

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 |