Beer Making Process Cheat Sheet

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Introduction

Water, malt, hops and yeast – just 4 ingredients. How hard can brewing be? Well to be honest it is a pretty straightforward process, the trick is to correctly manipulate all the variables to get the desired and consistent result.

When you add in all the different type of water with the many shades and quantities of malt, the array of hops and choice of yeast strains, you can pretty quickly see the dazzling number of combinations and permutations' that result in different outcomes. No wonder every beer tastes different and a beer enthusiast loves to try as many different varieties to decide on favourites.

Source; https://www.eightdegrees.ie/brewing-process-2/

Stage1: Malting & Milling

■The vast majority of malt (grain) used is produced comes in bulk to a silo. The barley has been modified to malt by the maltster and millrf immediately prior to use.

■Each beer has its own formulation with regards to the blend of different malts.

Stage 2: Mashing & Lautering

■This tank has a mixing paddle to ensure that the mix of water and malt is constantly agitated during mashing.

■The malt is mixed with hot water to allow the starch to be converted into sugar by enzymes.

■The temperature of the mixture is crucial, as the type of sugar converted is temperature dependent: some sugars are fermentable, while others are non-fermentable, giving richness and mouth feel to the finished beer.

■We have steam jackets on the outside of the tanks to heat the mash in stages.

■This mashing process takes about two hours.

■The sweet liquid, now called wort, can pass through the screens of the false bottom, while the grain stays behind. The wort is then pumped into the kettle.

■This process takes about 1.5 hours

■Afterwards, the spent grain is collected for cattle feed.

Stage 3: Boiling & Whirlpool

■Once all the wort is in the kettle, the liquid is boiled for 60-90 minutes. This ensures that the wort is sterile.

■Boiling also evaporates some water, concentrating the wort and intensifying the colour somewhat.

■Hops are added to the kettle at the start of boil for bitterness and at the end of boil for aroma and flavour

■The wort is then recirculated through a whirlpool effect which ensures the residual hop product, proteins and enzymes are coagulated, and settle out of the liquid as a sludge called Trub. This Trub is partially removed from the bottom of the kettle which ensures the bitter wort is nice and clear when transferred through to the next stage.

Stage 4: Cooling through Heat Exchanger

■Once boiling is complete, the wort is cooled to around 20 C through a heat exchanger on its way to the fermenter.

■This process takes about 1 hour.

■By heat exchanging, we recover the energy used to boil the wort, i.e. cold water becomes hot water, and returned to the Hot Liquor Tank which is then used to brew more beer or for cleaning.

Stage 5: Fermentation & Maturation

■Once all the wort is in the tank, the yeast is added.

■The yeast will ferment the wort and turn it into beer.

■Primary fermentation will take about 3 – 4 days to complete.

■Fermentation temperatures will vary depending on beer styles, a lager is fermented below 16 C, ales are fermented above 20 C.

■At the end of fermentation, the finished beer is chilled to 10 C and then 4 C and kept in the tank for maturation, ~ 3 weeks.

■Yeast is harvested from the cone section at the bottom of the fermenter, to be used to ferment another batch of beer.

■Brew size; standard range beers are done as double brews (~ 3,000 litres), while specialty beers are done as single brews (~1,500 litres)

Stage 6: Filtering into a Bright Beer Tank

■When the beer is required for packaging, either in kegs or bottles, it is earth filtered into a Bright Beer Tank (BBT)

■Filtering removes yeast, leaving the beer crystal clear.

■Some beers are not filtered at all to retain yeast e.g. Hurricane IPA

■CO2 (carbon dioxide) is adjusted in the BBT and it is then ready to be packaged.

■Beer is kept freezing cold.

Stage 7: Packaging

■Beer is packaged into either kegs or bottled in 330ml glass bottles.

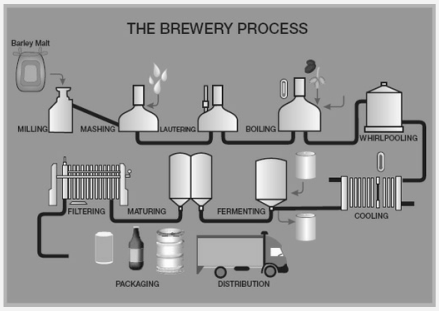
■Each keg holds 30 litres or 50 pints or 50 litres, about 85 pints

■If bottled, the beer is counter pressure filled (double pre-evacuation) to reduce oxidation, and capped on foam to ensure it is free of any nasty microbes and will remain stable in the bottle.

■Bottled are labelled and placed into six-packs and cartons.

■Then wrapped in pallets stored ready for dispatch.

Brewing Process



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