

## FES na ligę

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- Gravity **15.7 BLG**
- ABV **6.6 %**
- IBU **40**
- SRM **31**
- Style **Foreign Extra Stout**

### Batch size

- Expected quantity of finished beer **16 liter(s)**
- Trub loss **5 %**
- Size with trub loss **16.8 liter(s)**
- Boil time **60 min**
- Evaporation rate **10 %/h**
- Boil size **20.2 liter(s)**

### Mash information

- Mash efficiency **75 %**
- Liquor-to-grist ratio **3 liter(s) / kg**
- Mash size **15.2 liter(s)**
- Total mash volume **20.2 liter(s)**

### Steps

- Temp **64 C**, Time **50 min**
- Temp **69 C**, Time **15 min**
- Temp **70 C**, Time **5 min**
- Temp **76 C**, Time **1 min**

### Mash step by step

- Heat up **15.2 liter(s)** of strike water to **71.3C**
- Add grains
- Keep mash **50 min** at **64C**
- Keep mash **15 min** at **69C**
- Keep mash **5 min** at **70C**
- Keep mash **1 min** at **76C**
- Sparge using **10.1 liter(s)** of **76C** water or to achieve **20.2 liter(s)** of wort

### Fermentables

Type	Name	Amount	Yield	EBC
Grain	Viking Pilsner malt	4 kg (79.2%)	82 %	4
Grain	Słód karmelowy Viking Malt	0.25 kg (5%)	75 %	600
Grain	Carafa Special Typ 2	0.15 kg (3%)	70 %	1100
Grain	Jęczmień palony	0.15 kg (3%)	55 %	1000
Grain	Płatki jęczmienne	0.5 kg (9.9%)	80 %	3

### Hops

Use for	Name	Amount	Time	Alpha acid
Boil	lunga	20 g	50 min	11 %
Boil	lunga	30 g	10 min	11 %

### Yeasts

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

### Notes

- Na start warzenia: pale ale, carafa, karmelowy, płatki  
Na ostatnie 5 min: jęczmień  
*Feb 20, 2021, 1:36 PM*