

## zwykły fes

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- Gravity **15.4 BLG**
- ABV **6.5 %**
- IBU **34**
- SRM **23.7**
- 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 **65 min**
- Evaporation rate **10 %/h**
- Boil size **25.5 liter(s)**

### Mash information

- Mash efficiency **80 %**
- Liquor-to-grist ratio **3 liter(s) / kg**
- Mash size **18 liter(s)**
- Total mash volume **24 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 **18 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 **13.5 liter(s)** of **76C** water or to achieve **25.5 liter(s)** of wort

### Fermentables

| Type  | Name                | Amount        | Yield | EBC |
|-------|---------------------|---------------|-------|-----|
| Grain | Strzegom Pilzneński | 5 kg (83.3%)  | 80 %  | 4   |
| Grain | Caraaroma           | 0.3 kg (5%)   | 78 %  | 400 |
| Grain | Carafa              | 0.1 kg (1.7%) | 70 %  | 664 |
| Grain | Jęczmień palony     | 0.2 kg (3.3%) | 55 %  | 985 |
| Grain | płatki jęczmienne   | 0.4 kg (6.7%) | 60 %  | 4   |

### Hops

| Use for | Name            | Amount | Time   | Alpha acid |
|---------|-----------------|--------|--------|------------|
| Boil    | Aurora          | 35 g   | 55 min | 8.5 %      |
| Boil    | Styrian Golding | 45 g   | 10 min | 3.6 %      |

### Yeasts

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