

Czarny

- Gravity **12.4 BLG**
- ABV **5 %**
- IBU **23**
- SRM **23.8**
- Style **Schwarzbier**

Batch size

- Expected quantity of finished beer **18.5 liter(s)**
- Trub loss **5 %**
- Size with trub loss **19.4 liter(s)**
- Boil time **70 min**
- Evaporation rate **12 %/h**
- Boil size **25.3 liter(s)**

Mash information

- Mash efficiency **90 %**
- Liquor-to-grist ratio **3 liter(s) / kg**
- Mash size **12.1 liter(s)**
- Total mash volume **16.2 liter(s)**

Steps

- Temp **64 C**, Time **40 min**
- Temp **72 C**, Time **30 min**
- Temp **76 C**, Time **5 min**

Mash step by step

- Heat up **12.1 liter(s)** of strike water to **71.4C**
- Add grains
- Keep mash **40 min** at **64C**
- Keep mash **30 min** at **72C**
- Keep mash **5 min** at **76C**
- Sparge using **17.3 liter(s)** of **76C** water or to achieve **25.3 liter(s)** of wort

Fermentables

| Type | Name | Amount | Yield | EBC |
|-------|----------------------------------|----------------|-------|------|
| Grain | Strzegom Pilzneński | 2.5 kg (61.7%) | 80 % | 6 |
| Grain | Strzegom Monachijski typ II | 1 kg (24.7%) | 79 % | 22 |
| Grain | Aromatic Malt | 0.3 kg (7.4%) | 78 % | 200 |
| Grain | Fawcett - Pszeniczny Czekoladowy | 0.25 kg (6.2%) | 73 % | 1200 |

Hops

| Use for | Name | Amount | Time | Alpha acid |
|---------|--------------|--------|--------|------------|
| Boil | Brewers Gold | 30 g | 60 min | 4.5 % |
| Boil | Tradition | 25 g | 15 min | 5.4 % |

Yeasts

| Name | Type | Form | Amount | Laboratory |
|----------------------|-------|--------|---------|------------------|
| FM31 Bawarska Dolina | Lager | Liquid | 1500 ml | Fermentum Mobile |

Extras

| Type | Name | Amount | Use for | Time |
|--------|----------------|--------|---------|--------|
| Fining | Mech irlandzki | 3 g | Boil | 15 min |