

Munich Helles

- Gravity **11.7 BLG**
- ABV **4.7 %**
- IBU **18**
- SRM **4.7**
- Style **Munich Helles**

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 **15 %/h**
- Boil size **33.1 liter(s)**

Mash information

- Mash efficiency **70 %**
- Liquor-to-grist ratio **4 liter(s) / kg**
- Mash size **24.6 liter(s)**
- Total mash volume **30.7 liter(s)**

Steps

- Temp **50 C**, Time **15 min**
- Temp **63 C**, Time **30 min**
- Temp **70 C**, Time **30 min**
- Temp **78 C**, Time **10 min**

Mash step by step

- Heat up **24.6 liter(s)** of strike water to **53.7C**
- Add grains
- Keep mash **15 min** at **50C**
- Keep mash **30 min** at **63C**
- Keep mash **30 min** at **70C**
- Keep mash **10 min** at **78C**
- Sparge using **14.6 liter(s)** of **76C** water or to achieve **33.1 liter(s)** of wort

Fermentables

Type	Name	Amount	Yield	EBC
Grain	BESTMALZ - Best Pilsen	5 kg (81.4%)	80.5 %	4
Grain	Weyermann - Pilsner Malt	0.5 kg (8.1%)	81 %	5
Grain	Weyermann - Monachijski typ I	0.5 kg (8.1%)	79 %	16
Grain	Bestmalz - Melanoiden Malt	0.14 kg (2.3%)	80 %	70

Hops

Use for	Name	Amount	Time	Alpha acid
First Wort	lunga	15 g	30 min	11.5 %
First Wort	Sybilla	15 g	30 min	3.5 %
Whirlpool	Hallertau Spalt Select	40 g	5 min	3.4 %

Hop stand w 75 stopniach na 30 min

Yeasts

Name	Type	Form	Amount	Laboratory
Mangrove Jack's M54 Californian Lager	Lager	Slant	500 ml	Mangrove Jack's
wyliczone z https://www.brewersfriend.com/yeast-pitch-rate-and-starter-calculator/				

Extras

Type	Name	Amount	Use for	Time
Fining	Whirlflock	1.25 g	Boil	10 min

Notes

- Woda 1:1 kranowa ze zdemineralizowaną bez dodatków.
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