

## Marcowe obliczenia

---

- Gravity **14 BLG**
- ABV **5.8 %**
- IBU **20**
- SRM **8.8**
- Style **German Pilsner (Pils)**

### Batch size

- Expected quantity of finished beer **12 liter(s)**
- Trub loss **1 %**
- Size with trub loss **12.1 liter(s)**
- Boil time **60 min**
- Evaporation rate **13 %/h**
- Boil size **15 liter(s)**

### Mash information

- Mash efficiency **75 %**
- Liquor-to-grist ratio **3.5 liter(s) / kg**
- Mash size **11.7 liter(s)**
- Total mash volume **15 liter(s)**

### Steps

- Temp **66 C**, Time **70 min**

### Mash step by step

- Heat up **11.7 liter(s)** of strike water to **72.5C**
- Add grains
- Keep mash **70 min** at **66C**
- Sparge using **6.6 liter(s)** of **76C** water or to achieve **15 liter(s)** of wort

### Fermentables

Type	Name	Amount	Yield	EBC
Grain	Strzegom Wiedeński	1.65 kg (49.5%)	79 %	10
Grain	Strzegom Monachijski typ I	1.55 kg (46.5%)	79 %	16
Grain	Caramunich® typ I	0.13 kg (3.9%)	73 %	80

### Hops

Use for	Name	Amount	Time	Alpha acid
Boil	Tradition	12 g	60 min	5.5 %
Aroma (end of boil)	Tradition	42 g	5 min	5.5 %