

Z3Kawka

- 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 |