

# FES

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- Gravity **17.1 BLG**
- ABV **7.3 %**
- IBU **42**
- SRM **49.2**
- Style **Foreign Extra Stout**

## Batch size

- Expected quantity of finished beer **17 liter(s)**
- Trub loss **5 %**
- Size with trub loss **18.7 liter(s)**
- Boil time **70 min**
- Evaporation rate **12 %/h**
- Boil size **23.3 liter(s)**

## Mash information

- Mash efficiency **70 %**
- Liquor-to-grist ratio **3 liter(s) / kg**
- Mash size **20 liter(s)**
- Total mash volume **26.6 liter(s)**

## Steps

- Temp **66 C**, Time **50 min**
- Temp **72 C**, Time **20 min**
- Temp **76 C**, Time **1 min**

## Mash step by step

- Heat up **20 liter(s)** of strike water to **73.6C**
- Add grains
- Keep mash **50 min** at **66C**
- Keep mash **20 min** at **72C**
- Keep mash **1 min** at **76C**
- Sparge using **10 liter(s)** of **76C** water or to achieve **23.3 liter(s)** of wort

## Fermentables

Type	Name	Amount	Yield	EBC
Grain	Weyermann - Pale Ale Malt	2.7 kg (40.6%)	85 %	7
Grain	Simpsons - Maris Otter	1.5 kg (22.6%)	81 %	6
Grain	Monachijski	1 kg (15%)	80 %	16
Grain	Coffee Malt	0.3 kg (4.5%)	74 %	500
Grain	Strzegom Karmel 300	0.3 kg (4.5%)	70 %	299
Grain	Jęczmień palony	0.4 kg (6%)	55 %	985
Grain	Chocolate Malt	0.25 kg (3.8%)	60 %	690
Grain	Weyermann - Carafa III	0.2 kg (3%)	70 %	1024

## Hops

Use for	Name	Amount	Time	Alpha acid
Boil	lunga	15 g	60 min	11 %
Boil	Simcoe	15 g	40 min	13.2 %
Aroma (end of boil)	Simcoe	10 g	15 min	13.2 %

## Yeasts

Name	Type	Form	Amount	Laboratory
WLP001 - California Ale Yeast	Ale	Liquid	150 ml	White Labs

## Extras

Type	Name	Amount	Use for	Time
Flavor	płatki dębowe	100 g	Secondary	21 day(s)