Polish Pine beer

- Gravity **11.9 BLG**
- ABV **4.8 %**
- IBU **26**
- SRM **3.7**
- Style **American IPA**

Batch size

- Expected quantity of finished beer **23 liter(s)**
- Trub loss **5 %**
- Size with trub loss **24.1 liter(s)**
- Boil time **60 min**
- Evaporation rate **10 %/h**
- Boil size **29 liter(s)**

Mash information

- Mash efficiency **75 %**
- Liquor-to-grist ratio **3 liter(s) / kg**
- Mash size **16.5 liter(s)**
- Total mash volume **22 liter(s)**

Steps

- Temp **62 C**, Time **10 min**
- Temp **68 C**, Time **30 min**
- Temp **72 C**, Time **15 min**
- Temp **78 C**, Time **5 min**

Mash step by step

- Heat up **16.5 liter(s)** of strike water to **69C**
- Add grains
- Keep mash **10 min** at **62C**
- Keep mash **30 min** at **68C**
- Keep mash **15 min** at **72C**
- Keep mash **5 min** at **78C**
- Sparge using **18 liter(s)** of **76C** water or to achieve **29 liter(s)** of wort

Fermentables

Type	Name	Amount	Yield	EBC
Grain	Pilzneński	3 kg *(54.5%)*	81 %	4
Grain	Viking Pale Ale malt	2 kg *(36.4%)*	80 %	5
Grain	Cara-Pils/Dextrine	0.5 kg *(9.1%)*	72 %	4

Hops

Use for	Name	Amount	Time	Alpha acid
Boil	Oktawia	30 g	30 min	7.1 %
Aroma (end of boil)	Oktawia	20 g	10 min	7.1 %
Dry Hop	Izabella	40 g	4 day(s)	5.1 %
Dry Hop	Zula	40 g	4 day(s)	8.3 %
Aroma (end of boil)	Zula	10 g	10 min	8.3 %
Aroma (end of boil)	Izabella	10 g	10 min	5.1 %

Yeasts

Name	Type	Form	Amount	Laboratory

Recipe has been printed via **BREWNESS.com** - a complex online solution for homebrewers to track brewing process easily.

Mangrove Jack's M44 US West Coast	Ale	Dry	10 g	Mangrove Jack's

Extras

Type	Name	Amount	Use for	Time
Fining	Whirlock	2.5 g	Boil	15 min