

## QAPA #3 45

- Gravity **10.5 BLG**
- ABV **4.2 %**
- IBU **53**
- SRM **4.4**
- Style **American Pale Ale**

### Batch size

- Expected quantity of finished beer **14 liter(s)**
- Trub loss **0 %**
- Size with trub loss **14.4 liter(s)**
- Boil time **45 min**
- Evaporation rate **12 %/h**
- Boil size **18 liter(s)**

### Mash information

- Mash efficiency **75 %**
- Liquor-to-grist ratio **3 liter(s) / kg**
- Mash size **9 liter(s)**
- Total mash volume **12 liter(s)**

### Steps

- Temp **66 C**, Time **75 min**
- Temp **75 C**, Time **10 min**

### Mash step by step

- Heat up **9 liter(s)** of strike water to **73.7C**
- Add grains
- Keep mash **75 min** at **66C**
- Keep mash **10 min** at **75C**
- Sparge using **12 liter(s)** of **76C** water or to achieve **18 liter(s)** of wort

### Fermentables

Type	Name	Amount	Yield	EBC
Grain	Viking Pale Ale Malt	3 kg (100%)	80 %	7

### Hops

Use for	Name	Amount	Time	Alpha acid
Boil	Columbus (Tomahawk)	15 g	45 min	13.9 %
Boil	Citra	15 g	20 min	12 %
Boil	Citra	5 g	10 min	12 %
Boil	Amarillo	15 g	0 min	9.2 %

### Extras

Type	Name	Amount	Use for	Time
Water Agent	Siarczan Magnezu (MgSO4)	5.11 g	Mash	60 min
Water Agent	Gypsum (Calcium Sulfate)	5 g	Mash	60 min
Water Agent	Phosphoric Acid 85%	2.5 g	Mash	60 min
Water Agent	Chlorek Wapnia	1.04 g	Mash	60 min
Water Agent	Soda Oczyszczona	0.65 g	Mash	60 min
Water Agent	Sól	0.59 g	Mash	60 min