

FES

- Gravity **18.7 BLG**
- ABV **8.1 %**
- IBU **56**
- SRM **51**
- Style **Foreign Extra Stout**

Batch size

- Expected quantity of finished beer **40 liter(s)**
- Trub loss **5 %**
- Size with trub loss **42 liter(s)**
- Boil time **60 min**
- Evaporation rate **7 %/h**
- Boil size **47.9 liter(s)**

Mash information

- Mash efficiency **75 %**
- Liquor-to-grist ratio **2.5 liter(s) / kg**
- Mash size **38.1 liter(s)**
- Total mash volume **53.4 liter(s)**

Steps

- Temp **68 C**, Time **60 min**
- Temp **78 C**, Time **10 min**

Mash step by step

- Heat up **38.1 liter(s)** of strike water to **77.6C**
- Add grains
- Keep mash **60 min** at **68C**
- Keep mash **10 min** at **78C**
- Sparge using **25.1 liter(s)** of **76C** water or to achieve **47.9 liter(s)** of wort

Fermentables

| Type | Name | Amount | Yield | EBC |
|-------|-----------------------------|----------------|--------|------|
| Grain | BESTMALZ - Best Pilsen | 12 kg (78.7%) | 80.5 % | 4 |
| Grain | Special B Malt | 1 kg (6.6%) | 65.2 % | 315 |
| Grain | Jęczmień palony | 0.85 kg (5.6%) | 55 % | 985 |
| Grain | Weyermann - Carafa I | 0.5 kg (3.3%) | 70 % | 690 |
| Grain | Fawcett - Pale Chocolate | 0.3 kg (2%) | 71 % | 600 |
| Grain | Strzegom Czekoladowy ciemny | 0.6 kg (3.9%) | 68 % | 1200 |

Hops

| Use for | Name | Amount | Time | Alpha acid |
|---------|------------------------|--------|--------|------------|
| Boil | Columbus/Tomahawk/Zeus | 100 g | 60 min | 12.6 % |