

## FES

- Gravity **17.3 BLG**
- ABV **7.4 %**
- IBU **51**
- SRM **42.1**
- 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 **23.9 liter(s)**
- Total mash volume **31.8 liter(s)**

### Steps

- Temp **65 C**, Time **70 min**
- Temp **75 C**, Time **15 min**

### Mash step by step

- Heat up **23.9 liter(s)** of strike water to **72.5C**
- Add grains
- Keep mash **70 min** at **65C**
- Keep mash **15 min** at **75C**
- Sparge using **12.4 liter(s)** of **76C** water or to achieve **28.3 liter(s)** of wort

### Fermentables

| Type  | Name                                        | Amount         | Yield | EBC  |
|-------|---------------------------------------------|----------------|-------|------|
| Grain | piłżeński lager<br>Malteurop                | 5 kg (62.9%)   | 80 %  | 4    |
| Grain | monachijski Typ I<br>Viking Malt            | 1 kg (12.6%)   | 78 %  | 18   |
| Grain | płatki żytnie                               | 0.5 kg (6.3%)  | 78 %  | 4    |
| Grain | Strzegom<br>Czekoladowy ciemny              | 0.2 kg (2.5%)  | 68 %  | 1200 |
| Grain | Słód pszeniczny<br>czekoladowy<br>Weyermann | 0.2 kg (2.5%)  | 65 %  | 1050 |
| Grain | Palony jęczmień<br>Weyermann                | 0.3 kg (3.8%)  | 55 %  | 1000 |
| Grain | Słód karmelowy 30<br>Viking Malt            | 0.25 kg (3.1%) | 75 %  | 35   |
| Grain | Słód Pale Chocolate<br>- Fawcett            | 0.2 kg (2.5%)  | 65 %  | 500  |
| Grain | castle malting coffe                        | 0.3 kg (3.8%)  | 78 %  | 470  |

### Hops

| Use for | Name  | Amount | Time   | Alpha acid |
|---------|-------|--------|--------|------------|
| Boil    | lunga | 43 g   | 60 min | 12.8 %     |

|      |                   |      |        |       |
|------|-------------------|------|--------|-------|
| Boil | Lublin (Lubelski) | 30 g | 15 min | 4.3 % |
|------|-------------------|------|--------|-------|

## Yeasts

| Name         | Type | Form  | Amount | Laboratory |
|--------------|------|-------|--------|------------|
| Safale US-05 | Ale  | Slant | 200 ml | ---        |

## Extras

| Type   | Name        | Amount | Use for | Time   |
|--------|-------------|--------|---------|--------|
| Fining | Whirlfloc T | 1 g    | Boil    | 10 min |