

# bitter

- Gravity **8.5 BLG**
- ABV **3.3 %**
- IBU **36**
- SRM **8.3**
- 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 **65 min**
- Evaporation rate **10 %/h**
- Boil size **25.5 liter(s)**

## Mash information

- Mash efficiency **70 %**
- Liquor-to-grist ratio **3.5 liter(s) / kg**
- Mash size **12.6 liter(s)**
- Total mash volume **16.2 liter(s)**

## Steps

- Temp **68 C**, Time **60 min**

## Mash step by step

- Heat up **12.6 liter(s)** of strike water to **74.9C**
- Add grains
- Keep mash **60 min** at **68C**
- Sparge using **16.5 liter(s)** of **76C** water or to achieve **25.5 liter(s)** of wort

## Fermentables

Type	Name	Amount	Yield	EBC
Grain	Weyermann® pale ale	3.2 kg (88.9%)	79 %	6.5
Grain	Strzegom Monachijski typ I	0.25 kg (6.9%)	79 %	16
Grain	Caraaroma	0.15 kg (4.2%)	78 %	400

## Hops

Use for	Name	Amount	Time	Alpha acid
Boil	Willamette	20 g	60 min	5 %
Boil	Willamette	10 g	20 min	5 %
Boil	Warrior	10 g	20 min	15.5 %
Boil	Warrior	20 g	5 min	15.5 %

## Yeasts

Name	Type	Form	Amount	Laboratory
Safale S-04	Ale	Dry	11.5 g	Safale