

# Bitter

- Gravity **14.5 BLG**
- ABV ---
- IBU **40**
- SRM **15**
- Style **Extra Special/Strong Bitter (English Pale Ale)**

## Batch size

- Expected quantity of finished beer **22 liter(s)**
- Trub loss **5 %**
- Size with trub loss **23.1 liter(s)**
- Boil time **60 min**
- Evaporation rate **11.2 %/h**
- Boil size **28.1 liter(s)**

## Mash information

- Mash efficiency **75 %**
- Liquor-to-grist ratio **3.5 liter(s) / kg**
- Mash size **21 liter(s)**
- Total mash volume **27 liter(s)**

## Steps

- Temp **52 C**, Time **10 min**
- Temp **62 C**, Time **45 min**
- Temp **72 C**, Time **45 min**
- Temp **76 C**, Time **5 min**

## Mash step by step

- Heat up **21 liter(s)** of strike water to **56.6C**
- Add grains
- Keep mash **10 min** at **52C**
- Keep mash **45 min** at **62C**
- Keep mash **45 min** at **72C**
- Keep mash **5 min** at **76C**
- Sparge using **13.1 liter(s)** of **76C** water or to achieve **28.1 liter(s)** of wort

## Fermentables

Type	Name	Amount	Yield	EBC
Grain	Strzegom Pale Ale	1.5 kg (25%)	79 %	6
Grain	Monachijski	3 kg (50%)	80 %	16
Grain	Strzegom Bursztynowy	0.5 kg (8.3%)	70 %	30
Grain	Karmelowy Czerwony	1 kg (16.7%)	75 %	59

## Hops

Use for	Name	Amount	Time	Alpha acid
Boil	Pilgrim	30 g	60 min	8.1 %
Aroma (end of boil)	Fusion	30 g	30 min	6.5 %
Dry Hop	Challenger	30 g	7 day(s)	5.8 %

## Yeasts

Name	Type	Form	Amount	Laboratory
us-05	Ale	Slant	50 ml	PO OCE APA