

## 4P

- Gravity **12.6 BLG**
- ABV **5.1 %**
- IBU **34**
- SRM **4.3**
- Style **German Pilsner (Pils)**

### Batch size

- Expected quantity of finished beer **20 liter(s)**
- Trub loss **5 %**
- Size with trub loss **21 liter(s)**
- Boil time **75 min**
- Evaporation rate **10 %/h**
- Boil size **25.9 liter(s)**

### Mash information

- Mash efficiency **75 %**
- Liquor-to-grist ratio **4 liter(s) / kg**
- Mash size **16 liter(s)**
- Total mash volume **20 liter(s)**

### Steps

- Temp **64 C**, Time **60 min**
- Temp **72 C**, Time **15 min**
- Temp **78 C**, Time **0 min**

### Mash step by step

- Heat up **16 liter(s)** of strike water to **69.5C**
- Add grains
- Keep mash **60 min** at **64C**
- Keep mash **15 min** at **72C**
- Keep mash **0 min** at **78C**
- Sparge using **13.9 liter(s)** of **76C** water or to achieve **25.9 liter(s)** of wort

### Fermentables

| Type  | Name                                      | Amount     | Yield | EBC |
|-------|---|------------|-------|-----|
| Grain | Słód Pilsner®<br>2,5-4,5 EBC<br>Weyermann | 3 kg (75%) | 100 % | 4   |
| Grain | Strzegom<br>Monachijski typ I             | 1 kg (25%) | 100 % | 16  |

### Hops

| Use for             | Name       | Amount | Time   | Alpha acid |
|---------------------|------------|--------|--------|------------|
| Boil                | Cascade PL | 15 g   | 60 min | 5.2 %      |
| Boil                | Marynka    | 15 g   | 60 min | 10 %       |
| Aroma (end of boil) | Chinook    | 25 g   | 15 min | 6.6 %      |

### Yeasts

| Name    | Type  | Form | Amount | Laboratory |
|---------|-------|------|--------|------------|
| W 34-70 | Lager | Dry  | 11 g   | ---        |