

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