

Helles

- Gravity **11.9 BLG**
- ABV **4.8 %**
- IBU **22**
- SRM **4.4**
- Style **Munich Helles**

Batch size

- Expected quantity of finished beer **20 liter(s)**
- Trub loss **5 %**
- Size with trub loss **21 liter(s)**
- Boil time **60 min**
- Evaporation rate **15 %/h**
- Boil size **26.4 liter(s)**

Mash information

- Mash efficiency **65 %**
- Liquor-to-grist ratio **4 liter(s) / kg**
- Mash size **22 liter(s)**
- Total mash volume **27.5 liter(s)**

Steps

- Temp **63 C**, Time **15 min**
- Temp **66 C**, Time **15 min**
- Temp **73 C**, Time **30 min**
- Temp **78 C**, Time **2 min**

Mash step by step

- Heat up **22 liter(s)** of strike water to **68.4C**
- Add grains
- Keep mash **15 min** at **63C**
- Keep mash **15 min** at **66C**
- Keep mash **30 min** at **73C**
- Keep mash **2 min** at **78C**
- Sparge using **9.9 liter(s)** of **76C** water or to achieve **26.4 liter(s)** of wort

Fermentables

| Type | Name | Amount | Yield | EBC |
|-------|---------------------|----------------|-------|-----|
| Grain | Strzegom Pilzneński | 4.5 kg (81.8%) | 80 % | 4 |
| Grain | Strzegom Wiedeński | 0.5 kg (9.1%) | 79 % | 10 |
| Grain | Carabody | 0.5 kg (9.1%) | 75 % | 8 |

Hops

| Use for | Name | Amount | Time | Alpha acid |
|---------------------|----------------------|--------|--------|------------|
| Boil | Hallertau Mittelfruh | 25 g | 60 min | 3.8 % |
| Aroma (end of boil) | Hallertau Mittelfruh | 75 g | 10 min | 3.8 % |

Yeasts

| Name | Type | Form | Amount | Laboratory |
|-----------------------------------|-------|--------|--------|------------|
| White Labs WLP860-0 Munich Helles | Lager | Liquid | 200 ml | White Labs |

Extras

| Type | Name | Amount | Use for | Time |
|------|------|--------|---------|------|
|------|------|--------|---------|------|

| | | | | |
|-------------|----------------|-----|------|--------|
| Fining | Mech irlandzki | 4 g | Boil | 10 min |
| Water Agent | Gips | 4 g | Mash | 60 min |

Notes

- Zacieranie pH 5,5, gotowanie pH 5,0. Fermentacja ok 7 dni w 10st + 4 dni w 16st. Cicha ok 14 dni 1-2st.
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