

## QAPA #3

- Gravity **11 BLG**
- ABV **4.4 %**
- IBU **51**
- SRM **10.3**
- Style **American Pale Ale**

### Batch size

- Expected quantity of finished beer **12 liter(s)**
- Trub loss **0 %**
- Size with trub loss **12.4 liter(s)**
- Boil time **45 min**
- Evaporation rate **12 %/h**
- Boil size **15.5 liter(s)**

### Mash information

- Mash efficiency **75 %**
- Liquor-to-grist ratio **3 liter(s) / kg**
- Mash size **7.9 liter(s)**
- Total mash volume **10.6 liter(s)**

### Steps

- Temp **64 C**, Time **90 min**
- Temp **75 C**, Time **10 min**

### Mash step by step

- Heat up **7.9 liter(s)** of strike water to **71.4C**
- Add grains
- Keep mash **90 min** at **64C**
- Keep mash **10 min** at **75C**
- Sparge using **10.3 liter(s)** of **76C** water or to achieve **15.5 liter(s)** of wort

### Fermentables

Type	Name	Amount	Yield	EBC
Grain	(de) CHÂTEAU PALE ALE	2.5 kg (94.3%)	81 %	21
Grain	Honey Malt	0.15 kg (5.7%)	80 %	130

### Hops

Use for	Name	Amount	Time	Alpha acid
Boil	HBC 438	15 g	30 min	14 %
Boil	HBC 438	10 g	15 min	14 %
Boil	HBC 438	10 g	7 min	14 %
Boil	HBC 438	10 g	0 min	14 %
Aroma (end of boil)	HBC 438	15 g	0 min	14 %
Dry Hop	HBC 438	40 g	3 day(s)	14 %

### Yeasts

Name	Type	Form	Amount	Laboratory
FM53 Voss Kveik	Ale	Liquid	100 ml	Fermentum Mobile

### Extras

Type	Name	Amount	Use for	Time
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Water Agent	Siarczan Magnezu (MgSO4)	7.98 g	Mash	60 min
Water Agent	Gips (Calcium Sulfate)	3.51 g	Mash	60 min
Water Agent	Phosphoric Acid 85%	3 g	Mash	60 min
Water Agent	Sól	0.43 g	Mash	60 min