

Hop Rats

- Gravity **12.9 BLG**
- ABV **5.2 %**
- IBU **38**
- SRM **4.9**
- Style **American Pale Ale**

Batch size

- Expected quantity of finished beer **10 liter(s)**
- Trub loss **5 %**
- Size with trub loss **11 liter(s)**
- Boil time **60 min**
- Evaporation rate **10 %/h**
- Boil size **13.2 liter(s)**

Mash information

- Mash efficiency **75 %**
- Liquor-to-grist ratio **3 liter(s) / kg**
- Mash size **8.1 liter(s)**
- Total mash volume **10.8 liter(s)**

Steps

- Temp **69 C**, Time **1 min**
- Temp **66 C**, Time **70 min**
- Temp **78 C**, Time **5 min**

Mash step by step

- Heat up **8.1 liter(s)** of strike water to **73.7C**
- Add grains
- Keep mash **70 min** at **66C**
- Keep mash **1 min** at **69C**
- Keep mash **5 min** at **78C**
- Sparge using **7.8 liter(s)** of **76C** water or to achieve **13.2 liter(s)** of wort

Fermentables

Type	Name	Amount	Yield	EBC
Grain	Viking Pale Ale malt	2 kg (74.1%)	80 %	5
Grain	Vienna Malt	0.5 kg (18.5%)	78 %	8
Grain	Karmelowy Jasny 30EBC	0.1 kg (3.7%)	75 %	30
Grain	Weyermann - Acidulated Malt	0.1 kg (3.7%)	80 %	6

Hops

Use for	Name	Amount	Time	Alpha acid
Boil	Citra	10 g	30 min	13.4 %
Boil	Citra	15 g	5 min	13.4 %
Aroma (end of boil)	Zappa	20 g	15 min	4.2 %
Dry Hop	Zappa	30 g	4 day(s)	4.2 %

Yeasts

Name	Type	Form	Amount	Laboratory
Safale US-05	Ale	Dry	5.75 g	Fermentis