

Tomahawk Pale Ale

- Gravity **12.9 BLG**
- ABV **5.2 %**
- IBU **60**
- SRM **4.6**
- Style **American Pale Ale**

Batch size

- Expected quantity of finished beer **12 liter(s)**
- Trub loss **3 %**
- Size with trub loss **12.4 liter(s)**
- Boil time **45 min**
- Evaporation rate **10 %/h**
- Boil size **14.6 liter(s)**

Mash information

- Mash efficiency **75 %**
- Liquor-to-grist ratio **2.5 liter(s) / kg**
- Mash size **7.5 liter(s)**
- Total mash volume **10.5 liter(s)**

Steps

- Temp **68 C**, Time **60 min**

Mash step by step

- Heat up **7.5 liter(s)** of strike water to **77.6C**
- Add grains
- Keep mash **60 min** at **68C**
- Sparge using **10.1 liter(s)** of **76C** water or to achieve **14.6 liter(s)** of wort

Fermentables

Type	Name	Amount	Yield	EBC
Grain	Viking Munich Malt	0.5 kg (16.7%)	78 %	18
Grain	Viking Pilsner Malt	2.5 kg (83.3%)	82 %	3.5

Hops

Use for	Name	Amount	Time	Alpha acid
Boil	Columbus/Tomahawk/Zeus	20 g	40 min	15.5 %
Boil	Columbus/Tomahawk/Zeus	10 g	10 min	15.5 %

Yeasts

Name	Type	Form	Amount	Laboratory
us-05	Ale	Dry	5 g	---