

FES

- Gravity **16.8 BLG**
- ABV **7.1 %**
- IBU **50**
- SRM **30.4**
- Style **Foreign Extra Stout**

Batch size

- Expected quantity of finished beer **20 liter(s)**
- Trub loss **5 %**
- Size with trub loss **22 liter(s)**
- Boil time **60 min**
- Evaporation rate **5 %/h**
- Boil size **24.1 liter(s)**

Mash information

- Mash efficiency **80 %**
- Liquor-to-grist ratio **3.5 liter(s) / kg**
- Mash size **22.4 liter(s)**
- Total mash volume **28.8 liter(s)**

Steps

- Temp **62 C**, Time **60 min**
- Temp **76 C**, Time **5 min**

Mash step by step

- Heat up **22.4 liter(s)** of strike water to **68C**
- Add grains
- Keep mash **60 min** at **62C**
- Keep mash **5 min** at **76C**
- Sparge using **8.1 liter(s)** of **76C** water or to achieve **24.1 liter(s)** of wort

Fermentables

| Type | Name | Amount | Yield | EBC |
|-------|----------------------|---------------|-------|-----|
| Grain | Pilzneński | 5 kg (78.1%) | 81 % | 4 |
| Grain | Caraaroma | 0.5 kg (7.8%) | 78 % | 400 |
| Grain | Weyermann - Carafa I | 0.1 kg (1.6%) | 70 % | 690 |
| Grain | Jęczmień palony | 0.3 kg (4.7%) | 55 % | 985 |
| Grain | Płatki jęczmienne | 0.5 kg (7.8%) | 85 % | 3 |

Hops

| Use for | Name | Amount | Time | Alpha acid |
|---------|--------|--------|--------|------------|
| Boil | Magnum | 40 g | 60 min | 13.5 % |

Yeasts

| Name | Type | Form | Amount | Laboratory |
|---------------------------|------|-------|--------|------------------|
| FM13 Irlandzkie Ciemności | Ale | Slant | 150 ml | Fermentum Mobile |