

APAcz #4

- Gravity **12.1 BLG**
- ABV **4.9 %**
- IBU **39**
- SRM **9.3**
- Style **American Pale Ale**

Batch size

- Expected quantity of finished beer **20 liter(s)**
- Trub loss **5 %**
- Size with trub loss **22 liter(s)**
- Boil time **70 min**
- Evaporation rate **10 %/h**
- Boil size **26.8 liter(s)**

Mash information

- Mash efficiency **75 %**
- Liquor-to-grist ratio **3.5 liter(s) / kg**
- Mash size **17.9 liter(s)**
- Total mash volume **23 liter(s)**

Steps

- Temp **62 C**, Time **15 min**
- Temp **72 C**, Time **45 min**
- Temp **76 C**, Time **5 min**

Mash step by step

- Heat up **17.9 liter(s)** of strike water to **68C**
- Add grains
- Keep mash **15 min** at **62C**
- Keep mash **45 min** at **72C**
- Keep mash **5 min** at **76C**
- Sparge using **14 liter(s)** of **76C** water or to achieve **26.8 liter(s)** of wort

Fermentables

Type	Name	Amount	Yield	EBC
Grain	Viking Pale Ale	4.5 kg (88.2%)	79 %	7
Grain	Viking Karmelowy 50 Czerwony	0.2 kg (3.9%)	75 %	50
Grain	Viking Karmel 300	0.2 kg (3.9%)	70 %	299
Grain	Viking Przeniczny	0.2 kg (3.9%)	81 %	5

Hops

Use for	Name	Amount	Time	Alpha acid
Boil	Tomahawk	10 g	60 min	16.8 %
Boil	Tomahawk	10 g	30 min	16.8 %
Boil	Cascade	10 g	5 min	7.1 %
Boil	Citra	10 g	5 min	14.2 %
Boil	Simcoe	10 g	5 min	13.3 %
Aroma (end of boil)	Cascade	20 g	0 min	7.1 %
Aroma (end of boil)	Citra	20 g	0 min	14.2 %
Aroma (end of boil)	Simcoe	20 g	0 min	13.3 %
Dry Hop	Simcoe	15 g	3 day(s)	13.3 %

Dry Hop	Citra	15 g	3 day(s)	14.2 %
Dry Hop	Cascade	15 g	3 day(s)	7.1 %

Yeasts

Name	Type	Form	Amount	Laboratory
Mangrove Jack's M44 US West Coast	Ale	Dry	10 g	---