

Czarna wdowa

- Gravity **16.6 BLG**
- ABV **7 %**
- IBU **31**
- SRM **37.6**
- Style **Robust Porter**

Batch size

- Expected quantity of finished beer **20 liter(s)**
- Trub loss **5 %**
- Size with trub loss **21.2 liter(s)**
- Boil time **60 min**
- Evaporation rate **10 %/h**
- Boil size **25.5 liter(s)**

Mash information

- Mash efficiency **70 %**
- Liquor-to-grist ratio **3 liter(s) / kg**
- Mash size **21.9 liter(s)**
- Total mash volume **29.2 liter(s)**

Steps

- Temp **67 C**, Time **60 min**

Mash step by step

- Heat up **21.9 liter(s)** of strike water to **74.8C**
- Add grains
- Keep mash **60 min** at **67C**
- Sparge using **10.9 liter(s)** of **76C** water or to achieve **25.5 liter(s)** of wort

Fermentables

Type	Name	Amount	Yield	EBC
Grain	Pilzneński	5.3 kg (72.6%)	81 %	4
Grain	Monachijski	0.75 kg (10.3%)	80 %	16
Grain	Strzegom Karmel 150	0.5 kg (6.8%)	75 %	150
Grain	Chocolate Malt (UK)	0.5 kg (6.8%)	73 %	887
Grain	Weyermann - Dehusked Carafa III	0.25 kg (3.4%)	70 %	1024

Hops

Use for	Name	Amount	Time	Alpha acid
Boil	East Kent Goldings	50 g	60 min	5.1 %
Boil	Fuggles	50 g	10 min	4.5 %
Boil	Citra	50 g	0 min	12 %

Yeasts

Name	Type	Form	Amount	Laboratory
Safale US-05	Ale	Dry	11 g	Fermentis