

## PA z BA

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- Gravity **11 BLG**
- ABV **4.4 %**
- IBU **21**
- SRM **4.8**
- Style **American Pale Ale**

### Batch size

- Expected quantity of finished beer **22 liter(s)**
- Trub loss **5 %**
- Size with trub loss **24 liter(s)**
- Boil time **60 min**
- Evaporation rate **10 %/h**
- Boil size **28.8 liter(s)**

### Mash information

- Mash efficiency **85 %**
- Liquor-to-grist ratio **3 liter(s) / kg**
- Mash size **12.5 liter(s)**
- Total mash volume **16.6 liter(s)**

### Steps

- Temp **68 C**, Time **60 min**
- Temp **78 C**, Time **10 min**

### Mash step by step

- Heat up **12.5 liter(s)** of strike water to **76C**
- Add grains
- Keep mash **60 min** at **68C**
- Keep mash **10 min** at **78C**
- Sparge using **20.5 liter(s)** of **76C** water or to achieve **28.8 liter(s)** of wort

### Fermentables

Type	Name	Amount	Yield	EBC
Grain	Weyermann - Pale Ale Malt	3.8 kg (91.6%)	85 %	7
Grain	Carahell	0.2 kg (4.8%)	77 %	26
Grain	viking malt cookie	0.15 kg (3.6%)	72 %	50

### Hops

Use for	Name	Amount	Time	Alpha acid
Boil	Pioneer	20 g	55 min	8.8 %
Boil	Willamette	20 g	10 min	5 %
Aroma (end of boil)	Willamette	10 g	0 min	5 %

### Yeasts

Name	Type	Form	Amount	Laboratory
Safale S-04	Ale	Dry	11.5 g	Safale