

Atenveldt Brewers Guild



Brewers Handbook

*Sir Shiron Ravenhair
Guild Master
Barony of Twin Moons
Kingdom of Atenveldt*

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Atenveldt Brewers Guild
Kingdom of Atenveldt
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SCA POLICY ON ALCOHOL

SCA, INC--As per SCA Policy, it is prohibited to use any SCA funds for the purchase of alcohol this includes the USA and Canada.

This includes the following:

1. For use as Prizes in tournaments or raffles
2. As gifts
3. For re-sale at Taverns, Bar's or Inn's
4. Or given away at a Tavern, Bar or Inn

Any donated alcoholic items for any of the above reasons is also prohibited. SCA Funds are permitted for the following:

Alcohol purchased for use in cooking.

The purchase of equipment / ingredients by Guilds for the study and recreation of alcoholic recipes, as long as it does not fall under one of the four reasons listed above.

Failure to adhere to this policy will cause the SCA Insurance Policy to become null and void at an event. This only applies to the USA and all its territories.

AS PER SCA INSURANCE POLICY--It is prohibited under the Insurance Policy for the SCA to participate in any of the following:

1. The Manufacturing of Alcohol
2. The Distribution of Alcohol
3. The Selling of Alcohol
4. The Serving of Alcohol
5. The Furnishing of Alcohol

The Manufacturing of alcohol for an A&S Competition is permitted as long as the following applies:

- A. No SCA Funds were used
- B. The competition is being judged by persons qualified in that field

- C. Competition is held in a controlled area
- D. Always, Modern Laws apply regarding minors with alcohol.

1. Atenveldt Brewers Guild

Official Name:

" The Most respectful and infamous guild of Brewers of the Kingdom of Atenveldt."

Purpose:

To further the arts of zymurgy, oenology, and related practices. To share the knowledge of these noble arts and to encourage the responsible enjoyment of the products of the brewers art.

Royal Supremacy:

The Sovereign of Atenveldt, by virtue of being unquestioned ruler of the Kingdom and all within it, shall be considered to be the head of the Guild. He/she may exercise the powers and the rights of that position at will.

Organization:

The Guild shall have a dual system of membership and organization.

First, any citizen of Atenveldt who expresses and interest in the various arts and artifices of the brewers, may declare him/herself a "scholar of the guild. " One may retain the title of " Scholar " in perpetuity, however, should one wish to seek promotion within a more traditional medieval guild structure, there shall exist the rank of apprentice, journeyman, and master and Grandmaster of the guild. The requirements of each rank will be as follows.

1. Apprentice:

Any Scholar of the guild who shall declare in writing his/her intention to study the brewer's arts under the tutelage of a journeyman or (preferably) a Master shall be named an apprentice brewer. Apprenticeships shall last not less than one nor more than three calendar years.

2. Journeyman:

An Apprentice brewer may make application to his/her Master, requesting advancement to the status of Journeyman Brewer upon completion of the following criteria:

- A. Minimum one year as an Apprentice.
- B. Chivalrous and Honorable practice, (as determined by the Master)
- C. Manufacture of at least one batch each of the following:
 - a. Malt Beverage (Beer, Ale, Barley wine, Etc.)
 - b. Mead
 - c. Fruit wine or hard cider
 - d. Liqueur
- D. Participation in at least one regional level event as a supplier and/or Pub-o-crat.

- E. Participation in at least one regional level or above, arts and sciences competition, with each product; in which the apprentices products have been impartially judged and found to be at least palatable. (Drinkable)
- F. Intermediate level of knowledge.
 - a. Brewing sanitation and common sources of contamination, spoilage.
 - b. The chemistry of fermentation as it relates to brewing, wine making, and Mead making.
 - c. Various styles of beer, wine, mead, and liqueur and their characteristics.

Upon satisfaction of these criteria, the Master shall advise the Council of Masters, Who shall then issue a certificate of advancement to the rank of Journeyman Brewer.

Journeyman status shall be for a minimum of one year. There is no upward limit to the time a Journeyman's certificate shall remain in force.

3. Craftsmaster:

Positioned between Journeyman and Master Brewer ranks.

Requirements:

- A. Minimum one year as a Journeyman.
- B. Chivalrous and Honorable practice (as determined by the Master).
- C. Participation in at least one regional or Kingdom level competition as a judge.
- D. Participation as a Teacher at at least one regional or Kingdom level collegiums or other teaching event.
- E. Specialization in one or more of the following areas:
 - a. Malt beverage (beer, ale, barley wine, etc.)
 - b. Mead
 - c. Wine or Hard Cider
 - d. Liqueur
- F. Demonstration of the intimate familiarity with their specialty:
 - a. Characteristics of the major Beer Styles or,
 - b. Characteristics of major wine and Mead styles, or
 - c. History, characteristics and significance of their specialization beverage.
 - d. Criteria for judging beverages.
 - e. Advanced chemistry of brewing and fermentation as relates to their specialization.

4. Master:

A Journeyman Brewer may be advanced to the status of Master Brewer upon recommendation of his/her Master and upon meeting the following criteria:

- A. Minimum one year as a Journeyman.
- B. Chivalrous and Honorable practice. (Again as determined by the Master.)
- C. Competition in at least one regional or Kingdom (or interkingdom) level arts and sciences with one each of the following:

- a. Malt beverage (Beer, Ale, Barley wine, Etc,)
 - b. Mead
 - c. Wine or Hard Cider
 - d. Liqueur
- D. Participation in at least one regional or Kingdom level competition as a judge.
- E. Participation as a Teacher at; at least one Regional or Kingdom level Collegiums or other teaching event.
- F. Demonstrations of intimate familiarity with:
- e. Characteristics of major Beer styles.
 - f. Characteristics of major wine and Mead styles.
 - g. History and significance of various beverages.
 - h. Criteria for judging Beverages. Advanced chemistry of brewing and fermentation.

5. Council of Masters:

ALL Master Brewers of Atenveldt will collectively form the "Council of Masters " which will:

- A. Serve as a governing body of the Guild.
- B. Elect the Grand Master.
- C. Vote on each application for advancement to the rank of Master.
- D. Serve as a counselors and advisors to the Grandmaster.

6. Grandmaster:

The Council of Masters will elect one of its members to serve as "Grandmaster of the Guild. " This individual will serve a term of two years, and may be reelected for an unlimited number of terms, if his/her peers so desire. Duties of the Grandmaster are as follows:

- A. To serve as Grandmaster.
- B. To report on Guild activities to the Crown and to the Kingdom Arts. And Sciences Minister on a quarterly basis.
- C. To serve as advisor to the Crown on all matters concerning brewing.
- D. To ensure that guild members of all ranks adhere to the rules of the guild and uphold at all times the highest standards, both technically and as regards to honor and chivalry.

7. Former Grandmasters:

All who have held the title of Grandmaster will be referred to as "Grandmaster Emeritus." This carries no Precedence or authority, but is simply a title of respect.

Miscellaneous Rules:

- 1. All Guild activities are absolutely open. No secret meetings, deliberations or ceremonies will be tolerated.

2. The Guild may, at its discretion, and after determining that interest exists, publish such newsletters or magazines as the Council of Masters shall see fit, and may charge such subscription fees as are reasonable to cover the cost of printing these publications.
3. In order that the traditional medieval guild structure might exist immediately, the one-year rule for journeyman and masters may be waived for individuals who meet all other criteria. This shall be at the discretion of the Crown, and shall be in effect for two years from the official charter date of the Guild.
4. Individuals from outside the Guild who can show their knowledge and skill to be of a superior nature may be inducted into the Guild Structure at whatever level their skills and knowledge will qualify them. This shall be done by a Screening committee of the Council of Grand Masters. If the Applicant passes the screening committees questions and judging of their products, then the Council of masters will vote on acceptance of the new journeyman or Master. If an applicant is adjudicated to be a Master then this decision will be passed onwards for final approval by the Crown.
5. Expulsion from the Guild. Members will be expelled from the Guild only at such times as they be banished by the Crown from the Kingdom of Atenveldt or by the Board of Directors from the S.C.A. itself. The Council of Masters may censure members for willful misconduct or unchivalrous actions, after presentation of evidence and due deliberation with all proper safeguarding of the rights of the accused. The Council will Not, however, undertake to expel anyone from the Guild, leaving this action to the mercy and wisdom of the Crown.

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Signed by Brion and Anna.

General Guild Information

1. Guild Web Sites

Official Guild Website – <http://www.atenbrewers.org>

Official Guild Bulletin Board/Chat Site – <http://clubs.yahoo.com/clubs/atenveldtbrewersguild>

8. Guild Email Address

Guild Master – guildmaster@atenbrewers.org

Ambassador – ambassador@atenbrewers.org

Chronicler – chronicler@atenbrewers.org

Inquisitor – inquisitor@atenbrewers.org

9. Guild Meetings

Barony of Twin Moons – Last Thursday of each month

Barony of Atenveldt – Last Wednesday of each month

Online – Second Tuesday of each month (see Guild Web Sites for location)

4. Guild Application/Ranking Form

Atenveldt Brewers Guild Application Form

General Information

SCA Name: _____

Titles: _____

Kingdom: _____

Barony or Shire: _____

Mundane Name: _____

Email Address: _____

List Email: Yes No

Phone Number: _____

Would you like to be ranked in the Guild? Yes No

If Yes please complete the section below. Yes No

Experience

Malted Beverage: Yes No

Cordial & Liqueurs: Yes No

Meads: Yes No

Wines: Yes No

Learning

Malted Beverages: Yes No

Cordial & Liqueurs: Yes No

Meads: Yes No

Wines: Yes No

List Experience: _____

2. Mead

Mead is a honey-based fermented beverage (Honey wine) that has been produced and enjoyed since before recorded history. Traditional mead is simply honey, water, and yeast. The

term must is the unfermented mix of honey, water and other ingredients. Aging is required this ageing allows the mead to clear and develop its flavor making a smooth, mellow and fragrant beverage. As they say, “All good things come to those who wait” mead can take from several months to several years to become palatable or perfect.

1. Mead Styles

Style Name	Description
Bochet	Sack mead that has been burnt or charred
Bracket	Honey wine and ale combined
Braggot	Honey wine made with Malt
Capsicumel	Honey wine with Chile pepper
Cyser	Honey wine made with apples or apple juice
Hippocras	A spiced pyment Honey wine made with any herbs and grapes
Hydromel	Watered down or made weaker French origin
Melomel or Mulsum	Honey wine made with any vegetable or fruit excluding apples or grapes
Metheglin	Honey wine made with any herbs or spices
Morat	Honey wine with mulberries
Omphacomel	Honey wine with verjuice (juice from unripe grapes)
Oxymel	Honey wine vinegar combined
Pyment	Honey wine made with grapes
Traditional	Honey water yeast
Rhodomel	Honey wine and attar (distilled rose petals)
Sack	Very sweet honey wine
Varietal	No adjunct ingredients made with a varietal honey

3. Malt Beverage Section

1. Hops

Hops give beer flavor and aroma. They can act as a preservative, and help in head retention. Low alpha acids with higher levels of beta acids are typically aroma hops. These hops would generally be used as a finishing or conditioning hop. Bitter hops have a much higher level of alpha acids than beta acids. These are generally used in the boiling process to extract bitterness.

10. Malt Brewers Yeast

This mutation and adaptation, subspecies, or variations of yeast have evolved due to the specific climate, and food sources. For this reason there are a wide variety of yeast strains today. These strains can be identified by their fermentation characteristics and selected to produce certain beer styles.

Ale yeast ferments at warmer temperatures than lager yeasts. Ales typically become fruitier, softer and more robust than lager beers. Lager beers tend to be dry and crisp. By selecting specific yeast, one can emphasize the malt, certain fruity esters, the hops, and a number of other fermentation characteristics.

By selecting specific yeast strains and providing a certain environment, the brewer creates the beer style of choice. Other parameters include the type of water, the variety of malts, and the choice of hops.

11. SRM Standard Reference Method

Measuring the color of beer is based on the Lovibond color rating of the malts and additives. Some background data points:

Real SRM and EBC ratings are taken through a spectrometer, not calculated. The spectrometer measures color absorption to 99.9% accuracy. The basic element for estimating color in beer is the Malt Color Unit, or MCU. There is NO known hard correlation between MCU's and SRM.

12. Grains & Extracts

Grain is the basis for what we know as beer or ale. Malting is the process of germinating and then drying the grain. A pale malted barley is general the base for most beers and ales. Malt extract is the concentrated sugars extracted from malted barley. It is sold in both the liquid and powdered forms. Malt extract is available in both the hopped and unhopped varieties.

4. Wine

Wine has played various roles through out its long history as part of religion, as a medicine, as feasts into events, and a vessel for the romantics. In general terms wine is the naturally fermented juice of fruits, flowers, herbs, grains, or vegetables with water, yeast, and possibly sugar. For purists I understand only grapes will due but as with most brewing that is up for discussion. Ageing like meads, wine can take from several months to several decades to become palatable or perfect.

5. Cordials

Cordials; known to the modern world as liqueurs. Which are strong sweet alcoholic drinks. Created by infusion with fruits, herbs, spices, vegetables, grains, sugar syrup or honey, or anything else you can think of to predistilled alcohol.

6. Guild Members Recipes

Blue Christmas Mead

Submitted by Ian MacLaren

20 lbs honey	Champaign yeast
2 Oranges	½ tsp grape tannin
2 Lemons	1 tsp Irish Moss
½ lb Blueberries	Yeast nutrients
1 lb Cherries	½ cup of strong brewed tea
<p>This recipe is for a 5-gallon batch that I made that has not been bottled or aged. I just clarified it (with sparkloid) and placed it in a glass carboy to age and it tasted good enough to post!</p> <p>The mead is made in basically the same way as my Oliver Twist mead... for step by step instructions, check www.atenbrewers.org/mead1.htm</p> <p>This mead fermented for approximately 12 weeks, then needed clarifying.</p> <p>I will keep you all informed of the progress if you wish. I'm hoping no one likes this mead... I'd like 5 gallons to myself. :)</p>	

Multi Berry Cordial

Submitted by Finn hua Cellaig

4 oz Blueberries	¼ peel of large orange
4 oz Strawberries	1/8 tsp all spice
4 oz Blackberries	2 cups Brandy
4 oz Raspberries	1 ½ cups of honey
½ peel of small lemon	1 Cinnamon stick
<p>Steep for 4 weeks shaking steeping container daily, then bottle. Age in dark place for 4 weeks minimum or as long as you can take it.</p>	

Dark Spice Honey Stout

Submitted by Finn hua Cellaig

6 lbs English dark malt extract	5 Whole cloves (30 min boil in steeping bag)
¼ lb English roasted barley (steeping bag)	½ tsp Irish moss (30 min boil)
¼ lb English chocolate malt (steeping bag)	½ oz Northern brewers hops (60 min boil)
1 lb Clover honey	½ oz English fuggle (30 min boil)
½ lb Dark brown sugar	½ oz English fuggle (2 min boil)
½ tsp Cinnamon (30 min boil)	1 pack Nottingham Ale yeast
	¾ cup Corn sugar (Priming)
<p>After boiling, placed cooled wort in Primary Fermentor and pitched yeast. After 7 days siphoned off the beer, mixed in the corn sugar, and bottle.</p>	

Cherry Cordial**Submitted by Edward of Cornwall**

1 tsp Cinnamon	2 lbs Maraschino cherries
¾ cups Sugar	2 cups Vodka
<p>Drain the maraschino cherries. I thought about saving the syrup to add in place of the ¾ cups sugar syrup. Maybe next time. Add the cherries to a large bottle. Add 2 cups of vodka. I used Absolute. A friend said it was the best. Cap the bottle and seep for 2 - 4 weeks. I noticed that the cherries are starting to lose their color. At the end of the seeping time, add sugar. I will use ¾ cups of corn sugar. Other forms of sweetener could be substituted at this point. Boil water and dissolve the sugar. Cover and allow cooling. Add the sugar syrup to the mixture. Allow maturing for 3 - 4 weeks. Bring to an SCA event before the wife drinks it all.</p>	

7. Brewers Terms

Name	Definition
A.A.U.	Alpha acid units. The measurement, in percentage of alpha acid, of the potential bitterness in hops.
ABW	Alcohol by weight, given in percentages. A low alcohol beer typically has 3.5% abw or less, a medium alcohol beer 3 6% abw and a high alcohol beer 6% abw and up. To convert to alcohol by volume, multiply the abw by 1.25.
ACETALDEHYDE	Green apple aroma, a byproduct of fermentation.
ADDITIVE	Enzymes, preservatives and antioxidants, which are added to simplify the brewing, process or prolong shelf life.
ADJUNCT	Fermentable material used as a substitute for traditional grains, to make beer lighter bodied or cheaper.
AEROBIC	An organism, such as top fermenting ale yeast, that needs oxygen to metabolize.
AFTERTASTE	A palate sensation that occurs after the beer has been swallowed.
ALCOHOL	Ethyl alcohol or ethanol. An intoxicating by product of fermentation, which is caused by yeast acting on sugars in the malt. Alcohol content is expressed as a percentage of volume or weight.
ALCOHOL BY VOLUME	Amount of alcohol in beer in terms of percentage volume of alcohol per volume of beer.
ALCOHOL BY WEIGHT	Amount of alcohol in beer measured in terms of the percentage weight of alcohol per volume of beer, i.e., 3.2% alcohol by weights equals 3.2 grams of alcohol per 100 centiliters of beer. (It is approximately 20% less than alcohol by volume.)
ALCOHOLIC	Warming taste of ethanol and higher alcohol's.
ALE	Beers distinguished by use of top fermenting yeast strains, <i>Saccharomyces cerevisiae</i> . The top fermenting yeast perform at warmer temperatures than do yeast's used to brew lager beer, and their byproducts are more evident in taste and aroma.
ALL MALT	A relatively new term in America. "All malt" refers to a beer made exclusively with barley malt and without adjuncts.

ALTBIER	Literally, "old beer" in German, referring to way beer was made before the discovery of lager yeast, by fermenting beer with ale yeast and then conditioning it with cold temps. These ales tend to be yeasty, well hopped and clean tasting a very lager like.
AMBER	Any top or bottom fermented beer having an amber color, that is, between pale and dark.
AMBER ALE	A general term used to describe copper colored ales or lagers, which are more full bodied than golden lagers, often with a medium maltiness and strong hoppy bitterness. (See Vienna)
AMERICAN LAGER	Clean, light, mild tasting lager.
AMYLASE	Enzymes that liquefy starches and convert them to maltose (sugar) and dextrins.
ANAEROBIC	An organism, such as a bottom fermenting lager yeast, that is able to metabolize without oxygen present
AROMA	The particular combination of smells from malt, hops, yeast, and any unusual or distinctive disturbances in the beer
AROMA HOPS	Varieties of hop chosen to impart bouquet. (See Hops) Astringent A drying, puckering taste; tannic; can be derived from boiling the grains, long mashes, over sparging or sparging with hard water.
ATTENUATION	Extent to which yeast consumes fermentable sugars (converting them into alcohol and carbon dioxide).
BACTERIAL	A general term covering off flavors such as moldy, musty, woody, lactic acid, vinegar, or microbiological spoilage.
BALANCE	The feature of a beer concerned with the balance of various flavors and sensations.
BALLING	Actual degrees of Balling (°B). Degrees Balling may be determined by a hydrometer or "Balling spindle," which floats in the liquid to a level corresponding to sugar content, or by a refract meter, where a beam of light is deflected in direct proportion
BALLING DEGREES	Scale indicating density of sugars in wort. Devised by C J N Balling.
BARLEY	A cereal grass with bearded spikes of flowers and its seed or grain. Barley is the most suitable cereal grain for making malt beverages; it provides starch, enzymes, flavor, foam, body and color.
BARLEY WINE	Strong, malty, slightly spicy ale reminiscent of brandy or strong wine. Like wine (and unlike other beers), barley wine improves
BARREL	A unit of measurement used by brewers in some countries. In Britain, a barrel holds 36 imperial gallons (1 imperial gallon = 4.5 liters), or 1.63 hectoliters. In the United states, a barrel holds 31.5 US gallons (1 US gallon = 3.8 liters), or 1.17 hectol
BATCH FERMENTATION	The most common, traditional method of fermentation used to produce alcohol beverages, where each batch is fermented
BEER	A fermented beverage made from barley. Hops, water, and yeast, and sometimes other ingredients
BEER STYLES	The three major beer styles are lagers, ales, and specialty beers. Specialty beers are brewed with various non-standard ingredients.
BELGIAN ALE	Strong, lighter colored but potent ale. Some people claim they detect "pear notes".

BITTER	Bitterness of hops or malt husks; sensation on back of tongue.
BITTERNESS	The perception of a bitter flavor, in beer from iso alpha acid in solution (derived from hops). It is measured in International Bitterness Units (IBU).
BITTERNESS UNIT	See International Bitterness Unit
BLACK MALT	Partially malted barley roasted at high temperatures. Black malt gives a dark color and roasted flavor to beer.
BLACK PATENT MALT	Partially malted barley roasted at high temperatures. Black malt gives a dark color and roasted flavor to beer.
BOCK	Complex lager (either light or dark); strong, malty and a little sweet some people taste caramel or chocolate undertones. Originated in Einbeck, Germany, where "bock" means "goat", perhaps referring to the beer's kick.
BODY	The mouth filling property of a beer. Taken to the extreme, stout has a heavy or full body; pale low calorie beer may be thin or watery.
BOTTLE CONDITIONING	The mouth filling property of a beer. Taken to the extreme, stout has a heavy or full body; pale low calorie beer may be thin or watery.
BOTTLE OF BEER	A bottle of beer equals twelve ounces.
BOTTOM FERMENTATION	One of the two basic methods of fermentation for beer, characterized by the fact that dormant yeast cells sink to the bottom during fermentation. Beers brewed in this fashion are commonly called lagers or bottom fermented beers.
BOUQUET	That portion of the odor caused by fermentation.
BREW KETTLE	The vessel in which wort from the mash is boiled with hops. Also called a copper.
BREWER'S YEAST	Yeast specifically prepared for brewing beer. Two main types of yeast are used for making beer one ferments at the top of the brew (top fermenting yeast), and the other ferments at the bottom (bottom fermenting yeast).
BREWHOUSE	The collective equipment used to make beer.
BREWKETTLE	A large vessel, similar in shape to a mash tun, made of copper or stainless steel, in which the wort is boiled for one to two hours by steam coils or through a jacketed bottom.
BREW PUB	Pub that makes its own beer and sells at least 50% of it on premises. Also known in Britain as a home brew house and in Germany as a house brewery.
BRIGHT BEER TANK	See conditioning tank.
BROWN ALE	Similar to pale ale, but (surprise) darker and sweeter, with a malty flavor and a "pleasing nuttiness"
BUNG	The stopper in the hole in a keg or cask through which the keg or cask is filled and emptied. The hole may also be referred to as a bung or bung hole. Real beer must use a wooden bung.
BUTTERSCOTCH	See diacetyl.
CABBAGELIKE	Aroma and taste of cooked vegetables; often a result of wort spoilage bacteria killed by alcohol in fermentation.
CALIFORNIA COMMON BEER	(Lager) See Steam Beer
CAMRA	The Campaign for Real Ale. An organization in England that was founded in 1971 to preserve the production of cask conditioned beers and ales.

CARAMEL	A cooked sugar that is used to add color and alcohol content to beer. It is often used in place of more expensive malted barley.
CARAMEL MALT	Sweet, coppery colored malt. Caramel or crystal malt imparts both color and flavor to beer. Caramel malt has a high concentration of unfermentable sugars that sweeten the beer and, contribute to head retention. Also known as crystal malt.
CARBON DIOXIDE (CO₂)	A gas consisting of one part carbon and two parts oxygen released during fermentation.
CARBONATION	Sparkle caused by carbon dioxide, either created during fermentation or injected later.
CASK	A closed, barrel shaped container for beer. They come in various sizes and are now usually made of metal. The bung in a cask of "Real" beer or ale must be made of wood to allow the pressure to be relived, as the fermentation of the beer, in the cask.
CHILL HAZE	A condition occurring in some beers at low (near freezing) temperatures caused by proteins in the beer becoming cloudy. Not an indication of bad beer.
CHILL PROOF	Beer treated to allow it to withstand cold temperatures without clouding.
CHLOROPHENOLIC	A plastic like aroma; caused by chemical combination of chlorine and organic compounds.
CLOVELIKE	Spicy character reminiscent of cloves; characteristic of some wheat beers, or if excessive, may derive from wild yeast.
CONDITIONING	Period of maturation intended to impart "condition"(natural carbonation). Warm conditioning further develops the complex of flavors. Cold conditioning imparts a clean, round taste.
CONDITIONING TANK	A vessel, in which beer is placed after primary fermentation where the beer matures, clarifies and, is naturally carbonated through secondary fermentation. Also called bright beer tank, serving tank and, secondary tank.
CONTRACT BEER	Beer made by one brewery and then marketed by a company calling itself a brewery. The latter uses the brewing facilities of the former.
CONTRACT BREWING	Making beer for smaller companies that either do not have a brewery of their own or lack the capacity to meet demand.
COPPER	See brew kettle.
CREAM ALE	Light colored, mild ale, lagered at cold temps or combined w/lager.
DECOCTION	Exhaustive system of mashing in which portions of the wort are removed, heated, and then returned to the original vessel.
DEGREES LOVIBOND (°L)	Measure of the color of the malt.
DEXTRIN	The unfermentable carbohydrate produced by the enzymes in barley. It gives the beer flavor, body. Lower temperatures produce more dextrin and less sugar. While higher temperatures produce more sugars and less dextrin.
DIACETYL	A volatile compound in beer that contributes to a butterscotch flavor, measured in parts per million.
DMS	Taste and aroma of sweet corn; results from malt, as a result of the short or weak boil of the wort, slow wort chilling, or bacterial infection. Dimethyl sulfide, sulfur compound.

DORTMUNDER	Pale lager originally from Dortmund, Germany. More body and less hoppiness than a pilsner, with slightly fruity, lightly carbonated edge. Also known as Export beer.
DOSAGE	The addition of yeast and/or sugar to the cask or bottle to aid secondary fermentation.
DOUBLE BOCK (DOPPELBOCK)	Lager with twice the alcohol of regular bocks and an intense, malty sweetness and dry finish. Doppelbock was originally brewed by monks for Lent and, like regular bock, is still served to celebrate spring's arrival.
DRAFT (DRAUGHT)	The process of dispensing beer from a bright tank, cask or, keg, by hand pump, pressure from an air pump or, injected carbon dioxide inserted into the beer container prior to sealing.
DRY BEER	Invented by the Japanese, dry beer has less aftertaste due to more complete fermentation.
DRY HOPPING	The addition of loose, dry hops to the primary fermentor (after the wort has cooled to below 75° Fahrenheit) or to the secondary fermentor to increase the aroma and hop character of the finished beer without affecting its bitterness.
DRY STOUT	With its malty flavor and dry, bitter finish, this ale is similar to porter, but creamier, darker and bitterer.
EBC	European Brewing Convention. An EBC scale is used to indicate colors in malts and beers.
ENZYMES	Catalysts that are found naturally in the grain. When heated in mash, they convert the starches of the malted barley into maltose, a sugar used in solution and fermented to make beer.
ESTER	Volatile flavor compound naturally created in fermentation. Often fruity, flowery or spicy.
ESTERS	Esters are organic compounds that result from the interaction of acids and alcohol. The presence of esters can cause the fruity flavors and aromas, such as banana, blueberry, and pear that intentionally or unintentionally occur in some beers.
ESTERY	Aroma or flavor reminiscent of flowers or fruits.
EXPORT	(Lager) See Dortmunder.
EXTRA SPECIAL BITTER (ESB)	English style ale well-balanced hoppiness and sweet maltiness.
FAHRENHEIT (DEGREES)	$F = ((C \times 9) / 5) + 32$.
FERMENTATION	This is the process of producing alcohol and carbon dioxide through the actions of yeast on grain based sugars.
FILTER	The removal of designated impurities by passing the wort through a medium sometimes made of diatomaceous earth (made up of the microscopic skeletal remains of marine animals). Yeast in suspension is often targeted for removal.
FILTERING	The process of passing beer through a porous substance to clarify it. This process occurs after fermentation.
FILTRATION	The passage of a liquid through a permeable or porous substance to remove solid matter in suspension.
FINAL SPECIFIC GRAVITY	Specific gravity of a beer when fermentation is complete (that is, all fermentable sugars have been fermented).

FINING	An aid to clarification a substance that attracts particles that would otherwise remain suspended in the brew.
FIRST WORT	The first running of wort to be filtered in the straining vessel. It is richer in extract than subsequent running
FRAMBOISE	Dry, almost carbonated ale with raspberry taste and aroma. (See Lambic)
FRUITY/ESTERY	Flavor and aroma of bananas, strawberries, apples, or other fruit; from high temperature fermentation and certain yeast strains.
GERMAN PURITY LAW	See Reinheitsgebot.
GRAINS	(Such as rice, corn, maize, or wheat) used in addition to malted barley to make a beer. They tend to lighten the flavor of a beer and produce alcohol.
GRAINY	Tastes like cereal or raw grain.
GRANT	A small vessel between the straining tank (tun) and the brew kettle from which the runoff of the wort is controlled and sampled.
GRAVITY (SPECIFIC)	The weight of a liquid relative to the weight of an equal volume of water. Specific gravity must be checked before and after fermentation. Used as an indication of the amount of alcohol present.
GRIST	Brewers' term for milled grains, or the combination of milled grains to be used in a particular brew. Derives from the verb to grind. Also sometimes applied to hops.
HAND PUMP	A device for dispensing draft beer using a pump operated by hand. The use of a hand pump allows the cask-conditioned beer to be served without the use of pressurized carbon dioxide.
HANG	Lingering bitterness or harshness.
HARD CIDER	A fermented beverage made from apples.
HEAD	Foam that forms on top of the beer when it is poured. Head tends to indicate the degree of carbonation, hops, and malt in the beer.
HEAT EXCHANGER	A mechanical device used to rapidly reduce the temperature of the wort.
HEFE	A German word meaning "with". Used mostly in conjunction with wheat (weiss) beers to denote that the beer is bottled or kegged with the yeast in suspension (hefe-weiss). These beers are cloudy, frothy and, very refreshing.
HEFEWEIZEN	Traditional German ale; in German, "hefe" means "yeast" and "weizen" means "wheat". (See Wheat Beer)
HELLES	(Lager) See Munchner.
HIGH (HEAVY) GRAVITY	The common practice of brewing and fermenting a concentrated brew house wort and adjusting this beer to its final "gravity" or composition at the end of the process. High gravity brewing permits better utilization of equipment and can increase the capacity.
HOGSHEAD	Cask holding 54 imperial gallons (243 liters).
HOLIDAY ALE	Strong, often spicy seasonal ale produced by brewers for the winter holidays. Character and ingredients often vary from year to year and definitely from brewery to brewery.
HOP BACK	Sieve like vessel used to strain out the petals of the hop flowers. Known as a hop jack in the United States.
HOPPING RATE	The amount of hops added to a specified volume of wort. Often referred to in BUs (bittering units).

HOPPY	Aroma of hops does not include hop bitterness.
HOPS	One of the four principal ingredients of beer, hops are flower cones added to beer as a bittering agent, a preservative, and an aromatic.
HOPS CONE	Shaped flowers that grow on climbing vines, used to flavor beer. Hops added early in the brewing process impart a dry, bitter flavor to the beer; added later, they add an herbal spiciness. There are dozens of varieties of hops.
HYDROMETER	A thermometer like device used to measure the specific gravity to determine the proportion of potential alcohol in the beer.
IBU	International Bitterness units. A system of indicating the hop bitterness in finished beer.
ICE BEER	It sounds like a stereotype, but the Canadians really invented ice beer. Ice beer is frozen slightly during the brewing process and the ice crystals removed, in hopes that the flavor and alcohol content will be more concentrated.
IMPERIAL STOUT	Heavy, complex ale; slightly sweet with hints of coffee and chocolate. Its bitterness comes from roasted barley.
INDIA PALE ALE (IPA)	Spicy, highly hopped beer brewed for export from England to the British colonies in India in the 1700s; its high alcohol content helped it survive the long sea voyage from England to Calcutta, and no doubt helped keep British soldiers happy in the heat.
INFUSION	The process of introducing mash into hot water for mashing. The infusion method of mashing involves mashing a single time at a constant temperature, as opposed to other, more complex mashing techniques that involve mashing more than once at different heap.
INTERNATIONAL BITTERNESS UNIT (IBU)	A measure of a beer's bitterness. Specifically, the IBU is a unit of weight equal to one part per million (ppm) of an alpha acid called isohumulone, the bittering agent in hops, in the finished beer. Different varieties of hops contain and releases differ.
IRISH MOSS	Seaweed that is added to boiling wort to filter proteins.
ISINGLASS	Material made from fish bladders used to clarify beer.
KEG	One half barrel, or 15.5 U. S. gallons. A half keg or, 7.75 U. S. gallons, is referred to as a pony keg.
KOLSCH	French (from Cologne) ale, similar to altbier, but pale and slightly fruitier.
KRAEUSENING	A secondary fermentation whereby young fermenting wort (approx. 15-18 percent) is added to a fully fermented lager to accomplish a natural infusion of carbon dioxide.
KRAUSEN WORT	A small quantity of sweet unfermented wort added to finished beer. This wort ferments to produce natural carbonation.
KRÄUSENING	The addition of a small proportion of partly fermented wort to a brew during lagering. Stimulates secondary fermentation and imparts a crisp, spritzzy character.
KRIEK	This ale wins points for being fun to ask for in a bar. Made with cherries (kriek) and unmalted wheat for a tart, fresh, fruity flavor.
LAGER	Beers produced with bottom fermenting yeast strains, <i>Saccharomyces uvarum</i> (or <i>carlsbergensis</i>) at colder fermentation temperatures than ales. This cooler environment inhibits the natural production of esters and other byproducts, creating a crisper tasting.

LAGERING	From the German word for storage. Refers to maturation for several weeks or months at cold temperatures (close to 0°C /32°F) to settle residual yeast, impart carbonation and make for clean round flavors.
LAMBIC	Dry, tart ale made with unmalted wheat and malted barley; usually has a sweet fruit flavoring such as cranberry, cherry (kriek) or raspberry (framboise). Traditionally fermented with wild airbourne yeast in Belgium's Senne Valley.
LAUTER	To run the wort from the mash tun. From the German word to clarify. A lauter tun is a separate vessel to do this job. It uses a system of sharp rakes to achieve a very intensive extraction of malt sugars.
LAUTER TUN	See mash tun.
LENGTH	The amount of wort brewed each time the brew house is in operation.
LIGHT BEER	Beer brewed to have fewer calories and a lighter body. Alcohol, with 7.1 calories per gram, is the major calorie contributor in beer, so brewers add water to reduce alcohol content or use a special enzyme to change the unfermentable dextrins into ferment
LIGHT STRUCK	Skunk like smell from exposure to light.
LIQUOR	The brewer's word for water used in the brewing process, as included in the mash or, used to sparge the grains after mashing.
MAIBOCK	Lager traditionally brewed to celebrate the month of May. (See Bock)
MALT	Barley that has been steeped in water to produce sprouting, then kiln dried.
MALT (ING)	The process by which barley is steeped in water, germinated, and then kilned to convert insoluble starch to soluble substances and sugar. The foundation ingredient of beer.
MALT EXTRACT	The condensed wort from a mash, consisting of maltose, dextrin's and, other dissolved solids. Either as a syrup or powdered sugar, brewers, in solutions of water and extract, to reconstitute wort for fermentation, use it.
MALT LIQUOR	Malt liquors are technically lagers, but the beer is fermented more thoroughly to convert more of the extract to alcohol, producing a strong, smooth, pale beer.
MALTOSE	A water soluble, fermentable sugar contained in malt.
MARZENBIER	(Lager) See Oktoberfest.
MASH	To release malt sugars by soaking the grains in water.
MASH TUN	A tank where grist is soaked in water and heated in order to convert the starch to sugar and extract the sugars and other solubles from grain.
MEAD	Meads are produced by the fermentation of honey, water, yeast and optional ingredients such as fruit, herbs, and/or spices. According to final gravity, they are categorized as dry (0.996 to 1009); medium (1010 to 1019); or sweet (1020 or higher).
MEDICINAL	Chemical or phenolic character; can be the result of wild yeast, contact with plastic, or sanitizer residue
METALLIC	Tastes tinny, bloodlike or coin like; may come from bottle caps.
MICROBREWERY	By strict definition, a "micro" brewery is one that produces fewer than 15,000 barrels per year. For our purposes, the microbrewery genre includes some breweries that surpass that output, but maintain the hand crafted microbrewery ethic.

MILLING	In brewing, the malt is ground into grist (or meal) to facilitate the extraction of sugars and other soluble substances during the mashing process. The endosperm must be crushed to medium sized grits rather than to flour consistency.
MOUTHFEEL	A sensation derived from the consistency or viscosity of a beer, described, for example as thin or full.
MUENCHENER	A bottom fermented style of beer produced in the mid 19th century in the Bavarian city of Munich. The original Muenchener was dark. In 1928, the Paulaner Brewery introduced a paler version, called Helles that has almost entirely overtaken the darker brew.
MUNCHNER	Lager also known as "helles", or "pale" lager. Malty, sweet and dark, despite its name. Originated in Munich, Germany.
MUSTY	Moldy, mildewy character; can be the result of cork or bacterial infection.
OATMEAL STOUT	This ale is a variation of sweet stout, with oatmeal added for a smooth texture and warm flavor.
OKTOBERFEST	Smooth, drinkable lager with slight malty sweetness. Before the days of refrigeration, oktoberfests were brewed with high alcohol content so they could be preserved in caves from March (hence its other name, Marzenbier) till fall.
ORIGINAL GRAVITY (OG)	A measure of the density of the wort before the yeast is added; shows the fermentable sugar content available to be converted into alcohol by the yeast, which will affect the strength of the final product.
OXIDIZED	Stale flavor of wet cardboard, paper, rotten pineapple, or sherry, as a result of oxygen as the beer ages or is exposed to high temperatures.
PALATE	Taste. Influenced by the grains, hops, water, yeast, and adjuncts used in production.
PALE ALE	Brisk, subtly spicy, hoppy, refreshing ale.
PASTEURIZATION	Heating of beer to 60 79°C/140 174°F to stabilize it microbiologically. Flash pasteurization is applied very briefly, for 15 60 seconds by heating the beer as it passes through the pipe.
PASTEURIZE	To subject packaged beer to a temperature of 142° 145° Fahrenheit for a specified time to destroy enzymes, yeast, and other bacteria.
PHENOLIC	Flavor and aroma of medicine, plastic, Band Aids, smoke, or cloves; caused by wild yeast or bacteria, or sanitizer residue.
PILSENER	A general name for pale, golden hued, highly hopped, bottom fermented beers. The original Pilsener was first brewed at the Bürgerliches Brauhaus in the Bohemian town of Plzen (meaning green meadow) in 1842.
PITCH	To add yeast to wort.
PITCHING	Adding yeast to the wort in the fermentation tank.
PLATO, DEGREES	Expresses the specific gravity as the weight of extract in a 100-gram solution at 64°F (17.5°C). Refinement of the Balling scale.
PORTER	Complex, dark, strongly flavored ale, which takes its name from the dockhands it, was originally brewed for. Similar to stout but without the bitterness.
PRIMARY FERMENTATION	Occurring after pitching the yeast and during the first three days on the average, fermentation converts sugars to alcohol and carbonation.
PRIMING	The process of adding sugar to the brew to create carbonation, either in the bottle or keg.

PRIMING SUGAR	Sugar added to the bottle or keg that ferments and provides CO ₂ .
PROTEINS	Nitrogen containing compounds, an excess of which cause a haze in beer.
PUB	An establishment that serves beer and sometimes other alcoholic beverages for consumption on premise. The term originated in England and is the shortened form of "public house".
PUBLICAN	The owner or manager of a pub.
RACKING	The process of separating the fermented beer from the yeast cells at the bottom of the fermenting vessel. Also the transfer of finished beer to kegs. Broadly, moving beer from one vessel to another.
RAUCHBIER	Lager brewed with malt, which has been smoked over a beechwood fire ("rauch" means "smoke" in German), giving it a strong smoky aroma and flavor. Similar to oktoberfest, but smoother and heavier.
REGIONAL BREWERY	Technically, a brewer, which produces more than 25,000 barrels per year but not as much as the "macro" breweries.
REGIONAL SPECIALTY BREWERY	A brewery that produces more than 15,000 barrels of beer annually, with its largest selling product a specialty beer.
REINHEITSGEBOT	"Purity Law" originating in Bavaria in 1520 and now applied to all German brewers making beer for consumption in their own country. It requires that only malted grains, hops, yeast and water may be used in the brewing.
ROASTED MALT	Malt made from barley heated sequentially, starting at 320° Fahrenheit, and 419° Fahrenheit, and finally 437° Fahrenheit. The malt acquires a brilliant external appearance while the endosperm becomes black. Roasted malt is used to flavor and color stout.
SACCHAROMYCES CARLSBERGENSIS	See Bottom fermenting yeast.
SACCHAROMYCES CEREVISIAE	See Top fermenting yeast
SACCHAROMYCES UVARUM	See Bottom fermenting yeast.
SALTY	Flavors like table salt; experienced on the side of the tongue.
SANITIZATION	The never ending process of cleaning brewing equipment
SCOTCH ALE	Rich, malty ale, full bodied (almost chewy) and faintly sweet.
SEASONAL	Beer brewed and sold only at a particular time of year
SECONDARY FERMENTATION	Stage of fermentation occurring in a closed container from several weeks to several months.
SEDIMENT	Yeast material at the bottom of the bottle formed as a result of conditioning the beer in the bottle. Not a sign of bad beer.
SHELF LIFE	Describes the number of days a beer will retain it's peak drink ability. The shelf life for commercially produced beers is usually a maximum of four months.
SOLVENTLIKE	Reminiscent of acetone or lacquer thinner; caused by high fermentation temperatures.
SOUR/ACIDIC	Vinegar like or lemon like; can be caused by bacterial infection.
SPARGE	To spray grist with hot water in order to remove soluble sugars (maltose). This takes place at the end of the mash.
SPARGING	Rinsing the mashed grains to ensure complete extraction of the sugars from the mash.

SPECIALTY ALE	Ale brewed by fermenting beer with unusual ingredients such as pumpkin, chiles, various herbs and spices, etc.
SPECIFIC GRAVITY	A measure of the density of a liquid or solid compared to that of water ((1.000 at 39°F (4°C)).
SQUARES	Brewers' term for a square-fermenting vessel.
STANDARD REFERENCE METHOD (SRM)	Measure of the color of beer
STEAM BEER	Highly hopped, foamy lager popularized during the California Gold Rush. The name comes, depending on whom you ask, either from the hissing pressure wooden casks of the stuff made when tapped or from the steam power used in the early breweries.
STOUT	This ale is just what its name sounds like dark, sturdy, and strong. See also dry stout, oatmeal stout and sweet stout.
SULFURLIKE	Reminiscent of rotten eggs or burnt matches; a by-product of some yeast's.
SWEET	Taste like sugar; experienced on the front of the tongue.
SWEET STOUT	Dark, thick, soft, sweet ale with hints of chocolate and coffee.
TART	Taste sensation cause by acidic flavors.
TEMPORARY HARDNESS	Hardness in water that can be removed by boiling.
TERMINAL GRAVITY	Synonym for final specific gravity.
THE DOUBLE	Jacketed, stainless steel vessel in which mashing occurs.
TOP FERMENTATION	The ancient method of brewing, where yeast ferments at room temperature and floats to the top of the beer. Top fermenting produces ales, which tend to be malty, complex, and sometimes a little fruity. (See also Bottom Fermentation)
TOP FERMENTING YEAST	One of the two types of yeast used in brewing. Top fermenting yeast works better at warmer temperatures and are able to tolerate higher alcohol concentrations than bottom fermenting yeast.
TOP FERMENTING YEAST (ALE YEAST)	A style of yeast that works at cellar or warm temperatures and floats to the top of the beer. Ale yeasts are responsible for the creation of most beers other than lagers. However, this style of brewing is practiced mostly in England.
TRAPPIST ALE	Strong, fruity, yeasty ale brewed by Trappist monks since the Middle Ages. Only beer brewed at a Trappist monastery can bill itself as "Trappist Ale".
TRIPEL	The strongest of Trappist Ales. (See above)
TRUB	Proteins in barley filtered during the wort boil.
TUN	Any large vessels used in brewing. In America, "tub" is often preferred.
TWO ROW BARLEY	A variety of barley on which only the central spikelet is fertile, forming two rows of grains each. It is the variety most appreciated for brewing because its kernels are better developed, and the husk is thinner; however, it is generally lower in enzyme.
VIENNA	Reddish, somewhat fruity lager introduced in the 1800s as Vienna's answer to pilsner. Grandfather of amber ale.
VINOUS	Reminiscent of wine.
WEISSE	A beer made with approximately one-quarter wheat malts and usually served cold with either woodruff or raspberry.

WEIZENBIER	A beer made with approximately one-third wheat malts and usually served cold with lemon.
WHEAT BEER	Light, bubbly, spicy ale brewed with malted wheat rather than barley for a fruity flavor. Also known as weisse (white) or weizen
WHITE BEER (WITBIER)	Smooth, cloudy Belgian ale brewed with unmalted wheat. Some people taste spicy/fruity overtones like orange and coriander.
WINY	Sherrylike flavor; can be caused by warm fermentation or oxidation in very old beer.
WORT	The solution of grain sugars strained from the mash tun. At this stage, regarded as "sweet wort", later as brewed wort, fermenting wort and finally beer.
WORT CHILLER	See heat exchanger.
WORT RECEIVER	A cooling vessel into which the wort is poured after straining the hops.
YARD GLASS	A tall glass (traditionally 3 feet) that was originally produced in England back in the days when travel by horse drawn coach was common.
YEAST	Microscopic, unicellular, vegetal organisms of the fungus family (Eumycophyta), distinct from bacteria since they possess a true nucleus.
YEASTY	Yeast like flavor; a result of yeast in suspension or beer sitting too long on sediment.
ZYMURGY	The science / art of yeast fermentation. Also, the last word in Webster's Unabridged Dictionary.

Appendix A

The following lists are not a complete they are a basic list for reference. Please verify with your vendor for specific details availability, alpha content, SRM grain rating, & SG.

1. Commercial Yeast Strainsⁱ

Type	Lab	Catalog #	Name
Ale	BrewTek	CL-150	British Real Ale Liquid
Ale	BrewTek	CL-160	British Draft Ale Liquid
Ale	BrewTek	CL-170	Classic British Ale Liquid
Ale	BrewTek	CL-200	Scottish Ale Liquid
Ale	BrewTek	CL-210	Scottish Bitter Liquid
Ale	BrewTek	CL-240	Irish Dry Stout Liquid
Ale	BrewTek	CL-260	Canadian Ale Liquid
Ale	Danstar		London Dry
Ale	Danstar		Manchester Dry
Ale	Danstar		Nottingham Dry
Ale	Danstar		Windsor Dry
Ale	White Labs	WLP004	Irish Stout Liquid
Ale	White Labs	WLP005	British Ale Liquid
Ale	White Labs	WLP007	Dry English Ale Liquid
Ale	White Labs	WLP320	American Hefeweizen Ale Liquid

Ale	White Labs	WLP380	Hefeweizen IV Ale Liquid
Ale	White Labs	WLP400	Belgian Wit Ale Liquid
Ale	WYeast	1087	Wyeast Ale Blend Liquid
Ale	WYeast	1098	British Ale Liquid
Ale	WYeast	1728	Scottish Ale Liquid
Ale	WYeast	3333	German Wheat Liquid
Lager	BrewTek	CL-600	Original Pilsner Liquid
Lager	BrewTek	CL-930	German Weiss Agar
Lager	BrewTek	CL-980	American White Ale Agar
Lager	True Brew		American Lager Liquid
Lager	WYeast	2007	Pilsen Lager Liquid
Lager	WYeast	2035	American Lager Liquid
Lager	WYeast	2042	Danish Lager Liquid
Lager	WYeast	2278	Czech Pils Liquid
Lager	WYeast	2308	Munich Lager Liquid
Lager	WYeast	2565	Kolsch Liquid
Mead	Wyeast	W3632	Dry Mead
Mead	Wyeast	W3184	Sweet Mead

13. Hop Typesⁱ

Hop Name	Origin	Alpha	Usage
Ahtanum	USA	6.00	Aroma
Amarillo Gold	USA	10.00	Aroma
Bramling Cross	England	6.00	Aroma
Brewer's Gold	England	7.00	Bittering
Bullion	England	7.00	Bittering/Aroma
Cascade	USA	5.75	Bittering/Aroma
Centennial	USA	10.50	Bittering/Aroma
Chinook	USA	13.00	Bittering/Aroma
Cluster	USA	7.00	Bittering/Aroma
Columbus	USA	15.00	Bittering/Aroma
Crystal	USA	3.25	Aroma
Czech Saaz	Czech Republic	3.50	Aroma
Eroica	USA	12.00	Bittering/Aroma
Fuggle	England	5.00	Aroma
Fuggle	USA	4.75	Aroma
Galena	USA	13.00	Bittering/Aroma
Goldings - B.C.	British Columbia	4.75	Aroma
Goldings - E.K.	England	4.75	Aroma
Hallertau Hersbrucker	Germany	4.75	Aroma
Hallertau Northern Brewer	England	8.50	Bittering/Aroma
Hallertau Northern Brewer	Germany	8.50	Bittering/Aroma
Hallertauer	USA	4.00	Aroma
Hallertauer Mittelfruh	Germany	4.50	Aroma
Hallertauer Tradition	Germany	6.00	Aroma

Hersbrucker	USA	4.50	Aroma
Horizon	USA	13.00	Aroma
Liberty	USA	4.00	Aroma
Lubelski or Lublin	Czech Republic	4.00	Aroma
Lubelski or Lublin	Poland	4.00	Aroma
Magnum	Germany	14.00	Bittering
Mt. Hood	USA	6.50	Aroma
Northern Brewer	USA	9.00	Bittering/Aroma
Nugget	USA	13.00	Bittering/Aroma
Perle	Germany	8.25	Bittering/Aroma
Perle	USA	8.25	Bittering/Aroma
Pride of Ringwood	Australia	10.00	Bittering/Aroma
Progress	England	6.00	Bittering/Aroma
Saazer	USA	4.30	Aroma
Spalter	USA	4.50	Aroma
Spalter Select	Germany	5.00	Aroma
Spalter Select	USA	5.00	Aroma
Spalter Spalt	Germany	4.75	Aroma
Strisselspalt	France	0.00	Aroma
Styrian Goldings	England	5.25	Aroma
Styrian Goldings	Slovenia	5.25	Aroma
Super Styrians	Slovenia	9.00	Aroma
Tettnanger	USA	4.50	Aroma
Tettnanger Tettnang	Germany	4.50	Aroma
Ultra	USA	2.75	Aroma
Willamette	USA	5.00	Aroma
Wye Challenger	England	7.50	Bittering/Aroma
Wye Northdown	England	8.50	Bittering/Aroma
Wye Target	England	11.00	Bittering/Aroma

14. Grains & Extractsⁱⁱⁱ

There are many kinds of grains used in beer, and variation within the same kind. This list is meant to be a general reference for the Guild Members.

Two Row Barley is the most common malt used by home brewers, two rows is high in diastatic enzymes. These enzymes will convert other starches to sugar. 2 Row will give you a color of 1.6 Lovibond.

6 Row Barley often called lager malt, 6 Row also is high in diastatic enzymes. Large breweries often use this malt since it produces a light colored beer and works well with adjuncts like rice and corn. 6 Row has 1.8 Lovibond.

Pale Malt is usually the base malt for pale ales and other beers using a single temperature mash. It doesn't have nearly as many enzymes as 2 or 6 Row Barley so adjuncts should be limited. Pale malt has a light roasty flavor and a color of 3 Lovibond.

Wheat Malt Wheat gives a beer a "bready" flavor. It doesn't have any extra enzymes, you should use barley with it too help convert the sugars. Small amounts of wheat will also help in head retention. Most wheat beers are 60% wheat and 40% barley.

Vienna and Munich Malt is kiln at higher temperatures and will have a malty aroma and flavor. Vienna is lighter and has a toasty flavor and Munich has darker caramel-sweet flavor. Vienna is often used in Marzens and other medium bodied lagers and Munich is favorite malt in bocks. Vienna has a 10 Lovibond color and Munich a 20.

Crystal Malt also called caramel malts these malts are already modified. They do not need to be mashed, just steeped at 150 to 170 for 20 minutes. They give off sweet caramely flavors, which vary depending on the kind of crystal malt used. The lighter crystals like cara-pils and 10 L. Crystal tend to give body to a beer without effecting flavor or color much. The medium crystals from 30 to 60 L will give a caramel flavor to beers. The dark crystals give a dark sweet flavor to beers and also add dark color. ½ to 1 pound of the dark crystal in a 5-gallon batch will give the beer a red color. Sugars from the crystal malts are not fermentable, so the crystals should be limited to no more than 15% of the grains. There color is the same as their name. A 40 L Crystal will have a color of 40 Lovibond.

Chocolate Malt is roasted to a deep brownish black color. Its flavor has been described as chocolate or coffee like. It will give a rich flavor and color to any dark beer; small amounts will give beer a reddish color. Porters and bocks traditionally have chocolate malt. It will yield a color of 350 Lovibond.

Black Patent is the darkest of all malts. "Burning" malt in an oxygen free environment so it doesn't catch fire makes it. It will give beer a sharp coffee like, almost burnt taste and is often used in stouts. It will give a color of 530 Lovibond.

Unmalted Wheat produce unfermentable sugars and adds flavor and body to the beer without alcohol. Wheat will give beer a "breadly" flavor and tends to make beer cloudy. It is often used in Belgian Wit Beers.

Unmalted Barley and Oats are used to add body and sweetness to beers. Sweet stouts often use one of the grains.

Corn and Rice is used to produce light fermentable sugars. They tend to ferment all the way out and leave little taste on their own. They must be mashed with high diastatic malt like 6 row to convert their starches. American pale lagers use these grains.

Rye gives a sharp flavor to beers it is used in. There are no "rules" with rye except use it sparingly. We have seen rye in red ales, IPA's, and American lagers.

Roast Barley is very similar to Black Patent but even more so. There is clearly a burnt flavor to the beer and dryness stronger than Black Patent. Use very sparingly in Dry Stouts. It has a color of 530 Lovibond.

15. Grains & Extract Types^v

Name	Origin	SG	SRM	Must Mash
Amber Dry Malt Extract		1.044	25	No
Amber Liquid Malt Extract		1.036	30	No
Amber Malt	Great Britain	1.032	35	Yes
Aromatic Malt	Belgium	1.036	25	Yes
Beet Sugar		1.047	0	No
Biscuit Malt	Belgium	1.035	24	Yes
Biscuit Malt	Great Britain	1.035	35	Yes
Black Barley Malt	America	1.027	530	No
Black Malt	Belgium	1.03	600	No

Black Patent Malt	America	1.028	525	No
Black Patent Malt	Great Britain	1.027	525	No
Brewer's Cut Natural Filter Media	America	1	0	No
Brown Malt	Great Britain	1.032	70	Yes
Candy Sugar		1.047	0	No
Cane Sugar		1.047	0	No
Carafa Chocolate Malt	Germany	1.03	525	No
Carafa Special	Germany	1.03	600	No
Carafa	Germany	1.03	400	No
Carahell Dark Malt	Germany	1.037	65	No
Carahell Light Malt	Germany	1.037	3	No
Carahell Malt	Germany	1.034	12	No
Carahell Wheat Malt	Germany	1.038	55	No
CarAmber	France	1.034	30	No
Caramel Pils Malt	Belgium	1.034	2	No
CaraMunich 40	France	1.034	40	No
CaraMunich 60	France	1.034	60	No
CaraMunich 80	France	1.034	80	No
CaraMunich Malt	Belgium	1.033	75	No
Cara-Pils Dextrine Malt		1.033	2	No
CaraPilsner	France	1.035	10	No
Carastan Malt	Great Britain	1.035	34	No
CaraVienna	France	1.035	20	No
CaraVienne Malt	Belgium	1.034	20	No
CaraWheat	France	1.035	40	No
Chocolate Malt	America	1.029	350	No
Chocolate Malt	Belgium	1.03	500	No
Chocolate Malt	France	1.032	350	No
Chocolate Malt	Great Britain	1.034	475	Yes
Classic Wheat Malt	France	1.04	2	Yes
Corn Sugar		1.047	0	No
Crystal 105L	Great Britain	1.033	105	No
Crystal 10L	America	1.035	10	No
Crystal 150L	Great Britain	1.033	150	No
Crystal 20L	America	1.035	20	No
Crystal 30L	America	1.035	30	No
Crystal 40L	America	1.034	40	No
Crystal 55L	Great Britain	1.034	55	No
Crystal 60L	America	1.034	60	No
Crystal 75L	Great Britain	1.034	75	No
Crystal 80L	America	1.033	80	No
Crystal 90L	America	1.033	90	No
Dark CaraMunich		1.034	150	No
Dark Dry Malt Extract		1.044	75	No
Dark Liquid Malt Extract		1.035	40	No
Dark Wheat Malt	France	1.04	12	Yes
Dark Wheat Malt	Germany	1.039	8	Yes
Demerara Sugar		1.047	0	No

Flaked Barley	America	1.032	2	Yes
Flaked Buckwheat	America	1.034	2	Yes
Flaked Corn	America	1.04	1	Yes
Flaked Oats	America	1.033	2	Yes
Flaked Rice		1.04	1	Yes
Flaked Rye	America	1.034	2	Yes
Flaked Soft White Wheat	America	1.034	2	Yes
Flaked Triticale	America	1.032	4	Yes
Honey Malt	Canada	1.03	18	Yes
Honey		1.042	0	No
Irek's Munich Amber LME	Ireks	1.036	21	No
Irek's Munich Light LME	Ireks	1.035	10	No
Kasha Buckwheat	America	1.03	20	Yes
KilnAmber Malt	France	1.032	20	No
KilnBlack Malt	France	1.03	525	No
Kiln Coffee Malt	France	1.031	170	No
Lager Malt (2-row)	America	1.035	1	Yes
Lager Malt (2-row)	Canada	1.036	2	Yes
Lager Malt (2-row)	Great Britain	1.037	1	Yes
Lager Malt (6-row)	Canada	1.031	1	Yes
Light Carastan	Great Britain	1.035	15	No
Light Dry Malt Extract		1.046	7	No
Light Liquid Malt Extract		1.035	7	No
Melanoidin Malt		1.033	35	Yes
Mild Malt	Great Britain	1.037	4	Yes
Milk Sugar		1.03	0	No
Munich Malt (2 Row)	France	1.038	7	Yes
Munich Malt	Belgium	1.038	8	Yes
Munich Malt	Germany	1.037	8	Yes
Munich Malt	Great Britain	1.037	6	Yes
Munich Malt (2-row)	America	1.035	6	Yes
Munich Malt (dark)	America	1.033	20	Yes
Munich Malt (dark)	Canada	1.034	30	Yes
Munich Malt (light)	America	1.033	10	Yes
Munich Malt (light)	Canada	1.034	15	Yes
Pale Ale Malt (2 Row)	France	1.039	2	Yes
Pale Malt (2-row)	America	1.036	2	Yes
Pale Malt (2-row)	Belgium	1.037	3	Yes
Pale Malt (2-row)	Great Britain	1.038	3	Yes
Pale Malt (6-row)	America	1.035	2	Yes
Peated Malt	Great Britain	1.038	5	Yes
Pilsen (2 Row)	France	1.039	2	Yes
Pilsener Malt (2-Row)	Continental Europe	1.035	1	Yes
Pilsener	Belgium	1.037	2	Yes
Pilsener	Germany	1.038	2	Yes
Pilsener	Great Britain	1.036	2	Yes
Roasted Barley	America	1.028	450	No
Roasted Barley	Belgium	1.03	575	No

Roasted Barley	France	1.03	550	No
Roasted Barley	Great Britain	1.029	575	No
Roasted Rye Malt		1.029	500	No
Roasted Rye	France	1.03	95	No
Roasted Wheat Malt	Germany	1.03	650	No
Roasted Wheat	France	1.03	550	No
Rye Malt	America	1.03	4	Yes
Sauer (acid) Malt		1.035	2	Yes
Scottish Peated Malt		1.038	5	Yes
Smoked (Bamberg)	Germany	1.037	9	Yes
Soft White Wheat Malt	America	1.04	3	Yes
Special Aromatic Malt (2 Row)	France	1.037	5	Yes
Special B Malt	Belgium	1.03	120	No
Special Roast Malt	America	1.033	40	Yes
Stout Liquid Extract		1.035	350	No
Toasted Malt (2-row)	America	1.033	30	Yes
Turbinado Sugar		1.047	0	No
Victory Malt	America	1.034	25	Yes
Vienna Malt (2 Row)	France	1.037	3	Yes
Vienna Malt	America	1.035	4	Yes
Vienna Malt	Canada	1.036	4	Yes
Vienna Malt	Germany	1.037	3	Yes
Wheat Malt	America	1.038	2	Yes
Wheat Malt	Belgium	1.038	2	Yes
Wheat Malt	Germany	1.039	2	Yes
White Wheat	Belgium	1.04	3	Yes

16. SRM Chart & Calculations

For Mosher, Daniels Formula:

From "Beer Color Demystified" - Part III. Ray Daniels, Brewing Techniques Vol. 3, #6 - November/December 1995 Issue.

1. Calculate MCU, which is basically:

$$\text{MCU} = (\text{Lovibond rating} \times \text{pounds}) / \text{gallons.}$$

Each grain in the grist gets this number calculated, the totals are added, and we get a final MCU number.

THEN:

2. Randy Mosher compared commercial beers with known rating to his own, and came to the conclusion that SRM could be approximated using the formula:

$$\text{SRM} = (\text{MCU} \times 0.3) + 4.7$$

Although not perfect, when graphically plotted his scale runs right through the middle of the data set.

3. In Ray Daniels 'Beer Color, Ray does further refinement on Mosher's equation and stated that SRM is approx:

$$\text{SRM} = (\text{MCU} * 0.2) + 8.4$$

Description	SRM Color
Very Pale	2-3
Pale	3-4
Gold	5-6
Amber	6-9
Deep Amber / Light Copper	10-14
Copper (Reddish brown)	14-17
Deep Copper / Light Brown	17-18
Brown	19-22
Dark Brown	22-30
Very Dark Brown	30-35
Black	30+
Black, Opaque	40+

17. Brewing Equipment

Recommended Equipment	Description
Airlock	Airlocks prevent airborne contamination during fermentation.
Boiling Pot	Must be able to comfortably hold a minimum of 3 gallons; bigger is better. Use Stainless Steel or Ceramic- coated (enameled) Steel.
Bottles	You will need 48 re-cappable 12 oz bottles. Twist-offs do not re-cap well and can oxidize you brew.
Bottle Capper	Either Hand Capper or Bench Capper.
Bottle Caps	Both standard caps and oxygen-absorbing caps are available.
Bottle Filler	Rigid plastic (or metal).
Bottle Brush	Necessary for initial thorough cleaning of used beer bottles.
Fermenter(s)	The 6-gallon food-grade plastic pail or Glass carboys are also available, in 5, 6, and 7.5-gallon sizes.
Racking Cane	Rigid plastic tube.
Siphon/Hose	Available in several configurations, consisting of clear plastic tubing with optional Racking Cane and Bottle Filler.
Stirring Paddle	Food grade plastic paddle (spoon) for stirring the wort during boiling.
Thermometer	Use a thermometer that can be safely immersed in the wort and has a range of at least 40F to 190F.
Bottling Bucket	A 6-gallon food-grade plastic pail with attached spigot and fill-tube. Racking into the bottling bucket allows clearer beer with less sediment in the bottle allowing greater control of the fill level and no hassles with a siphon during bottling.

Hydrometer

A hydrometer measures the relative specific gravity between pure water and water with sugar dissolved in it. The hydrometer is used to gauge fermentation by measuring one aspect of it, attenuation. Attenuation is the conversion of sugar to ethanol by the yeast.

Appendix B.

1. Atenveldt A&S Cordials & Liqueurs Judgment Form^v

Category Name: SPIRITS - CORDIALS & LIQUEURS

Entrant:	Item Number:
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Item Description:

CHECK-BOX items: 1 point will be awarded for each check-box marked.

	Documentation includes example of entry (or type of entry) in period use.		Recipe is included in the documentation (i.e., what was used).
	Documentation uses multiple sources.		The recipe is period.
	Documentation includes a bibliography.		The recipe was translated or redacted from a period recipe by the entrant.
	Documentation lists dates & times that item would have been used.		Fresh ingredients, not canned or frozen, were used.
	Documentation includes illustrations.		Home-grown or home-harvested ingredients were used.

SPREADS: Circle the number of points awarded for each spread.

QUALITY				
1	2	3	4	5
Lack of aroma, unbalanced flavor, poor color, clarity inappropriate for ingredients used			Pleasant or appropriate aroma, appropriate balance of flavors, good color and appropriate clarity	

PRESENTATION				
1	2	3	4	5
Plain bottle, one glass, no napkins or accessories			Nice decanter, platter, appropriate glassware, napkins and accessories	

DIFFICULTY				
1	2	3	4	5
Common ingredients, refined sugar used			Uncommon ingredients, honey or natural sugar used, unusual combination of herbs, spices, flowers, etc.	

JUDGE'S DISCRETIONARY POINTS: Circle the number of points awarded. Give plenty of comments.

JUDGE'S DISCRETIONARY POINTS				
1	2	3	4	5
Comments:				

TOTAL POINTS

Sum 1 point per check-box, plus circled numbers in spreads, plus circled number in Judge's discretionary points. Maximum = 30 points.

<i>Judge's Signature</i>

18. Atenveldt A&S Brewing Judgment Form^{vi}

Category Name: **SPIRITS - BREWING**

Entrant:

Item Number:

Item Description:

CHECK-BOX items: 1 point will be awarded for each check-box marked.

<input type="checkbox"/>	Documentation includes example of entry (or type of entry) in period use.	<input type="checkbox"/>	The entry was brewed in a period manner.
<input type="checkbox"/>	Documentation uses multiple sources.	<input type="checkbox"/>	Recipe is included in the documentation (i.e., what was used).
<input type="checkbox"/>	Documentation includes illustrations.	<input type="checkbox"/>	The recipe is period.
<input type="checkbox"/>	Documentation includes a bibliography.	<input type="checkbox"/>	The recipe was translated or redacted from a period recipe by the entrant.
<input type="checkbox"/>	Natural ingredients were used (i.e., whole grains, natural honey not pasteurized, no extracts)	<input type="checkbox"/>	Home-grown or home-harvested ingredients were used.

SPREADS: Circle the number of points awarded for each spread.

QUALITY				
1	2	3	4	5
Inappropriate aroma, unbalanced flavor, poor color, clarity inappropriate			Appropriate aroma, appropriate balance of flavors, good color and appropriate clarity	

DIFFICULTY				
1	2	3	4	5
Common ingredients, single ingredient used, extract used			Difficult / complex combination of ingredients, complex style of brewing, all natural ingredients	

PRESENTATION				
1	2	3	4	5
Inappropriate glassware, modern bottles used			Appropriate glassware, period style container	

JUDGE's DISCRETIONARY POINTS: Circle the number of points awarded. Give plenty of comments.

JUDGE's DISCRETIONARY POINTS				
1	2	3	4	5
Comments:				

TOTAL POINTS

Sum 1 point per check-box, plus circled numbers in spreads, plus circled number in Judge's discretionary points. Maximum = 30 points.

Judge's Signature

8. References

- ⁱ Portions extracted from ProMash <http://www.promash.com>
- ⁱⁱ Portions extracted from ProMash <http://www.promash.com>
- ⁱⁱⁱ http://www.homebeer.com/articles/grain_brewing_guide.htm
- ^{iv} Portions extracted from ProMash <http://www.promash.com>
- ^v Provided by the Atenveldt Kingdom Minister of Arts and Sciences
- ^{vi} Provided by the Atenveldt Kingdom Minister of Arts and Sciences