Dwunastka

- Gravity **12.1 BLG**
- ABV **4.9 %**
- IBU **50**
- SRM **3.9**
- Style **Classic American Pilsner**

Batch size

- Expected quantity of finished beer **23 liter(s)**
- Trub loss **5 %**
- Size with trub loss **24.1 liter(s)**
- Boil time **60 min**
- Evaporation rate **10 %/h**
- Boil size **29 liter(s)**

Mash information

- Mash efficiency **75 %**
- Liquor-to-grist ratio **3 liter(s) / kg**
- Mash size **16.5 liter(s)**
- Total mash volume **22 liter(s)**

Steps

- Temp **66 C**, Time **60 min**
- Temp **78 C**, Time **10 min**

Mash step by step

- Heat up **16.5 liter(s)** of strike water to **73.7C**
- Add grains
- Keep mash **60 min** at **66C**
- Keep mash **10 min** at **78C**
- Sparge using **18 liter(s)** of **76C** water or to achieve **29 liter(s)** of wort

Fermentables

Type	Name	Amount	Yield	EBC
Grain	płatki ryżowe	0.5 kg *(9.1%)*	90 %	2
Grain	Weyermann - Carapils	0.5 kg *(9.1%)*	78 %	4
Grain	Castle Malting - Pilzneński 6-rzędowy	4.5 kg *(81.8%)*	80 %	5

Hops

Use for	Name	Amount	Time	Alpha acid
Boil	Saaz (Czech Republic)	20 g	60 min	4.5 %
Boil	Apollo	20 g	10 min	17 %
Boil	Citra	25 g	60 min	12 %

Yeasts

Name	Type	Form	Amount	Laboratory
34/70	Lager	Dry	11.5 g	Fermentis