

## Z3Kawka

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- Gravity **10.2 BLG**
- ABV **4.1 %**
- IBU **44**
- SRM **28.9**
- Style **Dry 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 **75 %**
- Liquor-to-grist ratio **3 liter(s) / kg**
- Mash size **13.8 liter(s)**
- Total mash volume **18.4 liter(s)**

### Steps

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

### Mash step by step

- Heat up **13.8 liter(s)** of strike water to **74.8C**
- Add grains
- Keep mash **60 min** at **67C**
- Sparge using **19.8 liter(s)** of **76C** water or to achieve **29 liter(s)** of wort

### Fermentables

Type	Name	Amount	Yield	EBC
Grain	Viking Pale Ale malt	3 kg (58.8%)	80 %	5
Grain	Munich Malt	1 kg (19.6%)	80 %	22
Grain	Chocolate Malt	0.5 kg (9.8%)	1 %	900
Grain	Strzegom Barwiący	0.1 kg (2%)	1 %	1400
Sugar	Milk Sugar (Lactose)	0.5 kg (9.8%)	76.1 %	0

### Hops

Use for	Name	Amount	Time	Alpha acid
Boil	Styrian Wolf	20 g	60 min	14.9 %
Boil	Columbus/Tomahawk/Zeus	10 g	30 min	15.8 %

### Yeasts

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