

Bitter 13 hl

- Gravity **11 BLG**
- ABV **4.4 %**
- IBU **30**
- SRM **5.9**
- Style **Special/Best/Premium Bitter**

Batch size

- Expected quantity of finished beer **1200 liter(s)**
- Trub loss **5 %**
- Size with trub loss **1260 liter(s)**
- Boil time **60 min**
- Evaporation rate **1 %/h**
- Boil size **1272.6 liter(s)**

Mash information

- Mash efficiency **90 %**
- Liquor-to-grist ratio **3 liter(s) / kg**
- Mash size **604.5 liter(s)**
- Total mash volume **806 liter(s)**

Steps

- Temp **68 C**, Time **45 min**
- Temp **72 C**, Time **15 min**
- Temp **78 C**, Time **2 min**

Mash step by step

- Heat up **604.5 liter(s)** of strike water to **76C**
- Add grains
- Keep mash **45 min** at **68C**
- Keep mash **15 min** at **72C**
- Keep mash **2 min** at **78C**
- Sparge using **869.6 liter(s)** of **76C** water or to achieve **1272.6 liter(s)** of wort

Fermentables

| Type | Name | Amount | Yield | EBC |
|-------|-----------------------------|----------------|-------|-----|
| Grain | Viking Pale Ale malt | 175 kg (86.8%) | 80 % | 5 |
| Grain | Strzegom Bursztynowy cookie | 9 kg (4.5%) | 70 % | 49 |
| Grain | Caramunich® typ I | 17.5 kg (8.7%) | 73 % | 80 |

Hops

| Use for | Name | Amount | Time | Alpha acid |
|---------------------|---------|--------|--------|------------|
| Boil | Marynka | 1000 g | 60 min | 9.5 % |
| Boil | Marynka | 1000 g | 15 min | 9.5 % |
| Aroma (end of boil) | Marynka | 2000 g | 0 min | 9.5 % |