

Bitter

- Gravity **11.2 BLG**
- ABV **4.5 %**
- IBU **24**
- SRM **9.4**
- Style **Special/Best/Premium Bitter**

Batch size

- Expected quantity of finished beer **20 liter(s)**
- Trub loss **5 %**
- Size with trub loss **21 liter(s)**
- Boil time **60 min**
- Evaporation rate **10 %/h**
- Boil size **25.3 liter(s)**

Mash information

- Mash efficiency **75 %**
- Liquor-to-grist ratio **3.5 liter(s) / kg**
- Mash size **15.8 liter(s)**
- Total mash volume **20.3 liter(s)**

Steps

- Temp **64 C**, Time **50 min**
- Temp **72 C**, Time **15 min**
- Temp **78 C**, Time **5 min**

Mash step by step

- Heat up **15.8 liter(s)** of strike water to **70.3C**
- Add grains
- Keep mash **50 min** at **64C**
- Keep mash **15 min** at **72C**
- Keep mash **5 min** at **78C**
- Sparge using **14 liter(s)** of **76C** water or to achieve **25.3 liter(s)** of wort

Fermentables

Type	Name	Amount	Yield	EBC
Grain	Pilzneński	2.6 kg (57.8%)	81 %	4
Grain	Viking Munich Malt	0.6 kg (13.3%)	78 %	18
Grain	Weyermann - Melanoiden Malt	1 kg (22.2%)	81 %	70
Grain	caragold	0.3 kg (6.7%)	70 %	30

Hops

Use for	Name	Amount	Time	Alpha acid
Boil	Tradition	30 g	60 min	5.5 %
Aroma (end of boil)	Cascade	20 g	10 min	6 %

Yeasts

Name	Type	Form	Amount	Laboratory
ale	Ale	Dry	11 g	---