

Smoked FES

- Gravity **18.9 BLG**
- ABV **8.2 %**
- IBU **37**
- SRM **30.6**
- Style **Foreign Extra Stout**

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 **73 %**
- Liquor-to-grist ratio **3 liter(s) / kg**
- Mash size **24 liter(s)**
- Total mash volume **32 liter(s)**

Steps

- Temp **66 C**, Time **40 min**
- Temp **69 C**, Time **30 min**
- Temp **72 C**, Time **1 min**

Mash step by step

- Heat up **24 liter(s)** of strike water to **73.7C**
- Add grains
- Keep mash **40 min** at **66C**
- Keep mash **30 min** at **69C**
- Keep mash **1 min** at **72C**
- Sparge using **9.3 liter(s)** of **76C** water or to achieve **25.3 liter(s)** of wort

Fermentables

Type	Name	Amount	Yield	EBC
Grain	Viking Pale Ale malt	2.2 kg (27.5%)	80 %	5
Grain	Słód Wędzony Steinbach	3 kg (37.5%)	80 %	5
Grain	Monachijski	1 kg (12.5%)	80 %	16
Grain	Caraaroma	0.06 kg (0.7%)	78 %	400
Grain	Jęczmień palony	0.3 kg (3.7%)	55 %	985
Grain	Carafa III	0.1 kg (1.2%)	70 %	1034
Grain	Żytni	0.5 kg (6.2%)	85 %	8
Grain	Simpsons - Maris Otter	0.5 kg (6.2%)	81 %	6
Grain	Weyermann Caramunich 3	0.15 kg (1.9%)	76 %	150
Grain	Castle Cafe	0.2 kg (2.5%)	75.5 %	480

Hops

Use for	Name	Amount	Time	Alpha acid
Boil	Marynka	60 g	50 min	7.6 %

Yeasts

Name	Type	Form	Amount	Laboratory
FM11 Wichrowe Wzgórze	Ale	Slant	300 ml	Fermentum Mobile