Up In Smoke. Rauchbier (AG) 23L

Created: Saturday July 27th 2024

League of Brewers

Method: **All Grain** Style: **Rauchbier** Boil Time: **60 min** Batch Size: **23 liters** (fermentor volume) Pre Boil Size: **28.3 liters** Post Boil Size: **25 liters**

Pre Boil Gravity: **1.051** (recipe based estimate) Post Boil Gravity: **1.058** (recipe based estimate) Efficiency: **75%** (brew house) Source: **LoB Kits**

Calories: **268 calories** (Per 500ml) Carbs: **24.2 g** (Per 500ml)

Original Gravity:	Final Gravity:	ABV (standard):	IBU (tinseth):	SRM (daniels):	Mash pH	Cost $
1.058	**1.011**	**6.1%**	**33.0**	**12.0**	**5.4**	**n/a**

Fermentables

Amount	Fermentable	Cost	PPG	°L	Bill %
4.50 kg	Weyermann - Munich Type II (Dark)		35.1	9.9	73.8%
1.20 kg	Weyermann - Weyermann - Beech Smoked Barley		32.34	2.7	19.7%
0.40 kg	Bestmalz - DE - Bestmalz - BEST Vienna		37	4.2	6.6%

6.10 kg / $ 0.00

Hops

Amount	Variety	Cost	Type	AA	Use	Time	IBU	Bill %
50 g	Hallertau Mittelfruh		Pellet	3.75	Boil	60 min	20.53	50%
50 g	Hallertau Mittelfruh		Pellet	3.75	Boil	20 min	12.43	50%

100 g / $ 0.00

Other Ingredients

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

Yeast

Lallemand - LalBrew Diamond Lager

Amount: 3 Each **Cost:** **Attenuation (avg):** 80% **Flocculation:** High **Optimum Temp:** 10 - 15 °C **Starter:** No

Fermentation Temp: 12 °C **Pitch Rate:** 1.5 *(M cells / ml / ° P)* 492 B cells required

Priming

CO_2 Level: 4.04 Volumes

Target Water Profile Light colored and malty

Ca^{+2} 73.3 **Mg^{+2}** 3 **Na^{+}** 10 **Cl^{-}** 80.5 **SO_4^{-2}** 55.9 **HCO_3^{-}** 40

Mash Guidelines

Amount	Description	Type	Start Temp	Target Temp	Time
16.5 L	Protein rest.	Temperature	--	50 °C	20 min
	Starch conversion.	Temperature	50 °C	67 °C	60 min
	Mash out.	Temperature	--	77 °C	15 min
17.9 L		Sparge	--	77 °C	--

Starting Mash Thickness: 2.7 L/kg

Quick Water Requirements

Water	Liters
Strike water volume at mash thickness of 2.7 L/kg	16.5
Mash volume with grains	20.5
Grain absorption losses	-6.1
Remaining sparge water volume	17.9
Pre boil volume	28.3
Boil off losses	-2.5
Hops absorption losses (first wort, boil, aroma)	-0.8
Post boil Volume	25
Kettle losses	-2
Going into fermentor	23
Total:	**34.4**
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 (balanced) water profile in ppm is shown above.

Advanced note: we suggest that you incorporate a decoction mash is which traditionally used in the brewing of a Marzen, the style which provides the foundations upon which a Rauchbier is created. This method will help bring out the bready malty flavours. There are a number of approaches available, some more complicated than others, but for the slightly more adventurous brewer a simple double decoction can be added to the mash schedule as follows. 20 minutes protein rest (50 deg C), then pull a thick mash sample (approximately 1/3 of the mash without lots of the liquor and enzymes) and heat in a separate vessel to 67 deg C (there is no need to raise the temperature of the main mash yet). Hold the decoction at 67 deg C for 20 min and then bring it to the boil. Slowly return the decoction to the main mash raising the temperature to 67 deg C (for 1 hour). Any remaining decoction volume can be left to cool some more before returning to the main mash. At the end of the main 67 deg C infusion, pull a wet mash sample (1/3 of the mash with plenty of liquor) and bring it to the boil. Carefully return the boiled mash to the main mash, raising the temperature to mash out.

1. This recipe is designed to include mineral additions in the mash. If you do not have scales, 1 flat tsp/4g of calcium chloride will be a close approximation. The mineral additions are designed to target an optimal mash pH of ~5.3. 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. 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).
3. We recommend you add kettle finings (whirlflock, Irish Moss) and yeast nutrient 15 min before the end of boil.
4. Cool the wort to 12 deg C and promptly transfer to a fermenter (you will likely need to finish cooling in your fermenter fridge).
5. 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. Use all three packs provided for a healthy lager pitch (1.5 x cell count required for a lager). Pitch into well aerated wort at 12 deg C and ferment at this temperature until complete. Expect this to take
   around 1 week for the beer to finish. It is always important not to rush the beer. Giving the beer another week at primary fermentation temperature is always a good idea. While it shouldn't be necessary if the pitch rate and fermentation guidelines are followed, some brewers may choose to slowly raise the beer temperature by 2-3
   degrees towards the end of the ferment (diacetyl rest), especially if you have had any issues with an unhealthy ferment/have performed a sensory test and picked up diacetly. If you do this, we recommend you give the beer plenty of time (2-3 days rest).
6. When ready, rack the beer to a CO2 purged keg (finings can be added if needed) and force carbonate to around 2.7 vols CO2.