

FES

- Gravity **15.9 BLG**
- ABV **6.7 %**
- IBU **32**
- SRM **37**
- 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 **75 %**
- Liquor-to-grist ratio **3 liter(s) / kg**
- Mash size **19.8 liter(s)**
- Total mash volume **26.4 liter(s)**

Steps

- Temp **62 C**, Time **45 min**
- Temp **72 C**, Time **15 min**

Mash step by step

- Heat up **19.8 liter(s)** of strike water to **69C**
- Add grains
- Keep mash **45 min** at **62C**
- Keep mash **15 min** at **72C**
- Sparge using **12.1 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	5 kg (75.8%)	80 %	6.25
Grain	Caraaroma	0.5 kg (7.6%)	78 %	400
Grain	Carafa II	0.2 kg (3%)	70 %	1100
Grain	Black Barley (Roast Barley)	0.3 kg (4.5%)	55 %	1100
Grain	Barley, Flaked	0.2 kg (3%)	70 %	4
Grain	Wheat, Flaked	0.2 kg (3%)	77 %	4
Grain	Oats, Flaked	0.2 kg (3%)	80 %	2

Hops

Use for	Name	Amount	Time	Alpha acid
Boil	East Kent Goldings	55 g	60 min	5.1 %
Aroma (end of boil)	East Kent Goldings	20 g	15 min	5.1 %

Yeasts

Name	Type	Form	Amount	Laboratory
Safale S-04	Ale	Dry	11.5 g	Safale