

Gorzko i wytrawnie :3 ale i nowoczesnie

- Gravity **13.8 BLG**
- ABV **5.7 %**
- IBU **39**
- SRM **4.6**
- Style **German Pilsner (Pils)**

Batch size

- Expected quantity of finished beer **18 liter(s)**
- Trub loss **5 %**
- Size with trub loss **18.9 liter(s)**
- Boil time **60 min**
- Evaporation rate **10 %/h**
- Boil size **22.8 liter(s)**

Mash information

- Mash efficiency **70 %**
- Liquor-to-grist ratio **3 liter(s) / kg**
- Mash size **15.9 liter(s)**
- Total mash volume **21.2 liter(s)**

Steps

- Temp **66 C**, Time **24 min**
- Temp **72 C**, Time **35 min**
- Temp **78 C**, Time **5 min**

Mash step by step

- Heat up **15.9 liter(s)** of strike water to **73.7C**
- Add grains
- Keep mash **24 min** at **66C**
- Keep mash **35 min** at **72C**
- Keep mash **5 min** at **78C**
- Sparge using **12.2 liter(s)** of **76C** water or to achieve **22.8 liter(s)** of wort

Fermentables

Type	Name	Amount	Yield	EBC
Grain	Rahr - Premium Pilsner Malt	5 kg (94.3%)	80 %	4
Grain	Castlemalting - Cara Clair	0.2 kg (3.8%)	78 %	4
Grain	Cara Ruby Castle	0.1 kg (1.9%)	72 %	49

Hops

Use for	Name	Amount	Time	Alpha acid
Boil	Citra	15 g	60 min	12.7 %
Boil	Citra	10 g	20 min	12 %
Boil	Citra	25 g	5 min	12 %
Mash	Citra	10 g	60 min	12 %
Whirlpool	Citra	40 g	1 min	12 %