

Full aroma hops

- Gravity **12.1 BLG**
- ABV ---
- IBU **42**
- SRM **3.3**

Batch size

- Expected quantity of finished beer **25.5 liter(s)**
- Trub loss **5 %**
- Size with trub loss **26.8 liter(s)**
- Boil time **60 min**
- Evaporation rate **10 %/h**
- Boil size **32.2 liter(s)**

Mash information

- Mash efficiency **85 %**
- Liquor-to-grist ratio **2.7 liter(s) / kg**
- Mash size **13.5 liter(s)**
- Total mash volume **18.5 liter(s)**

Steps

- Temp **61 C**, Time **12 min**
- Temp **71 C**, Time **45 min**
- Temp **75 C**, Time **10 min**

Mash step by step

- Heat up **13.5 liter(s)** of strike water to **68.6C**
- Add grains
- Keep mash **12 min** at **61C**
- Keep mash **45 min** at **71C**
- Keep mash **10 min** at **75C**
- Sparge using **23.7 liter(s)** of **76C** water or to achieve **32.2 liter(s)** of wort

Fermentables

| Type | Name | Amount | Yield | EBC |
|-------|------------|-------------|-------|-----|
| Grain | Pilzneński | 5 kg (100%) | 80 % | 4 |

Hops

| Use for | Name | Amount | Time | Alpha acid |
|---------------------|-------------------|--------|--------|------------|
| Boil | Magnum | 38 g | 90 min | 6.4 % |
| Boil | Lublin (Lubelski) | 40 g | 45 min | 4.3 % |
| Aroma (end of boil) | Marynka | 13 g | 10 min | 4.3 % |

Yeasts

| Name | Type | Form | Amount | Laboratory |
|-------------|------|------|--------|------------|
| Safale S-04 | Ale | Dry | 11.5 g | Safale |