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The Black Oak Brewing Company Ltd.
504 Iroquois Shore Road, Unit #10
Oakville, Ontario, Canada
L6H 3K4
Phone: 905-339-1037
Fax: 905-339-0219
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This is a brief description of how we make our beer and what we use. (It's not too technical so let's not start sending in too many corrections via e-mail). It should be noted that every piece of equipment must be kept completely clean to ensure quality, character, and consistency. Black Oak is extremely careful about the production of our beer. Not only are the majority of our ingredients Canadian, but we also strive to ensure that the materials used are environmentally friendly.

Our beers are craft brewed, prepared in small batches using a 20 Hectolitre brew house with four 40 Hectolitre Unitanks and one 40 Hectolitre Bright Beer Tank in a 4,200 sq. ft. facility. Our brewing equipment is custom engineered, stainless steel, high-tech and most importantly, Canadian made. The brew house is the hot side of the brewing process. It consists of a Mash Lauter Tun, the Brew Kettle, and the Hot Liquor Tank. The brew house is heated with a steam boiler, and at peak performance, the entire building gets extremely warm. Then there is the fermentation aging area that is the cold side of the brewing process. It contains four Unitanks and one Bright Beer Tank. All of these tanks are glycol jacketed and insulated. This area is cooled using a ten-ton glycol chiller.



We get our primary grain in 25 kilo bags and our specialty grains come in 22.68 kilo bags. These bags are opened and poured into the mill to reveal the starches contained within the grain husk. The milling is set to crush the grains to appropriate consistency. If the grains are milled too lightly, the yield will be less because the hot water cannot reach all of the starch. However if over processed, the grain becomes powdery which results in a sticky mess in the Mash Lauter Tun (MLT). When the grain is milled correctly, we get the maximum yield and the milled grain husks act like a natural filter bed for the MLT. Once the grain is milled it is transported to a hopper using an auger. The hopper collects the milled grain and drops it into the MLT. The brewer has to run back and forth between the mill (to load the grain bags) and the MLT (to spread the grain evenly in the MLT).

Malt for brewing is primarily malted barley. Barley is harvested and separated into the grains (or seeds) from the stalks that they grew on. The raw barley is then divided into feed barley for livestock, and brewer's barley. Brewing Barley can be either two row (having two rows of seeds) or six row (having six rows of seeds). The brewer's barley is then malted by germinating the grains in a shallow warm water bath. The germination process converts starches present into more desirable simpler

starches by using enzymes present in the barley. Once the barley has sprouted to a length of 1 centimetre, the germination is stopped by removing the water and baking the grain. The barley is baked or roasted in an oven removing the sprouts and drying the malt. The malting process results in grains that have the desired type of starches present. Specialty grains are malted for specific periods: for example, lighter malts are baked for a short period of time, while darker malts are roasted longer. The degree of roasting will result in specific flavour desired by brewers.



The Mash Lauter Tun (MLT)

The MLT in essence is a big pot with a strainer at the bottom. All of the milled grain is evenly mixed with water set to a specific strike temperature. This is the Mash part of the MLT. All of the different types of malts are mixed at this stage. At this strike temperature, a conversion of starches present in the milled grain will convert into a soluble sugar solution. This sugar solution is called 'wort'. This wort is then drawn off through the grain bed that acts like a strainer because of the husks present. The drawing off is called Lautering. We use a single vessel for doing the Mashing and the Lautering, hence the name Mash Lauter Tun. The wort is then transferred to the Brew Kettle. Sparging is done to bring up the volume in the Kettle and get the best yield from the grains. Usually, we are targeting a specific volume of wort at a desired specific gravity. Specific gravity refers to the concentration of sugars present in solution. After the wort is transferred to the Kettle, the spent grains are shovelled out, and sent out for use as animal feed. In return for the spent grain, we get farm fresh eggs.

The Hot Liquor Tank

The Hot Liquor Tank (HLT) is a double sized tank that is used for heating and holding our brewing water. This water, or brewing liquor, is set at a specific temperature for each type of brew. This tank like all the others is controlled using the PLC touch screen panel. This water is then used for the MLT and for sparging. The brewing liquor we use is our Reverse Osmosis Water, and it has a direct feed from our holding tank.

The Brew Kettle

The wort is transferred to the Brew Kettle. Once the gravity is at the desired value for the target volume, the temperature is gradually increased until a rolling boil is achieved. Hops are added at various times. The boil is maintained vigorously for approximately 90 minutes. During this time the hot break occurs. The Kettle will foam up and then it will settle down to a normal boil. During the hot break, all of the proteins that were extracted from the grains will coagulate. The long boil also helps to improve the quality and shelf life of the beer.

The type of hops we use and the timing of the addition is top secret. We use pelletized hops (compressed hop flowers) at Black Oak because they give us the best flavour for the least amount of clean up. Hops are an important component of beer making. Not only do they impart a flavour character to the beer, but they also help to preserve it longer. Hops can be added at the start of the boil to impart bitterness and they can be added at various times for flavouring. Hops added at the end of the boil impart aroma. The wort is finally whirl-pooled after the boil is complete. This mixing process helps to settle the coagulated proteins and any hop residue. The wort is still very hot at this time and can now be pumped to the heat exchanger.

Heat Exchanger

Once the wort has completed its boil, the liquid is transferred to a fermentation vessel through a primary heat exchanger using a pump. The heat exchanger drops the temperature to a suitable level for the addition of yeast. The wort passes then passes through a second heat exchanger into a Unitank. This second heat exchanger is glycol cooled for additional control. At this point oxygen is added to give the yeast an extra boost.



Once inside the fermentation vessel (called a Unitank) yeast will be added. Yeast will convert the sugars present into alcohol and carbon dioxide. Yeast will work until all of the fermentable sugars have been used, or the temperature is reduced. The activity of the yeast will increase the temperature of the wort. We hold the fermentation at 20 degrees Celsius using the glycol jacket. Once the fermentation is complete (we determine this by doing a specific gravity of the beer), the liquid is now beer. We age the beer by dropping the tank temperature to 2 degrees Celsius, and maintain that temperature until we are ready to filter. Aging develops desired flavour profiles for each of our beer. Our Ales age for a minimum of 14 days and our Lager ages for a minimum of 30 days. Aging is crucial to our flavour profile.



Filtration is done at very cold temperatures, to remove any remaining yeast, other fermentation and aging by products. We use a plate and press filter that does a fantastic job. The filtration clarifies the beer and gives it a characteristic appearance. After being filtered the beer is transferred to a Bright Beer Tank. Once in the Bright Beer Tank, the beer has its carbonation adjusted to the desired level and is now ready for either kegging or bottling.