

Pale ale very bitter and strong

- Gravity **12.1 BLG**
- ABV **4.9 %**
- IBU **201**
- SRM **5.1**
- Style **American Pale Ale**

Batch size

- Expected quantity of finished beer **25 liter(s)**
- Trub loss **1 %**
- Size with trub loss **25.3 liter(s)**
- Boil time **75 min**
- Evaporation rate **18 %/h**
- Boil size **31.2 liter(s)**

Mash information

- Mash efficiency **75 %**
- Liquor-to-grist ratio **3.5 liter(s) / kg**
- Mash size **18.9 liter(s)**
- Total mash volume **24.3 liter(s)**

Steps

- Temp **55 C**, Time **10 min**
- Temp **63 C**, Time **75 min**
- Temp **72 C**, Time **5 min**
- Temp **78 C**, Time **0 min**

Mash step by step

- Heat up **18.9 liter(s)** of strike water to **60C**
- Add grains
- Keep mash **10 min** at **55C**
- Keep mash **75 min** at **63C**
- Keep mash **5 min** at **72C**
- Keep mash **0 min** at **78C**
- Sparge using **17.7 liter(s)** of **76C** water or to achieve **31.2 liter(s)** of wort

Fermentables

Type	Name	Amount	Yield	EBC
Grain	Briess - Pale Ale Malt	5 kg (92.6%)	80 %	7
Grain	Strzegom Monachijski typ I	0.4 kg (7.4%)	79 %	16

Hops

Use for	Name	Amount	Time	Alpha acid
Boil	Waimea	100 g	60 min	17 %
Boil	Citra	25 g	15 min	13.7 %
Boil	Citra	25 g	10 min	14.2 %

Yeasts

Name	Type	Form	Amount	Laboratory
Safale K-97	Ale	Dry	11.5 g	---