

bitter twoj browar

- Gravity **10.7 BLG**
- ABV **4.3 %**
- IBU **47**
- SRM **7.4**
- Style **Standard/Ordinary Bitter**

Batch size

- Expected quantity of finished beer **20 liter(s)**
- Trub loss **5 %**
- Size with trub loss **21 liter(s)**
- Boil time **60 min**
- Evaporation rate **10 %/h**
- Boil size **25.3 liter(s)**

Mash information

- Mash efficiency **80 %**
- Liquor-to-grist ratio **3.5 liter(s) / kg**
- Mash size **14 liter(s)**
- Total mash volume **18 liter(s)**

Steps

- Temp **68 C**, Time **70 min**
- Temp **78 C**, Time **10 min**

Mash step by step

- Heat up **14 liter(s)** of strike water to **74.9C**
- Add grains
- Keep mash **70 min** at **68C**
- Keep mash **10 min** at **78C**
- Sparge using **15.3 liter(s)** of **76C** water or to achieve **25.3 liter(s)** of wort

Fermentables

Type	Name	Amount	Yield	EBC
Grain	Crystal II 200	0.2 kg (5%)	71 %	200
Grain	Castle Pale Ale	3.8 kg (95%)	80 %	8

Hops

Use for	Name	Amount	Time	Alpha acid
Boil	Apollo	15 g	60 min	17 %
Aroma (end of boil)	Cascade	20 g	10 min	6 %
Aroma (end of boil)	Citra	20 g	5 min	12 %
Aroma (end of boil)	Summit	25 g	3 min	17 %

Yeasts

Name	Type	Form	Amount	Laboratory
safa	Ale	Dry	11 g	---