

XX1

- Gravity **16.6 BLG**
- ABV **7 %**
- IBU **30**
- SRM **35.8**
- Style **Foreign Extra Stout**

Batch size

- Expected quantity of finished beer **12 liter(s)**
- Trub loss **5 %**
- Size with trub loss **12.6 liter(s)**
- Boil time **60 min**
- Evaporation rate **10 %/h**
- Boil size **15.2 liter(s)**

Mash information

- Mash efficiency **75 %**
- Liquor-to-grist ratio **3.5 liter(s) / kg**
- Mash size **14.2 liter(s)**
- Total mash volume **18.2 liter(s)**

Steps

- Temp **68 C**, Time **45 min**
- Temp **72 C**, Time **20 min**
- Temp **78 C**, Time **5 min**

Mash step by step

- Heat up **14.2 liter(s)** of strike water to **74.8C**
- Add grains
- Keep mash **45 min** at **68C**
- Keep mash **20 min** at **72C**
- Keep mash **5 min** at **78C**
- Sparge using **5.1 liter(s)** of **76C** water or to achieve **15.2 liter(s)** of wort

Fermentables

Type	Name	Amount	Yield	EBC
Grain	Viking Pale Ale malt	2 kg (49.4%)	80 %	5
Grain	Weyermann - Smoked Malt	1 kg (24.7%)	81 %	6
Grain	Strzegom Monachijski typ I	0.5 kg (12.3%)	79 %	16
Grain	Caraaroma	0.2 kg (4.9%)	78 %	400
Grain	Carafa II	0.25 kg (6.2%)	70 %	812
Grain	Extra black	0.1 kg (2.5%)	65 %	1400

Hops

Use for	Name	Amount	Time	Alpha acid
Boil	Challenger	15 g	60 min	7.3 %
Boil	East Kent Goldings	10 g	60 min	5 %
Boil	Fuggles	20 g	10 min	4.3 %

Yeasts

Name	Type	Form	Amount	Laboratory
US West Coast	Ale	Dry	11 g	Gozdawa