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

Recipe has been printed via **BREWNESS.com** - a complex online solution for homebrewers to track brewing process easily.

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