

## wara 2

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- Gravity **14 BLG**
- ABV **5.8 %**
- IBU **32**
- SRM **29.9**
- Style **Robust Porter**

### Batch size

- Expected quantity of finished beer **20 liter(s)**
- Trub loss **5 %**
- Size with trub loss **21 liter(s)**
- Boil time **60 min**
- Evaporation rate **10 %/h**
- Boil size **25.3 liter(s)**

### Mash information

- Mash efficiency **75 %**
- Liquor-to-grist ratio **3 liter(s) / kg**
- Mash size **17.3 liter(s)**
- Total mash volume **23 liter(s)**

### Steps

- Temp **64 C**, Time **30 min**
- Temp **72 C**, Time **30 min**
- Temp **76 C**, Time **15 min**

### Mash step by step

- Heat up **17.3 liter(s)** of strike water to **71.3C**
- Add grains
- Keep mash **30 min** at **64C**
- Keep mash **30 min** at **72C**
- Keep mash **15 min** at **76C**
- Sparge using **13.8 liter(s)** of **76C** water or to achieve **25.3 liter(s)** of wort

### Fermentables

Type	Name	Amount	Yield	EBC
Grain	Briess - Pale Ale Malt	4 kg (69.6%)	80 %	7
Grain	Monachijski typ II 20-25 EBC Weyermann	1 kg (17.4%)	80 %	20
Grain	Strzegom Karmel 300	0.25 kg (4.3%)	70 %	299
Grain	Strzegom Karmel 600	0.25 kg (4.3%)	68 %	601
Grain	Strzegom Czekoladowy 1200	0.25 kg (4.3%)	68 %	1202

### Hops

Use for	Name	Amount	Time	Alpha acid
Boil	Chinook	20 g	60 min	13 %
Aroma (end of boil)	Fuggles	50 g	5 min	4.5 %

### Yeasts

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