

Bitter

- Gravity **11.7 BLG**
- ABV **4.7 %**
- IBU **36**
- SRM **7.1**
- Style **Special/Best/Premium Bitter**

Batch size

- Expected quantity of finished beer **22 liter(s)**
- Trub loss **5 %**
- Size with trub loss **23.1 liter(s)**
- Boil time **60 min**
- Evaporation rate **10 %/h**
- Boil size **27.8 liter(s)**

Mash information

- Mash efficiency **75 %**
- Liquor-to-grist ratio **3 liter(s) / kg**
- Mash size **15.6 liter(s)**
- Total mash volume **20.8 liter(s)**

Steps

- Temp **66 C**, Time **45 min**
- Temp **72 C**, Time **15 min**
- Temp **78 C**, Time **1 min**

Mash step by step

- Heat up **15.6 liter(s)** of strike water to **73.7C**
- Add grains
- Keep mash **45 min** at **66C**
- Keep mash **15 min** at **72C**
- Keep mash **1 min** at **78C**
- Sparge using **17.4 liter(s)** of **76C** water or to achieve **27.8 liter(s)** of wort

Fermentables

Type	Name	Amount	Yield	EBC
Grain	Viking Pale Ale malt	4 kg (76.9%)	80 %	5
Grain	Karmelowy Czerwony	0.7 kg (13.5%)	75 %	59
Grain	Viking Munich Malt	0.5 kg (9.6%)	78 %	18

Hops

Use for	Name	Amount	Time	Alpha acid
Boil	Perle	25 g	60 min	7 %
Boil	Fuggles	20 g	60 min	5 %
Boil	Fuggles	15 g	20 min	5 %
Aroma (end of boil)	Fuggles	15 g	10 min	5 %

Yeasts

Name	Type	Form	Amount	Laboratory
Safale S-04	Ale	Slant	100 ml	Fermentis