

Ciemny lager

- Gravity **11.9 BLG**
- ABV **4.8 %**
- IBU **23**
- SRM **25.9**
- Style **Schwarzbier**

Batch size

- Expected quantity of finished beer **23 liter(s)**
- Trub loss **2 %**
- Size with trub loss **23.5 liter(s)**
- Boil time **60 min**
- Evaporation rate **15 %/h**
- Boil size **29.7 liter(s)**

Mash information

- Mash efficiency **90 %**
- Liquor-to-grist ratio **3 liter(s) / kg**
- Mash size **13.5 liter(s)**
- Total mash volume **18 liter(s)**

Steps

- Temp **64 C**, Time **40 min**
- Temp **72 C**, Time **20 min**
- Temp **78 C**, Time **10 min**

Mash step by step

- Heat up **13.5 liter(s)** of strike water to **71.3C**
- Add grains
- Keep mash **40 min** at **64C**
- Keep mash **20 min** at **72C**
- Keep mash **10 min** at **78C**
- Sparge using **20.7 liter(s)** of **76C** water or to achieve **29.7 liter(s)** of wort

Fermentables

| Type | Name | Amount | Yield | EBC |
|-------|-----------------------------|----------------|-------|------|
| Grain | Strzegom Monachijski typ II | 2 kg (44.4%) | 79 % | 57 |
| Grain | Pilzneński | 2 kg (44.4%) | 81 % | 4 |
| Grain | Caraaroma | 0.25 kg (5.6%) | 78 % | 400 |
| Grain | Strzegom Czekoladowy ciemny | 0.25 kg (5.6%) | 68 % | 1200 |

Hops

| Use for | Name | Amount | Time | Alpha acid |
|---------|------------------|--------|--------|------------|
| Boil | German Tradition | 30 g | 60 min | 5.4 % |
| Boil | German Tradition | 20 g | 20 min | 5.4 % |

Yeasts

| Name | Type | Form | Amount | Laboratory |
|----------------|-------|------|--------|---------------|
| Saflager Lager | Lager | Dry | 11.5 g | DCL/Fermentis |