HAPA

- Gravity **13.1 BLG**
- ABV **5.3 %**
- IBU **30**
- SRM **4.6**
- Style **American Pale Ale**

Batch size

- Expected quantity of finished beer **15 liter(s)**
- Trub loss **5 %**
- Size with trub loss **15.8 liter(s)**
- Boil time **60 min**
- Evaporation rate **10 %/h**
- Boil size **19 liter(s)**

Mash information

- Mash efficiency **75 %**
- Liquor-to-grist ratio **3 liter(s) / kg**
- Mash size **12.1 liter(s)**
- Total mash volume **16.1 liter(s)**

Steps

- Temp **67 C**, Time **40 min**
- Temp **72 C**, Time **20 min**
- Temp **76 C**, Time **1 min**

Mash step by step

- Heat up **12.1 liter(s)** of strike water to **74.8C**
- Add grains
- Keep mash **40 min** at **67C**
- Keep mash **20 min** at **72C**
- Keep mash **1 min** at **76C**
- Sparge using **10.9 liter(s)** of **76C** water or to achieve **19 liter(s)** of wort

Fermentables

Type	Name	Amount	Yield	EBC
Grain	Viking Pale Ale malt	2.1 kg *(52.2%)*	80 %	5
Grain	Pszeniczny	0.9 kg *(22.4%)*	80 %	4
Grain	Płatki pszeniczne	0.6 kg *(14.9%)*	70 %	3
Grain	Płatki owsiane	0.3 kg *(7.5%)*	70 %	3
Grain	Abbey Castle	0.12 kg *(3%)*	80 %	45

Hops

Use for	Name	Amount	Time	Alpha acid
Whirlpool	Rakau (NZ)	25 g	20 min	10.5 %
Whirlpool	Centennial	40 g	20 min	10.5 %
Dry Hop	Rakau (NZ)	25 g	3 day(s)	10.5 %
Dry Hop	Centennial	33 g	3 day(s)	10.5 %