

## bitter drugie podejście do tematu

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- Gravity **10.2 BLG**
- ABV **4.1 %**
- IBU **30**
- SRM **8.1**
- Style **Extra Special/Strong Bitter (English Pale Ale)**

### Batch size

- Expected quantity of finished beer **24 liter(s)**
- Trub loss **5 %**
- Size with trub loss **25.2 liter(s)**
- Boil time **60 min**
- Evaporation rate **5 %/h**
- Boil size **30.4 liter(s)**

### Mash information

- Mash efficiency **68 %**
- Liquor-to-grist ratio **3.5 liter(s) / kg**
- Mash size **19.8 liter(s)**
- Total mash volume **25.4 liter(s)**

### Steps

- Temp **67 C**, Time **50 min**
- Temp **72 C**, Time **15 min**
- Temp **78 C**, Time **10 min**

### Mash step by step

- Heat up **19.8 liter(s)** of strike water to **73.7C**
- Add grains
- Keep mash **50 min** at **67C**
- Keep mash **15 min** at **72C**
- Keep mash **10 min** at **78C**
- Sparge using **16.3 liter(s)** of **76C** water or to achieve **30.4 liter(s)** of wort

### Fermentables

Type	Name	Amount	Yield	EBC
Grain	Viking Pale Ale malt	4.2 kg (74.3%)	80 %	5
Grain	Strzegom Wiedeński	0.5 kg (8.8%)	79 %	10
Grain	Fawcett - Brown	0.3 kg (5.3%)	72 %	180
Grain	Melanoiden Malt	0.5 kg (8.8%)	80 %	39
Grain	tostowy	0.15 kg (2.7%)	80 %	10

### Hops

Use for	Name	Amount	Time	Alpha acid
Boil	East Kent Goldings	40 g	60 min	5.1 %
Boil	East Kent Goldings	30 g	30 min	5 %
Whirlpool	East Kent Goldings	40 g	0 min	5.1 %
Whirlpool	Fuggles	50 g	0 min	4.5 %

### Yeasts

Name	Type	Form	Amount	Laboratory
wyeast 1469 west Yorkshire ale	Ale	Liquid	1000 ml	wyeast
starter drożdżowy				

## Extras

Type	Name	Amount	Use for	Time
Water Agent	gips	5 g	Boil	10 min
Fining	wirflook	10 g	Boil	15 min