

FES

- Gravity **18 BLG**
- ABV **7.7 %**
- IBU **54**
- SRM **38.4**
- Style **Foreign Extra Stout**

Batch size

- Expected quantity of finished beer **20 liter(s)**
- Trub loss **10 %**
- Size with trub loss **22 liter(s)**
- Boil time **120 min**
- Evaporation rate **10 %/h**
- Boil size **27.6 liter(s)**

Mash information

- Mash efficiency **72 %**
- Liquor-to-grist ratio **2.6 liter(s) / kg**
- Mash size **20.8 liter(s)**
- Total mash volume **28.8 liter(s)**

Steps

- Temp **65 C**, Time **50 min**
- Temp **99 C**, Time **1 min**
- Temp **72 C**, Time **10 min**

Mash step by step

- Heat up **20.8 liter(s)** of strike water to **73.7C**
- Add grains
- Keep mash **50 min** at **65C**
- Keep mash **10 min** at **72C**
- Keep mash **1 min** at **99C**
- Sparge using **14.8 liter(s)** of **76C** water or to achieve **27.6 liter(s)** of wort

Fermentables

| Type | Name | Amount | Yield | EBC |
|-------|-----------------------------|---------------|-------|-----|
| Grain | Viking Pale Ale malt | 6 kg (75%) | 80 % | 5 |
| Grain | Caraaroma | 0.4 kg (5%) | 78 % | 400 |
| Grain | Jęczmień palony | 0.4 kg (5%) | 55 % | 985 |
| Grain | płatki jęczmienne | 0.6 kg (7.5%) | 60 % | 4 |
| Grain | Strzegom Czekoladowy 400 | 0.6 kg (7.5%) | 68 % | 400 |

Hops

| Use for | Name | Amount | Time | Alpha acid |
|---------|--------------------|--------|--------|------------|
| Boil | lunga | 55 g | 60 min | 9.7 % |
| Boil | East Kent Goldings | 45 g | 10 min | 4.6 % |

Yeasts

| Name | Type | Form | Amount | Laboratory |
|------------------|-------|-------|--------|------------|
| Saflager W 34/70 | Lager | Slant | 400 ml | Fermentis |