

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 |