

ABW

- Gravity **24 BLG**
- ABV **11 %**
- IBU **100**
- SRM **13**

Batch size

- Expected quantity of finished beer **11 liter(s)**
- Trub loss **5 %**
- Size with trub loss **11.6 liter(s)**
- Boil time **90 min**
- Evaporation rate **10 %/h**
- Boil size **14.6 liter(s)**

Mash information

- Mash efficiency **70 %**
- Liquor-to-grist ratio **2.75 liter(s) / kg**
- Mash size **16.2 liter(s)**
- Total mash volume **22.1 liter(s)**

Steps

- Temp **66 C**, Time **60 min**
- Temp **76 C**, Time **1 min**

Mash step by step

- Heat up **16.2 liter(s)** of strike water to **74.4C**
- Add grains
- Keep mash **60 min** at **66C**
- Keep mash **1 min** at **76C**
- Sparge using **4.3 liter(s)** of **76C** water or to achieve **14.6 liter(s)** of wort

Fermentables

| Type | Name | Amount | Yield | EBC |
|-------|----------------------------|----------------|-------|-----|
| Grain | Briess - Pale Ale Malt | 5 kg (84.7%) | 80 % | 7 |
| Grain | Płatki owsiane | 0.4 kg (6.8%) | 85 % | 3 |
| Grain | Biscuit Malt | 0.25 kg (4.2%) | 79 % | 45 |
| Grain | Caramel/Crystal Malt - 40L | 0.25 kg (4.2%) | 74 % | 155 |

Hops

| Use for | Name | Amount | Time | Alpha acid |
|---------|------------------------|--------|--------|------------|
| Boil | Columbus/Tomahawk/Zeus | 30 g | 60 min | 15.5 % |
| Boil | Chinook | 15 g | 25 min | 13 % |
| Boil | Zythos | 15 g | 25 min | 11 % |
| Boil | Zythos | 15 g | 5 min | 11 % |
| Boil | Chinook | 15 g | 5 min | 13 % |

Yeasts

| Name | Type | Form | Amount | Laboratory |
|-------|------|-------|---------|------------|
| us-05 | Ale | Slant | 1111 ml | --- |