

Bitter

- Gravity **11.7 BLG**
- ABV **4.7 %**
- IBU **36**
- SRM **7.1**
- Style **Special/Best/Premium Bitter**

Batch size

- Expected quantity of finished beer **22 liter(s)**
- Trub loss **5 %**
- Size with trub loss **23.1 liter(s)**
- Boil time **60 min**
- Evaporation rate **10 %/h**
- Boil size **27.8 liter(s)**

Mash information

- Mash efficiency **75 %**
- Liquor-to-grist ratio **3 liter(s) / kg**
- Mash size **15.6 liter(s)**
- Total mash volume **20.8 liter(s)**

Steps

- Temp **66 C**, Time **45 min**
- Temp **72 C**, Time **15 min**
- Temp **78 C**, Time **1 min**

Mash step by step

- Heat up **15.6 liter(s)** of strike water to **73.7C**
- Add grains
- Keep mash **45 min** at **66C**
- Keep mash **15 min** at **72C**
- Keep mash **1 min** at **78C**
- Sparge using **17.4 liter(s)** of **76C** water or to achieve **27.8 liter(s)** of wort

Fermentables

| Type | Name | Amount | Yield | EBC |
|-------|----------------------|----------------|-------|-----|
| Grain | Viking Pale Ale malt | 4 kg (76.9%) | 80 % | 5 |
| Grain | Karmelowy Czerwony | 0.7 kg (13.5%) | 75 % | 59 |
| Grain | Viking Munich Malt | 0.5 kg (9.6%) | 78 % | 18 |

Hops

| Use for | Name | Amount | Time | Alpha acid |
|---------------------|---------|--------|--------|------------|
| Boil | Perle | 25 g | 60 min | 7 % |
| Boil | Fuggles | 20 g | 60 min | 5 % |
| Boil | Fuggles | 15 g | 20 min | 5 % |
| Aroma (end of boil) | Fuggles | 15 g | 10 min | 5 % |

Yeasts

| Name | Type | Form | Amount | Laboratory |
|-------------|------|-------|--------|------------|
| Safale S-04 | Ale | Slant | 100 ml | Fermentis |