

## Copper bite

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- Gravity **13.1 BLG**
- ABV ---
- IBU **45**
- SRM **16.9**
- 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 **10 %/h**
- Boil size **27.8 liter(s)**

### Mash information

- Mash efficiency **80 %**
- Liquor-to-grist ratio **3 liter(s) / kg**
- Mash size **15 liter(s)**
- Total mash volume **20 liter(s)**

### Steps

- Temp **66 C**, Time **45 min**
- Temp **72 C**, Time **10 min**
- Temp **78 C**, Time **5 min**

### Mash step by step

- Heat up **15 liter(s)** of strike water to **73.7C**
- Add grains
- Keep mash **45 min** at **66C**
- Keep mash **10 min** at **72C**
- Keep mash **5 min** at **78C**
- Sparge using **17.8 liter(s)** of **76C** water or to achieve **27.8 liter(s)** of wort

### Fermentables

Type	Name	Amount	Yield	EBC
Grain	Viking Pale Ale malt	3 kg (60%)	80 %	5
Grain	Strzegom Monachijski typ II	1 kg (20%)	79 %	22
Grain	Cara Gold Castlemalting	1 kg (20%)	78 %	120

### Hops

Use for	Name	Amount	Time	Alpha acid
Boil	Oktawia	30 g	60 min	7.1 %
Boil	Oktawia	30 g	30 min	7.1 %
Aroma (end of boil)	Oktawia	30 g	5 min	7.1 %

### Yeasts

Name	Type	Form	Amount	Laboratory
FM10 O czym szumią wierzby	Ale	Liquid	30 ml	Fermentum Mobile