

## Pils modyfikacja

- Gravity **11.7 BLG**
- ABV **4.7 %**
- IBU **48**
- SRM **3.7**
- Style **Bohemian Pilsener**

### Batch size

- Expected quantity of finished beer **20 liter(s)**
- Trub loss **4 %**
- Size with trub loss **21.6 liter(s)**
- Boil time **60 min**
- Evaporation rate **10 %/h**
- Boil size **25.5 liter(s)**

### Mash information

- Mash efficiency **75 %**
- Liquor-to-grist ratio **3.5 liter(s) / kg**
- Mash size **15.4 liter(s)**
- Total mash volume **19.8 liter(s)**

### Steps

- Temp **50 C**, Time **10 min**
- Temp **63 C**, Time **30 min**
- Temp **72 C**, Time **30 min**
- Temp **77 C**, Time **5 min**

### Mash step by step

- Heat up **15.4 liter(s)** of strike water to **54.3C**
- Add grains
- Keep mash **10 min** at **50C**
- Keep mash **30 min** at **63C**
- Keep mash **30 min** at **72C**
- Keep mash **5 min** at **77C**
- Sparge using **14.5 liter(s)** of **76C** water or to achieve **25.5 liter(s)** of wort

### Fermentables

Type	Name	Amount	Yield	EBC
Grain	słód pilzneński	4 kg (90.9%)	86 %	4
Grain	Strzegom Monachijski typ II	0.2 kg (4.5%)	79 %	22
Grain	słód caramel pils bestmalz	0.2 kg (4.5%)	79 %	5

### Hops

Use for	Name	Amount	Time	Alpha acid
Boil	Magnum	20 g	60 min	13.5 %
Boil	Sybilla	30 g	60 min	3.5 %
Boil	hallertau hersbrucker	12 g	15 min	2.3 %
Boil	Sybilla	15 g	15 min	3.5 %
Boil	hallertau hersbrucker	12 g	5 min	2.3 %
Boil	Sybilla	10 g	5 min	3.5 %

### Yeasts

Name	Type	Form	Amount	Laboratory
Mangrove Jack's M84 Bohemian Lager	Lager	Dry	11 g	Mangrove Jack's