

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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