

# Bitter

- Gravity **12.6 BLG**
- ABV **5.1 %**
- IBU **38**
- SRM **11.7**
- Style **Extra Special/Strong Bitter (English Pale Ale)**

## Batch size

- Expected quantity of finished beer **15 liter(s)**
- Trub loss **5 %**
- Size with trub loss **16.5 liter(s)**
- Boil time **60 min**
- Evaporation rate **12 %/h**
- Boil size **20.2 liter(s)**

## Mash information

- Mash efficiency **70 %**
- Liquor-to-grist ratio **4.5 liter(s) / kg**
- Mash size **18 liter(s)**
- Total mash volume **22 liter(s)**

## Steps

- Temp **64 C**, Time **40 min**
- Temp **72 C**, Time **30 min**

## Mash step by step

- Heat up **18 liter(s)** of strike water to **68.9C**
- Add grains
- Keep mash **40 min** at **64C**
- Keep mash **30 min** at **72C**
- Sparge using **6.2 liter(s)** of **76C** water or to achieve **20.2 liter(s)** of wort

## Fermentables

Type	Name	Amount	Yield	EBC
Grain	Weyermann - Pale Ale Malt	3.5 kg (87.5%)	85 %	7
Grain	Caraaroma	0.2 kg (5%)	78 %	400
Grain	Carahell	0.2 kg (5%)	77 %	26
Grain	Weyermann - Acidulated Malt	0.1 kg (2.5%)	80 %	6

## Hops

Use for	Name	Amount	Time	Alpha acid
Boil	lunga	20 g	60 min	11 %
Aroma (end of boil)	Fuggles	20 g	20 min	4.5 %
Aroma (end of boil)	Fuggles	20 g	0 min	4.5 %
Dry Hop	Fuggles	30 g	4 day(s)	4.5 %

## Yeasts

Name	Type	Form	Amount	Laboratory
FM10 O czym szumią wierzby	Ale	Liquid	1000 ml	Fermentum Mobile

## Extras

Type	Name	Amount	Use for	Time
Fining	whirflock	1 g	Boil	5 min