

- Gravity **16.4 BLG**
- ABV **6.9 %**
- IBU **32**
- SRM **7.6**
- Style **American Pale Ale**

Batch size

- Expected quantity of finished beer **19 liter(s)**
- Trub loss **5 %**
- Size with trub loss **19.9 liter(s)**
- Boil time **60 min**
- Evaporation rate **10 %/h**
- Boil size **24.1 liter(s)**

Mash information

- Mash efficiency **68 %**
- Liquor-to-grist ratio **3.5 liter(s) / kg**
- Mash size **24.3 liter(s)**
- Total mash volume **31.3 liter(s)**

Steps

- Temp **67 C**, Time **90 min**
- Temp **76 C**, Time **10 min**
- Temp **78 C**, Time **0 min**

Mash step by step

- Heat up **24.3 liter(s)** of strike water to **73.7C**
- Add grains
- Keep mash **90 min** at **67C**
- Keep mash **10 min** at **76C**
- Keep mash **0 min** at **78C**
- Sparge using **6.8 liter(s)** of **76C** water or to achieve **24.1 liter(s)** of wort

Fermentables

Type	Name	Amount	Yield	EBC
Grain	Viking Pilsner malt	0.97 kg (14%)	82 %	4
Grain	Viking Pale Ale malt	5.9 kg (84.9%)	80 %	5
Grain	Caraaroma	0.08 kg (1.2%)	78 %	400

Hops

Use for	Name	Amount	Time	Alpha acid
Boil	Columbus/Tomahawk/Zeus	12 g	50 min	15.5 %
Boil	Simcoe	10 g	15 min	13.2 %
Boil	Simcoe	30 g	5 min	13.2 %
Dry Hop	Simcoe	60 g	3 day(s)	13.2 %

Yeasts

Name	Type	Form	Amount	Laboratory
Safale US-05	Ale	Slant	100 ml	Fermentis