

# FES

- Gravity **16.8 BLG**
- ABV **7.1 %**
- IBU **30**
- SRM **40.5**
- 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 **90 min**
- Evaporation rate **10 %/h**
- Boil size **15.9 liter(s)**

## Mash information

- Mash efficiency **75 %**
- Liquor-to-grist ratio **3.5 liter(s) / kg**
- Mash size **14.5 liter(s)**
- Total mash volume **18.7 liter(s)**

## Steps

- Temp **66 C**, Time **60 min**
- Temp **75 C**, Time **15 min**

## Mash step by step

- Heat up **14.5 liter(s)** of strike water to **72.6C**
- Add grains
- Keep mash **60 min** at **66C**
- Keep mash **15 min** at **75C**
- Sparge using **5.6 liter(s)** of **76C** water or to achieve **15.9 liter(s)** of wort

## Fermentables

Type	Name	Amount	Yield	EBC
Grain	Viking Pale Ale malt	2.5 kg (60.2%)	80 %	5
Grain	Pszeniczny	0.5 kg (12%)	85 %	4
Grain	Żytni	0.5 kg (12%)	85 %	8
Grain	Czekoladowy	0.2 kg (4.8%)	60 %	788
Grain	Strzegom Czekoladowy jasny	0.25 kg (6%)	68 %	400
Grain	Strzegom Barwiący	0.2 kg (4.8%)	68 %	1300

## Hops

Use for	Name	Amount	Time	Alpha acid
Boil	Challenger	25 g	40 min	8.8 %

## Yeasts

Name	Type	Form	Amount	Laboratory
FM13 Irlandzkie Ciemności	Ale	Slant	100 ml	Fermentum Mobile