

FES

- Gravity **16.8 BLG**
- ABV **7.1 %**
- IBU **50**
- SRM **30.4**
- Style **Foreign Extra Stout**

Batch size

- Expected quantity of finished beer **20 liter(s)**
- Trub loss **5 %**
- Size with trub loss **22 liter(s)**
- Boil time **60 min**
- Evaporation rate **5 %/h**
- Boil size **24.1 liter(s)**

Mash information

- Mash efficiency **80 %**
- Liquor-to-grist ratio **3.5 liter(s) / kg**
- Mash size **22.4 liter(s)**
- Total mash volume **28.8 liter(s)**

Steps

- Temp **62 C**, Time **60 min**
- Temp **76 C**, Time **5 min**

Mash step by step

- Heat up **22.4 liter(s)** of strike water to **68C**
- Add grains
- Keep mash **60 min** at **62C**
- Keep mash **5 min** at **76C**
- Sparge using **8.1 liter(s)** of **76C** water or to achieve **24.1 liter(s)** of wort

Fermentables

Type	Name	Amount	Yield	EBC
Grain	Pilzneński	5 kg (78.1%)	81 %	4
Grain	Caraaroma	0.5 kg (7.8%)	78 %	400
Grain	Weyermann - Carafa I	0.1 kg (1.6%)	70 %	690
Grain	Jęczmień palony	0.3 kg (4.7%)	55 %	985
Grain	Płatki jęczmienne	0.5 kg (7.8%)	85 %	3

Hops

Use for	Name	Amount	Time	Alpha acid
Boil	Magnum	40 g	60 min	13.5 %

Yeasts

Name	Type	Form	Amount	Laboratory
FM13 Irlandzkie Ciemności	Ale	Slant	150 ml	Fermentum Mobile