

Keller

- Gravity **12.9 BLG**
- ABV **5.2 %**
- IBU **22**
- SRM **7.1**
- Style **Munich Helles**

Batch size

- Expected quantity of finished beer **15 liter(s)**
- Trub loss **5 %**
- Size with trub loss **15.8 liter(s)**
- Boil time **60 min**
- Evaporation rate **10 %/h**
- Boil size **19 liter(s)**

Mash information

- Mash efficiency **75 %**
- Liquor-to-grist ratio **3 liter(s) / kg**
- Mash size **11.7 liter(s)**
- Total mash volume **15.6 liter(s)**

Steps

- Temp **67 C**, Time **40 min**
- Temp **72 C**, Time **30 min**
- Temp **78 C**, Time **5 min**

Mash step by step

- Heat up **11.7 liter(s)** of strike water to **74.8C**
- Add grains
- Keep mash **40 min** at **67C**
- Keep mash **30 min** at **72C**
- Keep mash **5 min** at **78C**
- Sparge using **11.2 liter(s)** of **76C** water or to achieve **19 liter(s)** of wort

Fermentables

| Type | Name | Amount | Yield | EBC |
|-------|---------------------|----------------|-------|-----|
| Grain | Viking Pilsner malt | 1 kg (25.6%) | 82 % | 4 |
| Grain | Viking Munich Malt | 1.7 kg (43.6%) | 78 % | 18 |
| Grain | Viking Vienna Malt | 1 kg (25.6%) | 79 % | 7 |
| Grain | Strzegom Karmel 30 | 0.2 kg (5.1%) | 75 % | 30 |

Hops

| Use for | Name | Amount | Time | Alpha acid |
|---------------------|--------|--------|--------|------------|
| Boil | Magnum | 7 g | 50 min | 13.5 % |
| Boil | Magnum | 13 g | 10 min | 13.5 % |
| Aroma (end of boil) | Magnum | 30 g | 0 min | 13.5 % |

Yeasts

| Name | Type | Form | Amount | Laboratory |
|-------------|------|------|--------|------------|
| Safale S-04 | Ale | Dry | 8 g | Fermentis |

Extras

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

| | | | | |
|--------|----------------|-----|------|--------|
| Fining | Mech irlandzki | 5 g | Boil | 10 min |
|--------|----------------|-----|------|--------|