

# FES- Zawisza Czarny z Garbowa

- Gravity **17.4 BLG**
- ABV ---
- IBU **34**
- SRM **37.7**
- Style **Foreign Extra Stout**

## Batch size

- Expected quantity of finished beer **22 liter(s)**
- Trub loss **5 %**
- Size with trub loss **23.1 liter(s)**
- Boil time **70 min**
- Evaporation rate **10 %/h**
- Boil size **28.3 liter(s)**

## Mash information

- Mash efficiency **75 %**
- Liquor-to-grist ratio **3 liter(s) / kg**
- Mash size **21.9 liter(s)**
- Total mash volume **29.2 liter(s)**

## Steps

- Temp **64 C**, Time **45 min**
- Temp **72 C**, Time **30 min**
- Temp **76 C**, Time **0 min**

## Mash step by step

- Heat up **21.9 liter(s)** of strike water to **71.3C**
- Add grains
- Keep mash **45 min** at **64C**
- Keep mash **30 min** at **72C**
- Keep mash **0 min** at **76C**
- Sparge using **13.7 liter(s)** of **76C** water or to achieve **28.3 liter(s)** of wort

## Fermentables

Type	Name	Amount	Yield	EBC
Grain	Strzegom Pale Ale	6 kg (82.2%)	79 %	6
Grain	Caraaroma	0.35 kg (4.8%)	78 %	400
Grain	Jęczmień palony	0.25 kg (3.4%)	55 %	985
Grain	płatki owsiane	0.5 kg (6.8%)	75 %	5
Grain	Strzegom Czekoladowy jasny	0.2 kg (2.7%)	68 %	400

## Hops

Use for	Name	Amount	Time	Alpha acid
Boil	Kent Goldings	30 g	60 min	5.7 %
Boil	Fuggles	30 g	60 min	4.3 %
Boil	Kent Goldings	20 g	10 min	5.7 %
Boil	Fuggles	20 g	10 min	4.3 %

## Yeasts

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