Firefly (AG) 23L

Created Sunday July 2nd 2023

League of Brewers

Method: **All Grain** Style: **American Amber Ale** Boil Time: **60 min** Batch Size: **21 liters** (fermentor volume)

Pre Boil Size: **26.38 liters** Pre Boil Gravity: **1.047** (recipe based estimate) Post Boil Gravity: **1.059** (recipe based estimate)

Efficiency: **75%** (brew house) Source: **LoB kits** Calories: **275 calories** (Per 500ml) Carbs: **28.7 g** (Per 500ml)

Original Gravity:	Final Gravity:	ABV (standard):	IBU (tinseth):	SRM (morey):	Mash pH	Cost $
1.059	**1.015**	**5.8%**	**39.0**	**13.3**	**5.4**	**n/a**

Fermentables

Amount	Fermentable	Cost	PPG	°L	Bill %
4.70 kg	Gladfield - NZ - Gladfield - Ale Malt		35.42	2.85	83.9%
0.20 kg	Gladfield - NZ - Gladfield - Munich Malt		35.8	7.25	3.6%
0.50 kg	Gladfield - NZ - Gladfield - Medium Crystal Malt		35.88	52.5	8.9%
0.20 kg	Gladfield - NZ - Gladfield - Dark Crystal Malt		35.88	100	3.6%

5.60 kg / $ 0.00

Hops

Amount	Variety	Cost	Type	AA	Use	Time	IBU	Bill %
10 g	Chinook		Pellet	11.5	Boil	60 min	14.26	9.1%
20 g	Cascade		Pellet	6.1	Boil	10 min	5.48	18.2%
20 g	Cascade		Pellet	6.1	Boil	0 min		18.2%
20 g	Centennial		Pellet	9.9	Boil	10 min	8.9	18.2%
20 g	Centennial		Pellet	9.9	Boil	0 min		18.2%
20 g	Chinook		Pellet	11.5	Boil	10 min	10.34	18.2%

110 g / $ 0.00

Other Ingredients

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

Yeast

Fermentis - Safale - English Ale Yeast S-04

Amount: 1 Each **Cost:** **Attenuation (avg):** 75% **Flocculation:** High **Optimum Temp:** 12 - 25 °C **Starter:** No

Fermentation Temp: - **Pitch Rate:** 0.35 *(M cells / ml / ° P)* 107 B cells required

Priming

Method: co2 Amount: 0.95 bar Temp: 6 °C CO_2 Level: 2.5 Volumes

Target Water Profile Balanced Profile

Ca^{+2} 72 **Mg^{+2}** 3 **Na^{+}** 10 **Cl^{-}** 67 **SO_4^{-2}** 72 **HCO_3^{-}** 40

Mash Guidelines

Amount	Description	Type	Start Temp	Target Temp	Time
15.1 L		Strike	74 °C	68 °C	60 min
19 L		Sparge	78 °C	--	--

Starting Mash Thickness: 2.7 L/kg
Starting Grain Temp: 20 °C

Quick Water Requirements

Water	Liters
Strike water volume at mash thickness of 2.7 L/kg	15.1
Mash volume with grains	18.8
Grain absorption losses	-5.6
Remaining sparge water volume	16.9
Pre boil volume	26.4

Water	Liters
Boil off losses	-2.5
Hops absorption losses (first wort, boil, aroma)	-0.9
Post boil Volume	23
Kettle losses	-2
Going into fermentor	21
Total:	**32**
Equipment Profile Used:	G30

Notes

The suggested mineral additions for this recipe 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/4g each of gypsum and calcium chloride will be a close approximation. The mineral additions are designed to target an optimal mash pH of ~5.4 without the need for acidulated malt. 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, they are available for purchase on the LoB 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 20 g of Chinook hops, 10 g of Cascade and 10g Centennial. You may wish to use some of them to adjust the bittering if the current stocks of hops are a lower alpha acid %, or keep them for another brew. Alternatively, if you decide you would like a more hop forward aroma, the full amount (40g) of remaining hops may be added as a dry hop addition.
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/10l lactic acid depending on water source).
4. We recommend you add kettle finings (whirlflock, Irish Moss). and yeast nutrient 15 min before the end of boil.
5. Cool the wort to 18 deg C and promptly transfer to a fermenter.
6. 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 18 deg C and allow to rise to 20 deg C.
7. When the primary ferment is complete (~ 1 week), hold the fermentation temperature at 20 deg C, allowing the beer to clear and mature for around 7 days. Wait it out if needed. Two-three weeks from start to finish is a good rule of thumb.
8. When ready, rack the beer to a CO2 purged keg and force carbonate to around 2.5 vols CO2.