

Munich Lager Harmonie/Saaz nowe

- Gravity **12.1 BLG**
- ABV **4.9 %**
- IBU **40**
- SRM **3.9**
- Style **Bohemian Pilsener**

Batch size

- Expected quantity of finished beer **54 liter(s)**
- Trub loss **2 %**
- Size with trub loss **55.1 liter(s)**
- Boil time **70 min**
- Evaporation rate **10 %/h**
- Boil size **67.6 liter(s)**

Mash information

- Mash efficiency **85 %**
- Liquor-to-grist ratio **3 liter(s) / kg**
- Mash size **33 liter(s)**
- Total mash volume **44 liter(s)**

Steps

- Temp **63 C**, Time **20 min**
- Temp **65 C**, Time **20 min**
- Temp **72 C**, Time **20 min**
- Temp **78 C**, Time **10 min**

Mash step by step

- Heat up **33 liter(s)** of strike water to **70.2C**
- Add grains
- Keep mash **20 min** at **63C**
- Keep mash **20 min** at **65C**
- Keep mash **20 min** at **72C**
- Keep mash **10 min** at **78C**
- Sparge using **45.6 liter(s)** of **76C** water or to achieve **67.6 liter(s)** of wort

Fermentables

| Type | Name | Amount | Yield | EBC |
|-------|----------------------|--------------|-------|-----|
| Grain | Viking Pilsner malt | 9 kg (81.8%) | 82 % | 4 |
| Grain | Viking Munich Malt | 1 kg (9.1%) | 78 % | 18 |
| Grain | Viking Carabody Malt | 1 kg (9.1%) | 78 % | 8 |

Hops

| Use for | Name | Amount | Time | Alpha acid |
|---------------------|-----------------------|--------|--------|------------|
| Boil | Harmonie | 75 g | 50 min | 9 % |
| Aroma (end of boil) | Saaz (Czech Republic) | 100 g | 20 min | 3.2 % |
| Whirlpool | Saaz (Czech Republic) | 100 g | 20 min | 3.2 % |

Yeasts

| Name | Type | Form | Amount | Laboratory |
|----------------------------|-------|-------|--------|------------|
| Wyeast - 2308 Munich Lager | Lager | Slant | 700 ml | Wyeast |

Extras

| Type | Name | Amount | Use for | Time |
|-------------|--------------------|--------|---------|--------|
| Water Agent | Kwas fosforowy 75% | 9 g | Mash | 70 min |
| Water Agent | Chlorek wapnia ml | 5 g | Mash | 70 min |
| Water Agent | Gips piwowarski | 14 g | Mash | 70 min |
| Fining | Whirfloc | 3 g | Boil | 12 min |