS
BACTERIA FOR BREWING  NEW!
ENZYMES
YEAST NUTRIENTS
PROCESS AIDS
MICROBIOLOGY MEDIA
SENSORY KITS

PRODUCT NOTES
ABOUT COMMERCIAL BREWING YEASTS

CHARACTERISTICS
Brewers dry yeast typically carries less than 7% liquid. The most meticulous conditions are applied during manufacture to avoid microbial contamination, resulting in less than 1 bacterium or wild yeast detected per million yeast cells. The content of 1g of dry yeast corresponds to a minimum of 5 billion live cells but the number will slightly vary from batch to batch.

STORAGE
Dry yeast is packaged in 500g or 11g sachets and must be stored dry, below 10˚C (50˚F). The dry yeast is packaged under vacuum. Do not use a pack of yeast that appears to have lost its vacuum, resulting in a package that is soft and easily crushed. Both humidity and oxygen will impact on the quality of the yeast and once a pack or sachet is open the yeast will deteriorate quickly. If kept sealed and stored under appropriate conditions, dry yeast can be used up to the expiration date mentioned on the package. Once a pack is open it is recommended to use the yeast as quickly as possible.

REHYDRATION
Rehydration is a crucial step to ensure rapid and complete fermentation. There are important rules to follow to slowly transition the cells back to a liquid phase. Careful precautions were taken when drying the yeast and the brewer has the opportunity to revert the process to obtain a highly viable and vital liquid slurry.

The following effects have been observed with non-rehydrated yeast under specific brewing conditions:
- Longer diacetyl stand
- Longer lag phase
- Poor utilization of maltotriose
- Longer fermentation time
- Stuck fermentation

There are 3 important criteria to ensure a successful rehydration:
(please see individual recommendations for each Lallemand strain)

1. TEMPERATURE OF THE REHYDRATING MEDIA
The ideal temperature for the dry yeast membranes to transition from a gel (dry to a liquid phase is strain dependent and should be respected in order to maintain membrane integrity during the rehydration process. This temperature varies between ale and lager yeasts. Please follow specific instructions below.

2. TYPE OF REHYDRATING MEDIA
The media used is crucial to a successful rehydration. Undiluted wort causes osmotic pressure to the yeast and compromises its health. Most yeast strains can be rehydrated in water but lager yeasts benefit from rehydration with a small concentration of sugar, so diluted wort (3° Plato) is preferred.

3. LENGTH OF REHYDRATION
The rehydration period should not take more than 1 hour and the yeast should be pitched immediately to ensure vigorous fermentation. It is not recommended to store rehydrated dry yeast or a decrease in cell activity will be observed. Once rehydrated, the yeast can be pitched into wort. To avoid shocking the yeast and creating cellular damage, attemperation of the yeast should be conducted to reach the temperature of the wort or at least within 10˚C or 18˚F. Incremental additions of wort can be added to the rehydrated yeast slurry to bring down the temperature.

Rehydration can be conducted in a sanitized vessel. The rehydration media should be sterilized and cooled down to the appropriate temperature.

A NOTE ON ALCOHOL (ABV) TOLERANCE
Alcohol tolerance is the measure of what level of alcohol yeast can produce and survive. Since many variables in the production of ethanol can affect the ability to reach a certain ABV (including fermentation parameters, wort composition and nutrients) alcohol tolerance in the context of each yeast strain is not meant to be an indicator of the ABV levels brewers ought to reach at the culmination of the fermentation process.
COMMERCIAL BREWING YEASTS

**ABBAYE BELGIAN-STYLE ALE YEAST**

*Saccharomyces cerevisiae*

Abbaye is an Ale yeast of Belgian origin. Selected for its ability to ferment Belgian style beers ranging from low to high alcohol, Abbaye produces the spiciness and fruitiness typical of Belgian and Trappist style ales. When fermented at higher temperatures, typical flavors and aromas include tropical, spicy and banana. At lower temperatures Abbaye produces darker fruit aromas and flavors of raisin, date and fig.

**BEER STYLES**

Belgian

**PITCHING RATE**

50 - 100g/hL to achieve a minimum of 2.5 - 5 million cells/mL

**ATTENUATION**

High

**FERMENTATION RANGE**

17 - 25°C (63 - 77°F)

**FLOCCULATION**

Medium to high

**ALCOHOL TOLERANCE**

14% ABV

**ADDITIONAL INFORMATION**

Fermentation rate, fermentation time and degree of attenuation depend on inoculation density, yeast handling, fermentation temperature and nutritional quality of wort.

**BELLE SAISON BELGIAN SAISON-STYLE YEAST**

*Saccharomyces cerevisiae var. diastaticus*

Belle Saison is a Belgian style ale yeast selected specifically for its ability to create Saison-style beers. Belle Saison lets brewers create Saison styles easily and with all the expected characteristics noted for this classic style. Designed for warm temperature fermentation true to traditional production methods, beers brewed with Belle Saison exhibit the “Farmhouse” flavors and aromas making for fruity, spicy and refreshing beer.

**BEER STYLES**

Saison

**PITCHING RATE**

50 - 100g/hL to achieve a minimum of 2.5 - 5 million cells/mL

**ATTENUATION**

High

**FERMENTATION RANGE**

15 - 35°C (59 - 95°F)

**FLOCCULATION**

Medium to high

**ALCOHOL TOLERANCE**

15% ABV

**ADDITIONAL INFORMATION**

Use 50-100 g of active dry yeast to inoculate 100 litres of wort. Brewer may experiment with pitching rate to achieve a desired beer style or to suit processing conditions.
BRY-97 AMERICAN WEST COAST ALE YEAST  

BRY-97 is an American West Coast Style ale yeast that was selected from the Siebel Institute Culture Collection for its ability to deliver high quality ales. BRY-97 is a neutral strain with a high flocculation ability that can be used to make a wide variety of American style beers.

**BEER STYLES**
American ales

**ATTENUATION**
medium to high

**FERMENTATION RANGE**
15 - 22°C (59 - 72°F)

**PITCHING RATE**
50 - 100g/hL to achieve a minimum of 2.5 - 5 million cells/mL

**FLOCCULATION**
high

**ALCOHOL TOLERANCE**
13% ABV

**ADDITIONAL INFORMATION**
BRY-97 American West Coast Yeast is a flocculent strain. Settling can be promoted by cooling and use of fining agents and isinglass.

DIAMOND LAGER YEAST  

Diamond Lager yeast is a true lager strain originating in Germany. Chosen for its robust character, Diamond Lager yeast delivers excellent fermentation performance, and has the ability to produce clean, authentic lagers.

**BEER STYLES**
lagers

**ATTENUATION**
high

**FERMENTATION RANGE**
10 - 15°C (50 - 59°F)

**PITCHING RATE**
100 - 200g/hL to achieve a minimum of 5 - 10 million cells/mL

**FLOCCULATION**
high

**ALCOHOL TOLERANCE**
13% ABV
COMMERCIAL BREWING YEASTS CONTINUED

LONDON ESB ENGLISH-STYLE ALE YEAST

London ESB is a true English ale strain selected for reliable fermentation performance and moderate ester production that lets the delicacies of the malt and hop aromas shine through. London ESB was selected from the Lallemand yeast culture library, and is a brilliant choice not only for brewing Extra Special Bitter but for other authentic heritage UK styles. London ESB may also be used in the production of Ciders. London ESB does not utilize the sugar maltotriose (a molecule composed of 3 glucose units). Maltotriose is present in wort in an average 10-15% of all malt worts. The result will be fuller body and residual sweetness in beer. Be advised to adjust mash temperatures according to desired result.

BEER STYLES
English-style ales, pale ales

PITCHING RATE
50 - 100g/L to achieve a minimum of 2.5 - 5 million cells/mL

ATTENUATION
medium

FLOCCULATION
low

FERMENTATION RANGE
18 - 22°C (65 - 72°F)

ALCOHOL TOLERANCE
12% ABV

ADDITIONAL INFORMATION
Produces a clean, well balanced ale. Medium attenuation preserves some beer complexity. Best for well-balanced British style ales.

MUNICH WHEAT BEER YEAST

Munich Wheat Beer yeast originated in Bavaria, German and is a neutral strain which can be used to produce a wide variety of wheat-based beer styles. With only slight esters and phenol production, Munich’s allows brewers to showcase other spice additions.

Munich is a non flocculent strain. In classic open fermentation vessels, the yeast can be skimmed off the top. Some settling can be promoted by cooling and use of fining agents and isinglass.

BEER STYLES
wheat-based beers, Weizen and Hefeweizen

PITCHING RATE
50 - 100g/L to achieve a minimum of 2.5 - 5 million cells/mL

ATTENUATION
medium to high

FLOCCULATION
low

FERMENTATION RANGE
17 - 22°C (63 - 72°F)

ALCOHOL TOLERANCE
12% ABV

ADDITIONAL INFORMATION
Aroma is estery to both palate and nose with typical banana notes. Does not display malodours when properly handled.
COMMERCIAL BREWING YEASTS CONTINUED

MUNICH CLASSIC WHEAT BEER YEAST

Munich Classic is a Bavarian wheat beer strain selected from the Doemens Culture Collection. It can easily express the spicy and estery aroma profile typical to German wheat beer styles. This strain is simple to use over a wide range of recipe variations and fermentation conditions, making it a great choice for a number of traditional styles of wheat beer. In classic open fermentation vessels, the yeast can be skimmed off the top in the traditional manner.

LALBREW™ NEW ENGLAND EAST COAST ALE YEAST

LalBrew™ New England is an ale strain selected specifically for its fermentative consistency and its ability to produce a unique fruit-forward ester profile desired in East Coast styles of beer. A typical fermentation with the LalBrew™ New England ale yeast will produce tropical and fruity esters, notably stone fruits including peach. LalBrew™ New England exhibits medium to high attenuation with medium flocculation making it a perfect choice for East Coast Style Ales.
COMMERCIAL BREWING YEASTS CONTINUED

NOTTINGHAM HIGH PERFORMANCE ALE YEAST

Saccharomyces cerevisiae

Nottingham is an English style ale yeast selected for its high performance ability and versatility. Furthermore, this highly adaptable yeast strain allows for tremendous creativity when brewing beers out of the regular spectrum. Nottingham can also be used in the production of cider. At lower temperature it is possible to ferment lager-style beers in all-malt wort within 9 days.

BEER STYLES
wide variety of ales

PITCHING RATE
50 - 100g/hL to achieve a minimum of 2.5 - 5 million cells/mL

ATTENUATION
high

FLOCCULATION
high

FERMENTATION RANGE
10 - 22°C (50 - 72°F)

ALCOHOL TOLERANCE
9% ABV

ADDITIONAL INFORMATION
Shows flocculation at completion of fermentation, and settling is promoted by cooling and use of fining agents and isinglass.

Produces low concentrations of fruity and estery aromas and has been described as neutral for ale yeast, allowing the full natural flavor of malt and hops to develop.

WINDSOR BRITISH-STYLE BEER YEAST

Saccharomyces cerevisiae

Windsor ale yeast is a true English strain that produces a beer which is estery to both palate and nose with a slight fresh yeasty flavor. Beers created with Windsor are usually described as full-bodied, fruity English ales. Brewers choose Windsor to produce beers that range from pale ale to porter with moderate alcohol levels and the flavor and aroma characteristics of the best traditional ales. Windsor does not utilize the sugar maltotriose (a molecule composed of 3 glucose units). Maltotriose is present in wort in an average 10-15% of all malt worts. The result will be fuller body and residual sweetness in beer. Be advised to adjust mash temperatures according to desired result.

BEER STYLES
fruity English ales, pale ales, porters

PITCHING RATE
50 - 100g/hL to achieve a minimum of 2.5 - 5 million cells/mL

ATTENUATION
medium

FLOCCULATION
low

FERMENTATION RANGE
15 - 22°C (59 - 72°F)

ALCOHOL TOLERANCE
9% ABV
CBC-1 CASK AND BOTTLE CONDITIONING YEAST

Saccharomyces cerevisiae

CBC-1 has been specifically selected from the Lallemand Yeast Collection for its refermentation properties and is recommended for Cask and Bottle Conditioning. CBC-1 referments beer efficiently due to its high resistance to alcohol and pressure; the flavor is neutral therefore conserving the original character of the beer. The yeast will settle and form a tight mat at the end of refermentation. CBC-1 can also be used for primary fermentation of Champagne-like beers, fruit beers and cider. Best used for refermentation purposes conducted preferably with priming sugars, such as dextrose.

BEER STYLES
champagne-like and fruit beers

FERMENTATION RANGE
primary: 20°C
refermentation: 15-25°C

ALCOHOL TOLERANCE
12 - 14% ABV

PITCHING RATE
primary: 50-100g/hL
refermentation: 10g yeast to 1hL

ADDITIONAL INFORMATION
Shows flocculation and sedimentation at the end of the refermentation period.

CBC-1 does not impact on the flavor of the original beer to be refermented.

CBC-1 is best used for refermentation purposes conducted preferably with priming sugars such as dextrose fermenting yeast.

When 10g of active dry yeast is used to inoculate 1hl of beer, a yeast concentration of 1-2 million cells per ml is achieved. Please note that different batch of yeast may vary in cell density; to obtain the exact cell numbers per g of dry yeast for a particular batch please contact brewing@lallemand.com
# Commercial Brewing Yeasts Overview

<table>
<thead>
<tr>
<th>Strain</th>
<th>Beer Styles</th>
<th>Attenuation</th>
<th>Fermentation Range</th>
<th>Flocculation</th>
<th>Alcohol Tolerance</th>
<th>Pitching Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABBAYE BELGIAN-STYLE ALE YEAST</td>
<td>Belgian</td>
<td>high</td>
<td>17 - 25°C (63 - 77°F)</td>
<td>medium to high</td>
<td>14% ABV</td>
<td>50 - 100g/hL to achieve a minimum of 2.5 - 5 million cells/mL</td>
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<td>BELLE SAISON BELGIAN SAISON-STYLE YEAST</td>
<td>Saison</td>
<td>high</td>
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<td>BRY-97 AMERICAN WEST COAST ALE YEAST</td>
<td>American ales</td>
<td>medium to high</td>
<td>15 - 22°C (59 - 72°F)</td>
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</tr>
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<td>CBC-1 CASK AND BOTTLE CONDITIONING YEAST</td>
<td>champagne-like and fruit beers</td>
<td>---</td>
<td>primary: 20°C fermentation: 15 - 25°C</td>
<td>---</td>
<td>12 - 14% ABV</td>
<td>primary: 50-100g/hL fermentation: 10g yeast to 1hL</td>
</tr>
<tr>
<td>DIAMOND LAGER YEAST</td>
<td>lagers</td>
<td>high</td>
<td>10 - 15°C (50 - 59°F)</td>
<td>high</td>
<td>13% ABV</td>
<td>100 - 200g/hL to achieve a minimum of 5 - 10 million cells/mL</td>
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<td>LONDON ESB ENGLISH-STYLE ALE YEAST</td>
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<td>medium</td>
<td>18 - 22°C (65 - 72°F)</td>
<td>low</td>
<td>12% ABV</td>
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<td>MUNICH WHEAT BEER YEAST</td>
<td>wheat-based beers, Weizen and Hefeweizen</td>
<td>medium to high</td>
<td>17 - 22°C (63 - 72°F)</td>
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<td>12% ABV</td>
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</tr>
<tr>
<td>MUNICH CLASSIC WHEAT BEER YEAST</td>
<td>Bavarian-style wheat</td>
<td>medium to high</td>
<td>17 - 22°C (63 - 72°F)</td>
<td>low</td>
<td>9% ABV</td>
<td>50 - 100g/hL to achieve a minimum of 2.5 - 5 million cells/mL</td>
</tr>
<tr>
<td>LALBREW™ NEW ENGLAND EAST COAST ALE YEAST</td>
<td>East Coast IPAs and Pale Ales</td>
<td>medium</td>
<td>15 - 22°C (59 - 72°F)</td>
<td>medium</td>
<td>9% ABV</td>
<td>100g/hL to achieve a minimum of 1 million viable cells/mL</td>
</tr>
<tr>
<td>NOTTINGHAM HIGH PERFORMANCE ALE YEAST</td>
<td>wide variety of ales</td>
<td>high</td>
<td>10 - 22°C (50 - 72°F)</td>
<td>high</td>
<td>14% ABV</td>
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<td>fruity English ales, pale ales, porters</td>
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</table>
WildBrew™ Sour Pitch is a high-performance, high-purity lactic acid bacteria specifically selected for its ability to produce a wide range of sour beer styles. WildBrew™ Sour Pitch produces a clean and balanced citrus flavor profile typical of both traditional and modern sour beer styles. When inoculated at optimal temperature and the right conditions it is a powerful, safe and easy way to handle bacteria for various beer souring techniques, such as the typical kettle souring process. Besides providing an outstanding performance, WildBrew™ sour Pitch is capable of delivering consistent results for brewers. Styles brewed with this bacteria can include, but are not limited to, Berliner Weisse, Gose, Lambic, American Wild and Sour IPA.

**BEER STYLES**
sours

**INOCULATION RATE**
10g/hL

**FERMENTATION RANGE**
30°C - 40°C (86°F - 104°F)

**PH RANGE**
3.2 - 3.5

**HOP TOLERANCE**
8 IBU
ENZYMES

ABV ALPHAMYLASE LT30
A Food Grade bacterial alpha-amylase derived from a selected non-GMO strain of Bacillus subtilis. Also a liquefying enzyme. It’s action on starch substrates produces a decrease of viscosity.

ABV ALPHAMYLASE FA
A liquid fungal alpha-amylase obtained from a selected strain of Aspergillus oryzae. (EC 3.2.1.1) Hydrolyses the α-1,4 glucosidic linkages in starch, producing large amounts of maltose. Can be used for liquefaction and saccharification of gelatinised starch. In the starch industry, it can be used for the production of high maltose syrups (45-60%) and in the alcohol industry, it can be used in the saccharification stage.

ABV GLUCANASE PLUS
A complex enzyme blend specifically formulated for application in the brewhouse to achieve optimum wort filtration using either lauter tun or filter press whilst also guaranteeing excellent extract recovery and final beer filtration. Designed to perform efficiently over a wide range of mashing temperatures and can be used when adjuncts (wheat, barley etc.) are used at moderate levels. Derived from classical, non-GMO Fungal organisms, the primary activities of Glucanase Plus are beta-glucanase, xylanase and alpha amylase.

ABV GLUCOAMYLASE 400
A food grade saccharifying glucoamylase or amylglucosidase enzyme derived from a selected strain of Aspergillus niger. It is an exoglucosidase capable of hydrolysing both the α-1,6 and α-1,4 glucosidic linkages of starch, liberating single glucose units.

ABV GLUCANASE PREMIER
A Food Grade Beta-glucanase. Can completely or partially break down soluble and insoluble celluloses and hemicelluloses such as those found in wheat, barley and other cereals.

Contact Code

What We Offer
Our Products
Brewing
Bacteria
Nutrients
Aids
Microbiology
Sensory Kits

Beverages
Yeast
Media
Lallemand Brewing
**ABV PROTOZYME NP**

**Bacterial Neutral Protease** - a neutral protease enzyme derived from a selected non-GMO Food Grade strain of Bacillus subtilis.

**BENEFITS**
- Allows the use of higher levels of adjuncts in the mash.
- Increases soluble protein and improves free amino nitrogen levels which lead to enhanced yeast vitality in the fermentation process.
- May improve downstream processing efficiencies.

**ABV CHILLZYME**

A protease obtained from the plant Carica papaya. It is used in brewing to prevent the formation of chill hazes by hydrolysing proteins to soluble peptides and amino acids. It is best added to the cold conditioning tank or may also be added to the bright beer tank prior to pasteurisation.

**BENEFITS**
- Prevents the formation of protein-tannin complexes.
- Reduces the risk of chill hazes in packaged beers and leading to longer shelf-life.

**ABV ALPHA ACETOLACTATE DECARBOXYLASE**

A decarboxylase enzyme which prevents the formation of diacetyl by the decarboxylation of alpha-acetolactate to acetoin, and is derived from Bacillus licheniformis. Should be added at the start of fermentation.

**BENEFITS**
- Reduces cold conditioning time.
YEAST NUTRIENTS

FERMAID K  YEAST NUTRIENT
A completely natural blend of inactive yeast, minerals and vitamins, produced to the highest levels of hygiene and quality and used in the fermentation of beer wort. One of the most common reasons for sluggish or stuck fermentations are nutrient deficiencies caused by adjunct brewing as well as variability in raw material quality. Fermaid K ensures a proper balance of nutrients are made available to the yeast during the critical growth phase.

YEASTLIFE EXTRA  YEAST NUTRIENT
A powder yeast nutrient based on readily available sources of nitrogen blended with additional amino acids, minerals and vitamins. The two main requirements for consistent, predictable fermentations are healthy yeast and a nutrient balanced wort. It is generally recognised that only wort produced from a well modified, all malt grist approaches these needs, and even this requires supplementation with oxygen and zinc. The common practice of high gravity, adjunct brewing has introduced two fermentation problems: nutrient deficiency and conditions of high stress for yeast. Yeast generated under these difficult conditions typically show symptoms of reduced vigour, which can be compounded at each regeneration. Problems associated with reduced vigour include slow or sticking fermentation, off-flavours associated with sulphur containing compounds, slow diacetyl reduction, and autolysis.

SERVOMYCES  BIOLOGICAL NUTRIENT CONTAINING INACTIVE BREWERS YEAST
Developed by a team of scientists at TU Munich / Weihenstephan in conjunction with Lallemand, Servomyces is the most unique yeast nutrient available in brewing. This patented product is a biological substance produced without chemicals or additives. Through its specialised properties Servomyces improves yeasts ability to incorporate essential nutrients, especially zinc into its cellular structure.

BENEFITS
Usable nitrogen (ammonia salts and amino acids)
Thiamin, folic acid, niacin, and calcium pantothenate

BENEFITS
Usable nitrogen (ammonia salts and amino acids)
Thiamin, folic acid, niacin, and calcium pantothenate

BENEFITS
Faster fermentation
Consistent fermentation
Reduced off flavours

BENEFITS
Cuts down fermentation time improving process efficiency.
Improves and increases flocculation
Improves the overall health and viability of yeast.
**PROCESS AIDS**

**VICANT ANTIOXIDANT**
An antioxidant and anti browning agent designed to enhance flavour and colloidal stability in beer. Vicant supplies sources of sulphur dioxide and ascorbate. The active components function in two ways, by scavenging dissolved oxygen and blocking staling reactions. It slows the formation of off flavours, typically described as paper or cardboard by binding causative carbonyl compounds, particularly trans-2-nonenal.

**BENEFITS**
- Improved flavor stability.
- Improved colloidal stability.
- Slower rate of browning.

**DRIFOAM FOAM STABILIZER**
A powder form of propylene glycol alginate produced by the esterification of alginic acid. It is designed to give a trouble free method of enhancing and protecting beer foam. Many years of development have been undertaken to identify the ideal blend of seaweed species required to yield the right quality of Alginic acid, and to optimise the critical esterification stage. Drifoam stabilises beer in two ways: Firstly by actively interacting with foam positive hydrophobic beer polypeptides. Secondly by reducing the impact of foam negative factors. This latter effect explains the positive role Drifoam plays in protecting beer foam from external contamination, particularly from grease and detergents.

**BENEFITS**
- Enhanced beer foam.
- Increased foam stability.

**FOAMAILD FOAM STABILIZER**
A liquid form of propylene glycol alginate (which is produced by the esterification of alginic acid). It is designed to give a trouble free method of enhancing and protecting beer foam. Many years of development have been undertaken to identify both the ideal blend of seaweed species required to yield alginic acid of the necessary quality, and to optimise the critical esterification stage. Foamaid contains sodium metabisulphite (E223).

**BENEFITS**
- Enhanced beer foam.
- Increased foam stability.

**FOAMSOL SILICONE ANTIFOAMING AGENT**
A water based emulsion of dimethylpolysiloxane designed to control foams produced in kettle and fermenter. Dimethylpolysiloxane is an inert polymer which is highly effective in foam suppression. Bubble collapse occurs as a result of reduction of surface tension in the liquid film.

**BENEFITS**
- Increased kettle, fermenter, and alpha-acid utilization.
- Preservation of foam-positive proteins.
- Elimination of over-foaming problems.
- Optimised CO2 recovery.
- Enhanced vessel cleaning.
BREAKBRIGHT WORT CLARIFICATION
The semi-refined form of the seaweed species Euchema cottonii, used for wort clarification and available in powdered or tablet form. It contains a dispersive aid, which allows effective action when added to the whirlpool as well as wort copper. The species Euchema cottonii is rich in the kappa isomer of carrageenan. When added to boiling wort, kappa carrageenan reacts strongly with soluble proteins, notably the proline rich haze precursor fraction. When the wort is cooled the carrageenan protein complex becomes unstable and precipitates out of solution. The clear wort that results produces a beer with enhanced processing characteristics.

BENEFITS
- Improved hot break compaction in whirlpool, improved filtration.
- Longer filter runs.
- Improved beer haze and colloidal stability.

COMPAC CG WORT CLARIFICATION
The semi-refined form of the seaweed species Euchema cottonii, used for wort clarification and available in granular or tablet form. The species Euchema cottonii is rich in the kappa isomer of carrageenan. When added to boiling wort, kappa carrageenan reacts strongly with soluble proteins, notably the proline rich haze precursor fraction. When the wort is cooled the carrageenan protein complex becomes unstable and precipitates out of solution. The clear wort that results produces a beer with enhanced processing characteristics.

BENEFITS
- Improved hot break compaction in whirlpool, improved filtration.
- Longer filter runs.
- Improved beer haze and colloidal stability.

LIQUID ISINGLASS BEER CLARIFICATION
Added to beer post fermentation to clarify it by removing yeast and protein particles. Ready for use (RFU) and concentrated products are available. Isinglass is essential for cask beer production in that it quickly yields bright beer with a tight, stable sediment.

BENEFITS
- Reduced cold storage time.
- Fewer vessels, lower energy use.
- Reduced beer loss and power use.
- Improved filtration, beer haze and stability.
- Faster throughput.
- Less re-work.

ALPHAFLOC PASTE BEER CLARIFICATION
Alphafloc paste is a highly concentrated, stabilized isinglass finings product offering the benefits of low shipping cost and ease of use. A simple mixing process is all that is required to produce a ready-to-use liquid finings within minutes. The ready-to-use product is added to beer at the end of fermentation to rapidly sediment the yeast and proteins that would otherwise result in reduced filtration efficiency and increased beer losses.

BENEFITS
- Requires shorter cold storage time and has improved filterability.
- Less beer is lost during sediment removal.
- Other benefits include reduced cold storage time, fewer vessels, lower energy use, reduced beer loss, improved filtration, faster throughput, reduced powder use, improved beer haze and stability, less re-work.
AB Vickers offers a few types of Auxiliary Finings which can be chosen to suit specific needs. Auxiliary finings are added to cask beer at the end of fermentation, prior to isinglass addition to enhance the clarification of isinglass. Auxiliary finings contain protein – reactive materials such as silicic acid and/or polysaccharide. These associate with haze forming beer proteins and in turn complex with Isinglass as well as other proteins and yeast to enhance sedimentation and clarification.

Vicfine is purified isinglass in convenient powder form. It is added to beer at the end of fermentation to speed maturation and improve filtration by removing yeasts and protein particles. For ease of use Vicfine in its standard form includes the necessary acid and preservative already blended. Beer treated with Vicfine requires shorter cold storage time, and has improved filterability. The sediments produced by Vicfine in the cold storage vessel are more compact, so less beer is lost during their removal.

Protofine is a natural, plant-derived formulation designed to promote the flocculation and precipitation of yeast and various protein complexes during cold storage of beer. The active components of Protofine have been widely used throughout the food industry for many decades and have been developed specifically for use in beer.

Cryofine is purified isinglass in an easy to dissolve, convenient powder form. It is added to beer at the end of fermentation to speed maturation and improve filtration by removing yeasts and protein particles. For ease of use Cryofine in its standard form includes the necessary food grade acid, dispersal agent and preservative already blended. Processing into finished form involves a regime of rigorous washing and sterilization, followed by drying and milling. The sediments produced by Cryofine in the cold storage vessel are more compact, so less beer is lost during their removal.

Vicfine BEER CLARIFICATION

- Reduced cold storage time.
- Improved filtration.
- Improved beer haze and stability.

Protofine BEER CLARIFICATION

- Plant derived and natural.
- Reduced cold storage time.
- Improves beer haze and stability.
- Improves filtration performance.
**ALPHA CLAR S** BEER STABILIZER

Even after filtration, beer contains proteins which originate from the raw ingredients. These proteins will react with polyphenols, also present in the beer, to form unacceptable haze. Alphaclar S is a single-use cross-linked polyvinylpyrrolidone (PVPP). It is a colloidal haze stabiliser which increases the shelf-life of beer. Alphaclar S absorbs the haze-active polyphenols which would otherwise react with haze-active proteins in filtered beer to form colloidal haze during storage.

**BENEFITS**

- Increases beer shelf-life due to preventing colloidal haze formation.
- Only the specific haze-active polyphenols are removed.
- PVPP is insoluble so it is removed by filtration and therefore is a processing aid so is not required to be listed on labels.

**BRITESORB** BEER STABILIZER

Britesorb silica gels offer a comprehensive range of stabilisation products to suit all your beer stabilisation needs. Britesorb silica gels are permitted for use under the German Beer purity laws. Beer naturally contains protein and polyphenol material which over time will cause chill haze and eventually lead to a permanent haze. Britesorb’s range of silica gels selectively adsorb the haze forming proteins in beer, but do not remove the head positive proteins therefore promoting a stable and attractive head of foam. Britesorb’s range of silica gels has a very short reaction time and can be used for both in line dosing or tank stabilisation, allowing you greater process flexibility. Britesorb silica gels are removed completely by filtration and can even improve your filtration efficiency.

**BENEFITS**

- Improved filtration.
- Improved beer haze and stability.
MICROBIOLOGY MEDIA

HLP MEDIUM (HSU’S LACTOBACILLUS/ PEDIOCOCCUS MEDIUM)
BACTERIAL DETECTION MEDIA
Enables selective counting of lactic acid bacteria. Many lactic acid bacteria can be detected in as little as 48 hours. Differentiation of *Lactobacillus* and *Pediococcus* can be made after 5 days of incubation. HLP is a simple test for the most common beer spoiling bacteria, requiring minimal lab equipment. Anaerobic incubation equipment and an autoclave are not required.

LWYM (LIN’S WILD YEAST MEDIUM)
WILD YEAST DETECTION MEDIA
For detection and quantitative determination of wild yeast populations in brewing culture yeast. Approximately 1 million culture yeast is plated on LWYM. The growth of culture yeast is suppressed. Wild yeast grow as larger distinct colonies. This medium is designed to encourage the growth of *Saccharomyces* wild yeast. A number of non-*Saccharomyces* yeast will also grow on this medium.

LMDA (LEE’S MULTI DIFFERENTIAL AGAR)
BACTERIAL DETECTION MEDIA
A nutrient medium that will detect most organisms commonly encountered in a brewery. Acid producing bacteria are identified by the development of a clear zone around the colonies. Further identification is facilitated by the characteristic color reactions. Actidione may be added to the medium to suppress growth of culture yeast.

LCSM (LIN’S CUPRIC SULFATE MEDIUM)
WILD YEAST DETECTION MEDIA
For detection and quantitative determination of wild yeast populations in brewing culture yeast. Approximately 1 million culture yeast is plated on LCSM. This medium is designed to encourage the growth of non-*Saccharomyces* yeast. A few *Saccharomyces* yeast may show some growth on this medium.
SENSORY KITS

THE SIEBEL INSTITUTE SENSORY TRAINING KITS ARE SHIPPED IN READY-TO-USE LIQUID FORM, MAKING THEM AS EASY TO USE AS POSSIBLE.

Each kit is designed to help tasters build their skills towards understanding beer flavor at a truly professional level. While breweries with established tasting panel structures will find this kit valuable, it can also be used for “taster calibration” by others with an interest in beer including:

- Breweries training new and existing staff to spot beer defects more effectively.
- Brewers guilds looking to add value to their regularly-scheduled meetings.
- Homebrew groups and beer judges looking to sharpen judging and flavor recognition skills.
- Distributors, wholesalers and agents who need to be able to “talk the talk” about beer attributes with beer specialty retailers.
SENSORY FLAVOR DESCRIPTIONS

**ACETALDEHYDE**
Green apple, cut grass

COMMON SOURCES
Fermentation product, staling or contamination

**ACETIC ACID**
Vinegar-like

COMMON SOURCES
Contamination (mash, bacteria or wild yeast)

**ALMOND (BENZALDEHYDE)**
Marzipan, Almonds

COMMON SOURCES
Specific styles (including Barrel Aging) yeast growth or raw materials

**ANISE (ANETHOLE)**
Cardboard, oxidized

COMMON SOURCES
General hop addition and higher concentrations in specific hop varieties

**APRICOT (ISOAMYL ISOBYTURATE) THiol**
Apricot, Fruity, Pineapple, Banana, Sweet, Honey

COMMON SOURCES
General hop addition and higher concentrations in specific hop varieties

**BARNYARD (4-ETHYLPHENOL)**
Barnyard, Horsey, Brett-related flavors, Wine-like, Alcohol

COMMON SOURCES
Common Flavor Component in Many Beers Innoculated with Brettanomyces. Also Present in some barrel aged beers

**BERRY (β-IIONONE)**
Raspberry, Berry, Citrus, Woodlands, Floral, Violet

COMMON SOURCES
General hop addition and higher concentrations in specific hop varieties

**BITTER (ISOLONE)**
Hoppy, bitter

COMMON SOURCES
Hopping, hop addition

**CAPRYLIC ACID**
Soapy, fatty, candle wax

COMMON SOURCES
Microbial contamination or yeast breakdown at maturation

**CARIAMEL (5-METHYLFURFURAL)**
Caramel, Spicy, Sweet, Almond

COMMON SOURCES
Present in Specific Styles and a Common Flavor Component in Barrel Aged Beers

**CATTY (P-MENTHA-8-THIOL -3-ONE)**
Black Currant, Catty, Cassis, Astringent, Tart/Fruity, Herbal

COMMON SOURCES
A flavor characteristic found at higher and identifiable levels in specific hop varieties

**CINNAMON (TRANS-CINNAMALDEHYDE)**
Cinnamon, Pungent, Spicy, Clove, Vanilla

COMMON SOURCES
General hop addition and higher concentrations in specific hop varieties

**CITRUS (ETHYL ISOBYTURATE)**
Citrus, Apple, Sweet, Fruity, Pineapple

COMMON SOURCES
General hop addition and higher concentrations in specific hop varieties

**COCONUT (2-HEPTANOL)**
Dill, Earthy, Coconut

COMMON SOURCES
Present in some barrel aged beers

**CONTAMINATION**
Sour, buttery

COMMON SOURCES
Contamination (Lactobacillus)

**D.M.S. (DIMETHYL SULFIDE)**
Cooked corn, cooked vegetables

COMMON SOURCES
Wort boil, wort cooling or contamination

**DIACETYL (2,3-BUTANEDIONE)**
Butter, butterscotch

COMMON SOURCES
Microbial contamination or improper maturation

**EARTHY (2-ETHYL FENCHOL)**
Geosmin, soil-like

COMMON SOURCES
Packaging or water-derived contamination
SENSORY FLAVOR DESCRIPTIONS CONTINUED

**ETHYL ACETATE**
Solvent-like, nail polish remover
**COMMON SOURCES**
Wort composition and yeast growth

**ETHYL HEXANOATE**
Aniseed, apple or licorice
**COMMON SOURCES**
Fermentation product, wort composition or yeast growth

**EXOTIC (G-NONALACTONE)**
Coconut, Vanilla, Fruity, Glue-like
**COMMON SOURCES**
Higher Concentrations in Aged Beers (Including Barrel Aged), Thermal Load Indicator of Brewing Process

**FLORAL (GERANYL ACETATE)**
Floral, Rosy, Waxy/Soapy
**COMMON SOURCES**
A characteristic constituent/building block for a number of hop derived flavors

**FURANEOL**
Cotton Candy, Strawberry, Sweet, Caramel
**COMMON SOURCES**
General hop addition and higher concentrations in specific hop varieties

**GERANIOL**
Floral, geranium flowers
**COMMON SOURCES**
Hop addition and variety

**GRAINY (ISOBUTYRALDEHYDE)**
Husk-like, nut-like
**COMMON SOURCES**
Excessive run-off or insufficient wort boil

**GRAPEFRUIT (GRAPEFRUIT MERCAPTAN)**
Fruity, Grapefruit, Citrus (Green Notes)
**COMMON SOURCES**
Associated in higher concentrations in specific varieties of American hops

**HERALD (MYRCENE)**
Herbaceous, Resinous, Green, Balsamic, Piney, Light Terpene/Hydrocarbon Character
**COMMON SOURCES**
Higher concentrations in specific hop varieties

**HEFEWEIZEN**
Spicy, banana
**COMMON SOURCES**
Specific beer styles

**INDOLE**
Farm, barnyard
**COMMON SOURCES**
Bacterial infection during fermentation

**ISOAMYL ACETATE**
Banana, peardrop
**COMMON SOURCES**
Fermentation product, wort composition or yeast health

**ISOVALERIC ACID**
Cheesy, old hops, sweaty socks
**COMMON SOURCES**
Use of old, degraded hops

**LACTIC ACID**
Sour, sour milk
**COMMON SOURCES**
Beer spoilage bacteria

**LIGHT-STRUCK (3-METHYL-2-BUTENE-1-SHOL)**
Skunky, toffee or coffee like
**COMMON SOURCES**
Clear or green bottles
SENSORY FLAVOR DESCRIPTIONS CONTINUED

**LINALOOL**
Fruity, Floral, Blueberry, Lavender, Rose-wood

**COMMON SOURCES**
Associated with time of addition and length of boil; higher concentrations in specific hop varieties; Geraniol decomposition

**MERCAPTAN (ETHANETHIOL)**
Sewer-like, drains

**COMMON SOURCES**
Poor yeast health, autolysis

**METALLIC (FERROUS SULFATE)**
Metal, tin-like, blood

**COMMON SOURCES**
Water sources, non-passivated vessels

**MUSTY (TRANS-4,5-EPOXY-(E)-2-DECENAL)**
Metallic, Pungent, Musty, Green

**COMMON SOURCES**
General hop addition and higher concentrations in specific hop varieties

**NONANAL**
Citrus-like, Lime, Fatty, Soapy, Waxy, Grapefruit, Grape, Fruity

**COMMON SOURCES**
General hop addition and higher concentrations in specific hop varieties

**PAPERY (TRANS-2-NONENAL)**
Cardboard, oxidized

**COMMON SOURCES**
Product of oxidation, staling

**PEAT-LIKE (GUIAICOL)**
Peat-like, Smoky, Woody, Medicinal

**COMMON SOURCES**
Present in some barrel aged beers

**PERFUME (CITRONELLOL)**
Perfume-like, Floral, Rose-like, Waxy

**COMMON SOURCES**
General hop addition and higher concentrations in specific hop varieties

**PINEAPPLE (ETHYL BUTYRATE)**
Pineapple-like, Brett-related flavors, Rum-like, Tropical Fruit

**COMMON SOURCES**
Common Flavor Component in Many Beers Innoculated with Brettanomyces. Also Present in some barrel aged beers

**PINEY (α-TERPINEOL)**
Piney, Lilac, Conifer-like, Resinous, Woody, Lime

**COMMON SOURCES**
Green hop character; Higher concentrations in dry hopped beers; Higher concentrations in specific hop varieties

**POTATO SKINS (2-ISOPROPYL-3-METHOXYPYRAZINE)**
Potato Skins, Bell Pepper, Earthy, Musty (wine-like)

**COMMON SOURCES**
General hop addition and higher concentrations in specific hop varieties

**SMOKY**
(SYRINGOL)
Smoky (smoked wood/smoked fish), Phenolic

**COMMON SOURCES**
Present in Specific Styles and a Common Flavor Component in Barrel Aged Beers

**TOBACCO (β-DAMASCENONE)**
Natural, Woody, Sweet, Fruity, Plum, Spicy Tobacco Nuances, Menthol-like

**COMMON SOURCES**
A Specific Note Found in Higher Concentrations in Certain Hop Varieties and Present in some barrel aged beers

**VANILLA (VANILLIN)**
Custard powder, vanilla essence

**COMMON SOURCES**
Specific Styles (Barrel Aged, Common Wood Flavor)

**WHISKEY (LACTONE)**
Woody, Oaky, Coconut, Rum-like, Green

**COMMON SOURCES**
Common Flavor Component in Barrel Aged Beers

**WOODY (CARYOPHYLLENE AND HUMULENE FRACTION)**
Woody, Resinous

**COMMON SOURCES**
Characteristic of the Hop Heavier Volatiles and Present in some barrel aged beers

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**WHAT WE OFFER**

**OUR PRODUCTS**

**Sensory kits**

**BREWING YEASTS**

**BACTERIA FOR BREWING**

**ENZYMES**

**YEAST NUTRIENTS**

**PROCESS AIDS**

**MICROBIOLOGY MEDIA**

**LALLEMAND BREWING**
The Regular Sensory Training Kit contains 12 of the most common flavors found in beer. This kit is suitable for intermediate training of groups of 3 people (12 oz.) or 10 people (1L).

The Craft Sensory Kit contains 12 flavor compounds that may be found in many unique styles of craft beer.

This kit contains the following flavors:

**REGULAR SENSORY KIT (AVAILABLE IN 12 OZ. OR 1L)**

12X1 SELECTED FLAVORS TO SPIKE 12 OZ. (355ML) OR 1L

- 1x ACETALDEHYDE
- 1x BITTER
- 1x CONTAMINATION
- 1x D.M.S.
- 1x DIACETYL
- 1x ISOAMYL ACETATE
- 1x ISOVALERIC ACID
- 1x LIGHT-STRUCK
- 1x METALLIC
- 1x PAPERY
- 1x SPICY

**CRAFT SENSORY KIT**

12X1 SELECTED FLAVORS TO SPIKE 1L

- 1x ALMOND
- 1x D.M.S.
- 1x DIACETYL
- 1x ETHYL HEXANOATE
- 1x GERANIOL
- 1x GRAINY
- 1x HFEWEIZEN
- 1x ISOAMYL ACETATE
- 1x ISOVALERIC ACID
- 1x PAPERY
- 1x SPICY
- 1x VANILLA

**BARREL AGED SENSORY KIT**

12X1 SELECTED FLAVORS TO SPIKE 1L

- 1x ALMOND
- 1x VANILLA
- 1x EXOTIC
- 1x WOODY
- 1x TOBACCO
- 1x SMOKY
- 1x PEAT-LIKE
- 1x BARNYARD
- 1x COCONUT
- 1x CARAMEL
- 1x WHISKEY
- 1x PINEAPPLE
AVAILABLE SENSORY KITS

SPECIALTY SENSORY KIT
24X1 INDIVIDUAL FLAVORS TO SPIKE 1L
Our Specialty Sensory Training Kit is ideal for companies conducting sensory training on a frequent or large-scale basis.

12 MIX&MATCH SENSORY KIT
12X1 INDIVIDUAL FLAVORS TO SPIKE 1L
The 12 Mix&Match Sensory Kit can be custom designed. You may choose any 12 flavor compounds that suit your individual needs.

5 MIX&MATCH SENSORY KIT
5X1 INDIVIDUAL FLAVORS TO SPIKE 1L
The 5 Mix&Match Sensory Kit can be custom designed. You may choose any 5 flavor compounds that suit your individual needs.
ESSENTIAL OFF-FLAVOR KIT
6X1 SELECTED FLAVORS TO SPIKE 1L
The Essential Off-Flavor Kit contains 6 of the most frequently encountered off-flavors common to beers of all styles.

INTERMEDIATE OFF-FLAVOR KIT
12X1 SELECTED FLAVORS TO SPIKE 1L
The Intermediate Off-Flavor Kit offers a total of 12 compounds that cover a variety of spoilage-related flavors as well as artifacts from other sources.

ADVANCED OFF-FLAVOR KIT
18X1 SELECTED FLAVORS TO SPIKE 1L
The Advanced Off-Flavor Kit offers 18 different compounds that cover the full spectrum of off-flavors that are critical for beer tasters to know towards accurately evaluating beer.
AVAILABLE SENSORY KITS CONTINUED

COMPREHENSIVE SENSORY KIT
25X1 SELECTED FLAVORS TO SPIKE 1L

The Comprehensive Sensory Training Kit offers 25 vials representing a large variety of the most important flavors and aromatics found in beer. While breweries with established tasting panel structures will find this kit valuable, it can also be used for “taster calibration” by brewers guilds, homebrew groups and beer judges.

BASIC SENSORY KIT
6X4 SELECTED FLAVORS TO SPIKE 1L

The Basic Sensory Training Kit offers 4 pre-measured vials of six of the most common and important beer-related flavor compounds. This kit is perfect for companies that do frequent sensory training panels using these core standards. It is also suitable for those looking for basic sensory training.
OUR SERVICES

What We offer

Our Services

Yeast maintenance
Yeast Genetics
Pilot Brewing
Analytics Consulting
OUR SERVICES

Lallemand Brewing offers a large range of services to help your brewery achieve its growth and quality goals.

YEAST MAINTENANCE
YEAST GENETICS
ANALYTICAL SERVICES
CONSULTING SERVICES
PILOT BREWING

SERVICE NOTES
YEAST MAINTENANCE AND EVALUATION SERVICES

Through the Siebel Institute of Technology, Lallemand Brewing provides a full range of yeast banking and maintenance services to some of the greatest names in North American brewing. Now, with our expanded Microbiological Services division in Montreal (Canada), we are pleased to offer the industry’s most advanced yeast management and evaluation services.

Our services adhere to the strictest scientific standards, assuring the purity and performance of every culture under our care. We offer the most advanced range of testing available in the brewing industry, with yeast banking and maintenance packages that meet the needs of breweries of every size. Breweries can choose from one of our pre-packaged programs, or we can work with your company to build effective and affordable tailored programs.

To contact our Yeast Maintenance and Evaluation Services team directly, please email us at brewing.yeastgenetics@lallemand.com

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YEAST BANKING PACKAGES

- INITIAL DEPOSIT (YEAR ONE)
  - **BRONZE (YCBM)**
  - **SILVER (YCMS)**
  - **GOLD (YCMG)**

- ANNUAL YEAST STORAGE PACKAGES
  - **PHENOLIC OFF FLAVORS (POF TEST)**
  - **PURITY CHECK / DETECTION OF CONTAMINANTS**
  - **ALE AND LAGER DIFFERENTIATION**
  - **GENUS AND SPECIES IDENTIFICATION**
  - **KILLER PROFILE**
  - **DNA PROFILING BY DELTA-PCR ON MIXT CULTURE + 2 COLONIES**
  - **GENETIC STABILITY EVALUATION BY PFGE ON 5 COLONIES**

- Storage is included for Year One

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ANNUAL YEAST STORAGE PACKAGES

- Yeast storage using the different methods mentioned above and sub culturing if necessary
- Annual verification of your culture yeast strain against its BRY reference by delta-PCR
- Annual verification of your culture yeast strain against its BRY reference by PFGE
YEAST GENETIC SERVICES

While many of our advanced Microbiological Services use cutting-edge analytical technologies employed by some of the world’s largest breweries, their applications can be utilized by breweries and brewing-related companies of every size.

Our DNA fingerprinting and rapid analysis services can give you critical information about your yeast, improving your understanding of its characteristics, performance and purity. Have a look on the following pages for some of the most important applications of our yeast services as well as our range of testing services and their underlying technologies.

To contact our Genetic Services team directly, please email us at brewing.yeastgenetics@lallemand.com
YEAST GENETIC SERVICES

YEAST STRAIN IDENTIFICATION
BY PCR FINGERPRINTING (YCSPCR)
APPLICATIONS
PCR fingerprinting can identify and differentiate production yeast strains. This is a valuable tool for checking yeast slopes, detecting cross contamination, monitoring production yeast cultures and in some instances to detect mutations.

TECHNOLOGY
While differentiation of brewing strains is notoriously difficult to perform using traditional lab techniques, PCR fingerprinting offers a quick and accurate means of differentiating brewing yeast strains based on analysis of multiple regions of the genome. This "ASBC recommended" method utilizes PCR (Polymerase Chain Reaction) technology to amplify inter-delta regions of the genome, which are known to be highly variable in terms of number, distribution and size between strains. Through this process a unique DNA fingerprint can be obtained for each individual yeast strain.

SACCHAROMYCES DIASTATICUS DETECTION
BY PCR (YCSDIA)
APPLICATIONS
This test is used to identify Saccharomyces diastaticus, a wild yeast.

TECHNOLOGY
While varieties of Saccharomyces cerevisiae strains are very difficult to identify by classical methods, the detection of the STA-1 gene by PCR enables the identification of Saccharomyces diastaticus as this gene is coding for a glucoamylase, an enzyme which enables the utilization of dextrins.

IDENTIFICATION OF YEAST SPECIES
BY ITS ANALYSIS (YCSITS)
APPLICATIONS
Yeast species can be identified by analysis of the ITS region within yeast ribosomal DNA. This method, which is cheaper to perform than DNA sequencing (See above), involves PCR amplification of the ITS region of the genome followed by digestion using restriction enzymes. The ITS region of DNA is known to vary in size and composition between yeast species. Consequently, the size and number of the resulting DNA fragments can be compared to a database comprising more than 200 species of yeast, leading to identification.

YEAST STRAIN IDENTIFICATION
BY ANALYSIS OF MTDNA (YCSMITO)
APPLICATIONS
mtDNA analysis is used for the identification and differentiation of production yeast strains, and it can also be used to indicate mitochondrial mutations.

TECHNOLOGY
It has been reported that there are more variable regions in the yeast mitochondrial DNA than in the nuclear DNA. These variations can be exploited to produce a DNA fingerprint which can be used to differentiate strains that are closely related, or to complement analysis of nuclear DNA as described above.

YEAST STRAIN IDENTIFICATION
AND DIFFERENTIATION
BY MICROSATELLITES (YCSMICRO)
APPLICATIONS
This method has the highest level of discrimination power among the methods we currently offer. It can therefore be used for the identification and differentiation of closely related strains of S. cerevisiae and S. pastorianus. It also displays a very high degree of reproducibility allowing us to build a database of controls for future comparisons.

TECHNOLOGY
Microsatellites is a method that targets short and variable tandem repeat (VNTR) in organisms. Due to their high degree of variability, these regions are considered as a good tool to analyze genetic diversity among strains.

WHAT WE OFFER

OUR SERVICES
Yeast maintenance
Yeast Genetics
ANALYTICS
CONSULTING
PILOT BREWING

CONTACT CODE

LALLEMAND BREWING
IDENTIFICATION OF BACTERIA SPECIES
BY DNA SEQUENCING  (YCSSEQB)

**APPLICATIONS**
Identification of isolated bacterial contaminants can give breweries important information about the nature and origins of bacteria found in their yeast and in their products. Traditional methods to identify bacteria can be time consuming and often lack sensitivity, particularly when trying to differentiate closely related species of brewing microbes. DNA sequencing allows the rapid and precise identification of bacteria to the species level, based on differences within ribosomal DNA sequences.

**TECHNOLOGY**
This method involves the amplification of rDNA by PCR followed by sequencing of the resulting rDNA fragment. Identification to the species level is performed by comparison to a Basic Local Alignment Search Tool (BLAST) database comprising > 1 million entries for bacteria.

IDENTIFICATION OF WILD YEAST SPECIES
BY DNA SEQUENCING  (YCSSEQY)

**APPLICATIONS**
Wild yeast can be difficult to identify as traditional methods for yeast identification are often labor intensive and lack precision. Our DNA sequencing process allows for the accurate identification of isolated yeast contaminants to the species level including an expansive range of wild yeast strains associated with the food and beverage industry.

**TECHNOLOGY**
Sequencing of the D1-D2 domain within yeast ribosomal DNA can be used to rapidly and accurately identify yeast species. This method involves the amplification of rDNA by PCR followed by sequencing of the resulting fragment. Identification of yeast species is performed by comparison to a Basic Local Alignment Search Tool (BLAST) database of wild yeast strains common in the food and beverage industries.

IDENTIFICATION OF YEAST MUTANTS
BY RFLP ANALYSIS OF TY ELEMENTS  (YCSRFLP)

**APPLICATIONS**
Brewing yeast cultures can change over time due to genetic drift, leading to the accumulation of mutants. These changes typically have a negative influence on fermentation performance and can lead to altered flavor profiles, inappropriate flocculation and fermentation inconsistencies. This service analyses yeast cultures for the presence of mutants. This is an especially important tool for monitoring production yeast cultures for genetic drift, checking yeast samples for the presence of mutants, optimizing serial repitching and associated yeast handling processes. It is also useful for the differentiation of closely related strains.

**TECHNOLOGY**
Mutations can be detected by analyzing cultures using RFLP of yeast transposons (Ty elements). Ty elements are regions of the genome which are known to be highly susceptible to movement and this can indicate more widespread changes throughout the DNA. Here we use a molecular probe to produce a fingerprint of yeast DNA according to the size and location of Ty elements. Fingerprints can be seen to vary compared to the original strain when a mutant yeast is present.

ANALYSIS OF YEAST GENETIC STABILITY
BY KARYOTYPING  (YCSPFGE)

**APPLICATIONS**
Brewing yeast strains are often susceptible to mutation, characterized by changes to the DNA. Karyotyping offers a tool for the analysis of genetic stability in new or current production strains, analysis of large scale mutations, and for strain differentiation.

**TECHNOLOGY**
The in-built capacity of a yeast strain to mutate can be assessed by analysis of chromosomes, since large scale genetic changes are frequently observed in polyploid and allopolyploid yeast. To determine genetic stability, a number of isolated colonies are analyzed using Pulsed Field Gel Electrophoresis (PFGE) to create a chromosomal fingerprint, or karyotype. If variation is seen between the karyotypes of different colonies, the yeast strain can be considered to be genetically unstable.
ANALYTICAL SERVICES

LALLEMAND BREWING’S LABORATORY SERVICES CONSTITUTE ONE OF THE INDUSTRY’S MOST COMPLETE RANGE OF BREWING-RELATED TESTS.

Our tests are conducted using the most stringent standards, employing methods prescribed by groups like the American Society of Brewing Chemists and AOAC INTERNATIONAL. We strive to conduct tests and deliver results as promptly as possible, providing our customers with information that is both timely and accurate.

For a comprehensive list of analytical services please visit siebelinstitute.com/services/analytical-services-catalog/

LALLEMAND BREWING BRINGS ADDITIONAL SERVICES TO THE BREWING INDUSTRY VIA AB VICKERS’ EXTENSIVE LABORATORY AND TECHNICAL CAPABILITIES.

Our technical support staff is composed of qualified brewers with extensive experience and technical knowledge of the entire brewing process.

We work closely with breweries by providing support both on-site and in our laboratories depending on the type of service needed. Some routine services, such as finings optimizations, can be carried out in our laboratories or -if required- at laboratories on the brewery site. Our labs allow for more complex tests, including analysis of compounds such as polyphenols and sensitive proteins in beer stability studies or assessments of enzyme addition rates and customized enzyme blend performance under defined brewhouse or raw material conditions. This service allows breweries to accurately tailor product and dose rates around their particular recipes to produce beers efficiently and up to a defined quality standard.

To contact our Analytical Services team directly, please email us at brewing.analyticalservices@lallemand.com
CONSULTING SERVICES

BREWERY CONSULTANCY

Our approach to consultancy has evolved to meet the constant evolution of the needs of the brewing industry. Rather than assigning a single consultant to a project, we draw from a worldwide team of experienced professionals with applied knowledge of every critical phase of this industry to create a shared source of knowledge for tackling the project at hand. Our team of consultants blends decades of experience with up-to-the-minute knowledge of emerging trends and technologies, creating one top consultancy teams in the world.

Our methodology for any consulting project follows a systematic approach for efficiently leveraging our worldwide pool of knowledge. In the initial phase of evaluation, you will work with a Siebel Institute Service Analyst to develop a “Needs Assessment Profile”, defining your current operating standards, perceived realities, and desired outcomes. Our analyst then draws from our team of consulting experts, choosing a consultant (or multiple consultants) that best meets the demands of your project. Our consultant(s) will subsequently work with you to thoroughly evaluate your operations and to provide solutions based on the collective experience of our entire consultancy team.

CONSULTING SERVICES PROVIDED INCLUDE, BUT ARE NOT LIMITED TO:

- Planning and start-up
- Equipment acquisition and installation
- Plant design
- Fermentation and QC/QA issues
- Process evaluation
- Staff training
- Brewery management issues

To contact our Consulting Services team directly, please email us at brewing.consultingservices@lallemand.com

contactconsultingservices@lallemand.com
PILOT BREWING SERVICES

THROUGH THE SIEBEL INSTITUTE OF TECHNOLOGY, LALLEMAND BREWING OFFERS A PILOT BREWING SERVICE THAT ALLOWS EXECUTING A COMPLETE RANGE OF RESEARCH AND TESTS FOR BREWING OPERATIONS. THIS SERVICE CAN DELIVER VALUE FOR ALL BREWERIES, REGARDLESS OF SIZE.

Specifically designed to emulate the physical dynamics of a wide range of commercial brewing systems, our pilot plant enables us to design and test new recipes and to evaluate changes in a customer’s existing recipes.

Along with recipe development or enhancement, our pilot brewery facility allows for conducting research on a wide variety of brewing-related variables, including:

- Filtration products
- Effect of raw ingredient variations
- Enzyme and additive effects on recipes
- Packaging material quality, including PET bottle evaluation
- Processing aids (at all points of the process)

Our advanced pilot brewery facility is operated by senior Siebel Institute of Technology researchers. From the time you give us your requirements to the day the final report is delivered, your project will be completed with the speed, accuracy and value that the Siebel Institute of Technology has built its reputation on for over 140 years.

To contact our Pilot Brewing Services team directly, please email us at brewing.pilotbrewing@lallemand.com
EDUCATION

WHAT WE OFFER

GENERAL BREWING TECHNOLOGY
BREWING QUALITY
BUSINESS AND MANAGEMENT
DISTILLING AND DRAUGHT
SENSORY AND BEER STYLES
Since 1872, the Siebel Institute has attracted an extensive global following. Our alumni span more than 60 countries and are found in almost every major brewery.
Our classes include a mix of participants from breweries of all sizes who hail from locations from all over the world. This broad base of participants enhances the learning experience of each student by exposing them to differences in culture, equipment, methods and beer styles. In our formal lectures and demonstrations we focus their attention on one common theme: beer. Students may come to the Institute with the biases of their own particular brewing environment, but they all leave in the simple and honest camaraderie of being a brewer. We have a saying here at the Institute, “Not only do we teach our students, but we also help them to teach each other.”

The institute continues to focus on one basic theme as was published by Dr. J. E. Siebel in a Western Brewer ad from 1893. He stated, “The object of the institute is to promote the progress of the industries based on fermentation, which is done by instruction, investigation, analysis and otherwise.”

The World Brewing Academy (WBA) was established in 2001 as an alliance between Doemens Academy (Munich, Germany) and Siebel Institute of Technology (Chicago, U.S.A.) in order to provide students with a truly international education in brewing technology. The programs offered by the WBA give students the unique opportunity to experience different brewing cultures on two continents.

Siebel Institute of Technology is approved by the Division of Private Business and Vocational Schools of the Illinois Board of Higher Education. For further information please visit the official IBHE website at ibhe.org.

Discover the many educational offerings of Lallemand Brewing on the following pages.
GENERAL BREWING TECHNOLOGY

WBA EXECUTIVE OVERVIEW OF THE BREWING PROCESS
BASIC LEVEL COURSE - OFFERED ONLINE
OVERVIEW
Brewing industry executives and those considering entering the industry need to know the ins-and-outs of professional brewery operations in order to make effective financial and managerial decisions. The World Brewing Academy (WBA) introduces a way to learn the basics of brewery dynamics without the need to travel. This course allows executives, administrative staff, and brewing-industry decision makers around the globe to participate in professional-level training over the Internet.

WBA CONCISE COURSE IN BREWING TECHNOLOGY
INTERMEDIATE LEVEL COURSE - OFFERED ON BOTH THE CHICAGO CAMPUS OR ONLINE
OVERVIEW
The WBA Concise Course in Brewing Technology will provide students with comprehensive knowledge of the brewing process, the dynamics of brewery operations, and issues affecting the industry. Within the short time span of this course, students will gain a level of industry knowledge that will benefit them in any area of responsibility in the brewery, covering every topic critical to successful brewery operations, no matter of what size.

RAW MATERIALS AND WORT PRODUCTION ADVANCED LEVEL COURSE - OFFERED ON BOTH THE CHICAGO CAMPUS OR ONLINE
OVERVIEW
The Raw Materials and Wort Production module provides advanced-level training in the technology and science of wort creation. Each critical factor in wort production, from malting technology to hop usage to wort boiling and cooling, is explained in detail. Students will also learn the analytical techniques involved in assessment of raw materials and wort towards achieving consistency in wort quality. Students will complete this module with a complete understanding of the effects of products and processes on this critical area of the brewing cycle. This module can be taken as an individual application, or as part of the advanced level programs.

BEER PRODUCTION AND QUALITY CONTROL ADVANCED LEVEL COURSE - OFFERED ON BOTH THE CHICAGO CAMPUS OR ONLINE
OVERVIEW
The Beer Production and Quality Control module offers in-depth instruction in fermentation and maturation, including all aspects of yeast handling and performance. Extensive classroom time is dedicated to the science of fermentation and its role in defining many of the key attributes of finished beer. This course also includes instruction in the process of quality control and assurance, ensuring that students understand the critical role that QA/QC plays in retaining the consistency and longevity of beer and other malt-based fermented products. This module can be taken as an individual application, or as part of the advanced level programs.
PACKAGING AND PROCESS TECHNOLOGY
ADVANCED LEVEL COURSE - OFFERED ON BOTH THE CHICAGO CAMPUS OR ONLINE

OVERVIEW
Our Packaging and Process Technology module deals with processing and packaging of finished beer, as well as important engineering and “physical properties” issues. The packaging module segments include the most recent developments in alternative materials (such as plastic bottles) and super-high-speed bottling systems. Engineering and process instruction includes topics such as properties of metals and other construction materials, fluid and pump dynamics, and other areas critical to improving brewery performance. This module can be taken as an individual application, or as part of the advanced level programs.

APPLIED BREWING TECHNIQUES
ADVANCED LEVEL COURSE - OFFERED ON CAMPUS AT DOEMENS ACADEMY IN MUNICH

OVERVIEW
The Applied Brewing Techniques module allows students to experience hands-on commercial brewing techniques in the facilities of Doemens Academy in Munich. Doemens Academy offers one of the most advanced practical training facilities in brewing education, with fully-equipped brewing, fermentation, filtration and packaging environments, as well as a range of specialized labs.

In this information-packed module, students will perform practical operations in each major area involved in beer production, packaging, and lab analysis. Students will also be trained in a full range brewing techniques during the practical brewing segments of the module, giving them a truly international perspective of beer production while under the supervision of one of the best instructional teams in the brewing industry. This module is a part of the International Diploma in Brewing Technology and Master Brewer programs.

BUSINESS OF BREWING AND TECHNICAL CASE STUDIES
ADVANCED LEVEL COURSE - OFFERED ON THE CHICAGO CAMPUS

OVERVIEW
The primary purpose of this module is to expose students to the challenges of running breweries from a standpoint of sound business operations.

Business of Brewing utilizes a format that places groups of students in a simulated “beer market” towards establishing and operating virtual brewing companies. Students will learn the importance of planning and budgeting, and learn the importance of anticipating competitive, regulatory and supply challenges, and their impact on the planning and budgeting processes as well as the overall health of the brewery.

Technical Case Studies is designed to emulate the dynamic found in commercial breweries. Students are broken into groups and assigned case studies based on actual situations from operating breweries. As part of our advanced offerings, the Technical Case Studies module is meant for those with substantial understanding of commercial brewing technology.

This module can be taken as an individual application, or as part of the International Diploma in Brewing Technology or Master Brewer programs.
EUROPEAN BREWERY STUDY TOUR
ADVANCED LEVEL COURSE - OFFERED ON CAMPUS AT DOEMENS ACADEMY IN MUNICH

OVERVIEW
The Study Tour is designed to build a thorough understanding of how brewing science and technology is applied in real-world commercial brewing situations. Over the span of the course, students will travel throughout Europe to get behind-the-scenes tours of breweries, equipment manufacturers, and product suppliers that have been selected by the World Brewing Academy as leaders in their area of brewing. English-language instructional sessions will be conducted throughout this program by our World Brewing Academy instructors and by representatives of the companies being visited. While fast-paced, the tour allows students time to absorb the beauty of Europe while learning from each company visited on the tour. This module can be taken as an individual application, or as part of the International Diploma in Brewing Technology or Master Brewer programs.

ADVANCED APPLIED BREWING TECHNIQUES
ADVANCED LEVEL COURSE - OFFERED ON CAMPUS AT DOEMENS ACADEMY IN MUNICH

OVERVIEW
The Advanced Applied Brewing Techniques module is designed to give students advanced-level practical skills in every key area of commercial brewing operations. Designed and instructed by the faculty of Doemens Academy and Siebel Institute, this course takes students through hands-on activities in the production and lab facilities of Doemens Academy in Munich. Students produce batches of beer and shepherd them through the entire brewing process while conducting numerous tests to assure the quality and consistency of their beers, all while under the watchful supervision of Doemens instructional team. This module will give students the practical skills they need to work effectively in breweries of practically any size or configuration, and it will provide complete understanding of the activities involved in each department of the typical commercial brewery. This module cannot be taken as an individual application without first completing successfully all previous modules, and is a part of the Master Brewer program.

WBA ADVANCED BREWING THEORY PROGRAM
ADVANCED LEVEL CERTIFICATE PROGRAM - OFFERED ON THE CHICAGO CAMPUS OR ONLINE

OVERVIEW
The Advanced Brewing Theory program (ABT) gives students a complete understanding of the technical issues in professional brewing, whether craft or industrial. With content designed around the syllabus of the Institute of Brewing and Distilling (IBD), UK, our program materials address critical topics in brewing technology, giving students the knowledge they need to improve their products, processes and profits.

WBA INTERNATIONAL DIPLOMA IN BREWING TECHNOLOGY PROGRAM
ADVANCED LEVEL CERTIFICATE PROGRAM OFFERED AS A DUAL CAMPUS PROGRAM: CHICAGO AND MUNICH

OVERVIEW
 Conducted at our campuses in Chicago and Munich, the twin-campus International Diploma in Brewing Technology program will prepare graduates to advance their careers through practical application of brewing. This program is comprised of 6 modules, with each module specializing in a particular area of brewing technology. The content will address issues in brewing from an international perspective, providing a depth of experience that is unavailable through any other institution.
GENERAL BREWING TECHNOLOGY CONTINUED

WBA MASTER BREWER PROGRAM
ADVANCED LEVEL CERTIFICATE PROGRAM
OFFERED AS A DUAL CAMPUS PROGRAM: CHICAGO AND MUNICH

OVERVIEW
The twin-campus Master Brewer program will prepare graduates to advance their careers through practical application of brewing. Advanced theory and an extensive advanced practical applications module will provide graduates with the knowledge and experience to obtain a head brewer position. This program is comprised of segments, divided into 7-modules offered at Siebel Institute in Chicago and Doemens Academy in Munich, with each module specializing in a particular area of brewing technology. The content will address issues in brewing from an international perspective, providing students with education and experience that is not offered elsewhere.
BREWING QUALITY CONTROL

ESSENTIAL QUALITY CONTROL
ENTRY LEVEL COURSE - OFFERED IN SAN DIEGO

OVERVIEW
The Essential Quality Control course provides the basic fundamental knowledge necessary to achieve the highest levels of consistency and quality. In line with any successful quality program, this course includes: implementing comprehensive sensory evaluation, using high quality basic instrumentation, and following proper and accepted methods. The instructors will focus on yeast management, basic microbiological and chemical testing, as well as the assessment of primary tastes and the origin of some off-flavors compounds. Lectures are supported with intensive hands-on learning dealing with the basic procedures used to evaluate the most critical phase of production. The practical lab methods and techniques used in this course are the standard in the brewing industry, having been created and tested by the internationally recognized Association of Brewing Chemists (ASBC) and the European Brewing Congress (EBC).

BREWING MICROBIOLOGY
INTERMEDIATE LEVEL COURSE - OFFERED ON MONTREAL CAMPUS

OVERVIEW
The Siebel Institute Brewing Microbiology course is designed to provide the theoretical knowledge and practical skills required to implement an effective microbiological quality control/quality assurance program. The course will acquaint the student with the appropriate methods for biological and sanitary control within the brewery, and will promote an understanding of the essential modern-day tools for effective microbiological evaluation of process and product. A detailed study of the microorganisms that are likely to occur during the various stages of the brewing process will be conducted. The laboratory exercises provide opportunities to acquire skills in microbiology and microscopy. Practical work will reinforce the techniques required to isolate and identify microorganisms as well as demonstrate some of the latest developments in brewing microbiology.
START YOUR OWN BREWERY
ENTRY LEVEL COURSE - OFFERED ON THE CHICAGO CAMPUS

OVERVIEW
Designing, building and operating a successful brewery requires a mix of business and brewing knowledge. The Start Your Own Brewery course covers the brewpub and microbrewery design and startup issues that you need to know to get your business rolling. The Start Your Own Brewery course presents issues that every prospective brewery owner should know to help plan and build a successful business from the ground up while avoiding common pitfalls and mistakes that can compromise the efficiency and profitability of the brewery.
CRAFT DISTILLING OPERATIONS AND TECHNOLOGY
INTERMEDIATE LEVEL COURSE - OFFERED ON THE CHICAGO CAMPUS

OVERVIEW

The Craft Distilling Operations and Technology course is designed to give students the critical information they need to create distilled spirits in a small-scale distillation environment.

Students will learn the theory behind working successfully in small distillery operations as well as related management and logistical issues. With content created with participation by the Ethanol Technology Institute and presented by some of the leading international experts in distilling, this course will give you the training you need to operate your distillery efficiently, safely, and profitably. During the course, students will learn production techniques involved in distillation from grain, fruit and other products from start to finish. Sensory analysis is presented towards building an understanding of the positive and negative flavor attributes commonly associated with the production process, and visits to area distilleries give students a view of the basic operations of a small distillery.

DRAUGHT (DRAFT)

DRAUGHT EXECUTIVE
ENTRY LEVEL COURSE - OFFERED ON BOTH THE DENVER AND MILWAUKEE CAMPUS

OVERVIEW

The Draught Executive course has been created to train busy salespeople, distributors and agents in the bedrock principles of draught service. The course was designed and is instructed by Martin Schuster, who has provided training and consulting services to some of the world’s largest and most successful breweries. The educational content of this course is designed to give students the maximum understanding of draught technology in the shortest time possible. Through a mix of classroom presentations and hands-on demonstrations, the content will thoroughly address every critical issue in draught technology.

DRAUGHT MASTER
INTERMEDIATE LEVEL COURSE - OFFERED ON BOTH THE DENVER AND MILWAUKEE CAMPUS

OVERVIEW

Siebel Institute of Technology offers the most comprehensive draught training in the industry. This innovative course allows students to choose the level of training that meets their skill level, their budget and their goals. Courses offer a mix of technical theory and hands-on activities presented in facilities dedicated specifically to draught training, with industry-leading content and instruction throughout the class. For those looking for training that will take them from little-to-no knowledge of draught to complete understanding of the technology, the Draught Master course will build your knowledge through extensive and in-depth content.
SENSEY AND BEER STYLES

MASTER OF BEER STYLES AND EVALUATION
ENTRY LEVEL COURSE - OFFERED ON THE CHICAGO CAMPUS

OVERVIEW
Master of Beer Styles and Evaluation course is designed to give professional brewers the skills they need to formulate, brew, and evaluate gold medal beer recipes. The “Master of Beer Styles and Evaluation” is composed of two Siebel Institute courses: Sensory Analysis for Flavor Production and Control and Master of Beer Styles.

MASTER OF BEER STYLES
ENTRY LEVEL COURSE - OFFERED ON THE CHICAGO CAMPUS

OVERVIEW
The Master of Beer Styles course is designed to give professional brewers the skills they need to create award-winning ales, lagers and specialty beers. Using the styles guidelines created for the Association of Brewers’ World Beer Cup®, this course provides in-depth analysis of the techniques and technologies used to design and brew the full range of established and emerging styles.

PROFESSIONAL BEER TASTING AND STYLES
ENTRY LEVEL COURSE - OFFERED ON THE CHICAGO CAMPUS

OVERVIEW
Solid information has never been a more critical tool in selling beer. Specialty beers offer great profit opportunities, but consumers of beer are becoming highly sophisticated in their beer knowledge. It is important that distributors and retailers keep current to offer products and programs that satisfy their thirst for exciting new beer experiences.

The Siebel Institute Professional Beer Tasting and Styles course, designed and conducted by Randy Mosher, is a hands-on workshop that gives participants a solid foundation of beer knowledge, with a special emphasis on beer styles and tasting. By the end of the course, attendees will have an understanding of the origin and nature of classic and modern beer styles, tasting methods, as well as how to present the beer experience so as to make it fully enjoyable to their customers. Numerous detailed leave-behinds summarize and expand key points and provide a handy reference on selected topics.

SENSORY ANALYSIS FOR FLAVOR PRODUCTION AND CONTROL
ENTRY LEVEL COURSE - OFFERED ON BOTH THE CHICAGO AND SAN DIEGO CAMPUS

OVERVIEW
The Siebel Institute Sensory Analysis for Flavor Production and Control course has been designed to give brewers the tools they need to effectively identify and control flavors and aromas in beer. Part of the Master of Beer Styles and Evaluation course, the one-day Sensory Analysis course takes students through samples of flavor and aromatic compounds associated with raw materials and brewing, analyses the origins of those compounds, and gives students the knowledge required to effectively control them.
SENSORY PANEL MANAGEMENT
INTERMEDIATE LEVEL COURSE - OFFERED IN SAN DIEGO

OVERVIEW
The first line of quality control and product evaluation in any brewery is formed by trained taste panels. By effectively utilizing taste panels appropriate for the required task, collecting and analyzing the results compiled from trained tasters, and taking the right actions based on the results, your brewery will improve quality, consistency and profitability.
CONTACT US
CONTACT INFORMATION

For ordering products, getting more information, or asking any questions, please use the corresponding Contact Code to get in touch.

LALLEMAND BREWING WEBSITE
WWW.LALLEMANDBREWING.COM
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BREWING@LALLEMAND.COM

AB VICKERS WEBSITE
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SIEBEL INSTITUTE WEBSITE
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SIEBELINSTITUTE@LALLEMAND.COM

Match the item’s Contact Code with the codes shown below.
Offices and plant on Prefontaine street in Montreal (Canada). This manufacturing plant is still producing Lallemand yeast today. 1950s