

Czarny Las

- Gravity **18 BLG**
- ABV **7.7 %**
- IBU **31**
- SRM **78.8**
- Style **Foreign Extra Stout**

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 **87 %**
- Liquor-to-grist ratio **3 liter(s) / kg**
- Mash size **22.5 liter(s)**
- Total mash volume **30 liter(s)**

Steps

- Temp **62 C**, Time **60 min**
- Temp **72 C**, Time **20 min**
- Temp **78 C**, Time **5 min**

Mash step by step

- Heat up **22.5 liter(s)** of strike water to **69C**
- Add grains
- Keep mash **60 min** at **62C**
- Keep mash **20 min** at **72C**
- Keep mash **5 min** at **78C**
- Sparge using **14 liter(s)** of **76C** water or to achieve **29 liter(s)** of wort

Fermentables

Type	Name	Amount	Yield	EBC
Grain	Mariss Otter Pale Ale	4 kg (53.3%)	80 %	7
Grain	Fawcett - Pale Chocolate	1.5 kg (20%)	71 %	600
Grain	Fawcett Chocolate	1.5 kg (20%)	72 %	1200
Grain	Fawcett Żytni palony	0.5 kg (6.7%)	85 %	8

Hops

Use for	Name	Amount	Time	Alpha acid
Boil	Willamette	40 g	60 min	6.1 %
Boil	Willamette	25 g	30 min	6.1 %
Boil	Willamette	35 g	5 min	6.1 %

Yeasts

Name	Type	Form	Amount	Laboratory
Safale S-04	Ale	Slant	200 ml	Safale