

# FES a'la Kopyra

- Gravity **17.1 BLG**
- ABV **7.3 %**
- IBU **56**
- SRM **37.8**
- 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 **2.5 liter(s) / kg**
- Mash size **17.5 liter(s)**
- Total mash volume **24.5 liter(s)**

## Steps

- Temp **68 C**, Time **60 min**
- Temp **72 C**, Time **10 min**
- Temp **76 C**, Time **0 min**

## Mash step by step

- Heat up **17.5 liter(s)** of strike water to **77.6C**
- Add grains
- Keep mash **60 min** at **68C**
- Keep mash **10 min** at **72C**
- Keep mash **0 min** at **76C**
- Sparge using **14.8 liter(s)** of **76C** water or to achieve **25.3 liter(s)** of wort

## Fermentables

Type	Name	Amount	Yield	EBC
Grain	Strzegom Pale Ale	4.5 kg (64.3%)	79 %	6
Grain	Pszeniczny	1 kg (14.3%)	85 %	4
Grain	Strzegom Karmel 150	0.3 kg (4.3%)	75 %	150
Grain	Briess - Chocolate Malt	0.3 kg (4.3%)	60 %	690
Grain	Strzegom Barwiący	0.4 kg (5.7%)	68 %	1300
Grain	Żytni	0.5 kg (7.1%)	85 %	8

## Hops

Use for	Name	Amount	Time	Alpha acid
Boil	Equinox	30 g	50 min	13.1 %
Boil	Equinox	30 g	20 min	13.1 %
Aroma (end of boil)	Equinox	30 g	0 min	13.1 %
Aroma (end of boil)	Zythos	30 g	0 min	11 %

## Yeasts

Name	Type	Form	Amount	Laboratory
------	------	------	--------	------------

Safale S-04	Ale	Dry	23 g	Safale
-------------	-----	-----	------	--------