

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 | --- |