Britannia (AG) 23 L

Created: Sunday January 21st 2024

League of Brewers

Method: **All Grain** Style: **Dark Mild** Boil Time: **60 min** Batch Size: **23 liters** (fermentor volume)

Pre Boil Size: **28.5 liters** Pre Boil Gravity: **1.032** (recipe based estimate) Post Boil Gravity: **1.039** (recipe based estimate)

Efficiency: **75%** (brew house) Source: **LoB kits** Calories: **181 calories** (Per 500ml) Carbs: **20.1 g** (Per 500ml)

Original Gravity:	Final Gravity:	ABV (standard):	IBU (tinseth):	SRM (morey):	Mash pH	Cost $
1.039	**1.011**	**3.7%**	**25.1**	**19.2**	**5.5**	**n/a**

Fermentables

Amount	Fermentable	Cost	PPG	°L	Bill %
3.50 kg	Bairds - GB - Bairds - Maris Otter Finest Ale Malt		37.49	2.5	89.7%
0.20 kg	Gladfield - NZ - Gladfield - Medium Crystal Malt		35.88	52.55	5.1%
0.20 kg	Gladfield - NZ - Gladfield - Light Chocolate Malt		32.7	475	5.1%

3.90 kg / $ 0.00

Hops

Amount	Variety	Cost	Type	AA	Use	Time	IBU	Bill %
42 g	Fuggles (UK)		Pellet	4.6	Boil	60 min	25.1	100%

42 g / $ 0.00

Other Ingredients

Amount	Name	Cost	Type	Use	Time
5 g	Calcium Chloride (dihydrate)		Water Agt	Mash	1 hr.

Yeast

Lallemand - LALBREW® WINDSOR BRITISH-STYLE BEER YEAST

Amount: 1 Each **Cost:** **Attenuation (avg):** 70% **Flocculation:** Low

Optimum Temp: 15 - 22 °C **Starter:** No

Fermentation Temp: 20 °C **Pitch Rate:** 0.5 *(M cells / ml / ° P)* 112 B cells required

Priming

Method: co2 Amount: 1.69 bar Temp: 20 °C CO_2 Level: 2.3 Volumes

Target Water Profile Dark, sweet and malty

Ca^{+2} 54.9 **Mg^{+2}** 3 **Na^{+}** 10 **Cl^{-}** 84.2 **SO_4^{-2}** 7 **HCO_3^{-}** 40

Mash Guidelines

Amount	Description	Type	Start Temp	Target Temp	Time
10.5 L		Infusion	67 °C	67 °C	60 min
	Mash out	Temperature	67 °C	77 °C	15 min
22 L		Sparge	--	78 °C	--

Starting Mash Thickness: 2.7 L/kg

Quick Water Requirements

Water	Liters
Strike water volume at mash thickness of 2.7 L/kg	10.5
Mash volume with grains	13.1
Grain absorption losses	-3.9
Remaining sparge water volume (equipment estimates 21.2 L)	21.9
Pre boil volume (equipment estimates 27.8 L)	28.5
Boil off losses	-2.5

Water	Liters
Hops absorption losses (first wort, boil, aroma)	-0.3
Post boil Volume	25
Kettle losses	-2
Going into fermentor	23
Total:	**32.4**
Equipment Profile Used:	G30

Notes

The suggested mineral additions assume an average NZ water profile and should be fine for most NZ water sources. The target water profile in ppm is shown above.

1. This recipe is designed to include mineral additions in the mash. If you do not have scales, 1 flat tsp for 4 g of calcium chloride will suffice for this recipe. The mineral additions are designed to target an mash pH of ~5.5. Calcium is also essential for stabilising mash enzymes and for yeast health. The mineral additions are also very important for the flavour profile of the beer. If you do not have brewing salts in your home brewery, these are available for purchase on The League of Brewers website and will last a great many brews for a small cost.
2. All of our hops are packaged in 50, 100 and 200 g packs. This means that for this recipe you will have an extra 8 g of Fuggle hops. You may choose some of them to adjust the IBU's if the current stocks of hops have lower AAU percentages than those stated in the recipe, or just keep them for another brew.
3. If you wish (particularly if your system requires excessive sparging, below SG 1.012), add sufficient lactic acid to the sparge water to lower the pH to 5.6 prior to heating (~ 0.5 - 1.0 ml/10 L, depending on water source).
4. We recommend adding kettle finings (whirlflock, Irish Moss) and yeast nutrient 15 min before the end of boil.
5. Quickly cool the wort to 18C and promptly transfer to a fermenter. We strongly recommend that the yeast be rehydrated in sterile warm water per the manufacturer's instructions. If not, you may lose up to 50% cell viability. Pitch into well aerated wort at 18C and allow the temperature to rise to 20C.

   7.When the primary ferment begins to slow (3 -5days), raise the fermentation temperature to 22 deg C and hold for 5-7 days or until a stable final gravity is reached.
6. When ready, rack the beer to a CO2 purged keg and force carbonate, targeting 2.4 parts. Note that over carbonation will reduce the smooth full drinkability of this beer.