

wara 2

- Gravity **14 BLG**
- ABV **5.8 %**
- IBU **32**
- SRM **29.9**
- Style **Robust Porter**

Batch size

- Expected quantity of finished beer **20 liter(s)**
- Trub loss **5 %**
- Size with trub loss **21 liter(s)**
- Boil time **60 min**
- Evaporation rate **10 %/h**
- Boil size **25.3 liter(s)**

Mash information

- Mash efficiency **75 %**
- Liquor-to-grist ratio **3 liter(s) / kg**
- Mash size **17.3 liter(s)**
- Total mash volume **23 liter(s)**

Steps

- Temp **64 C**, Time **30 min**
- Temp **72 C**, Time **30 min**
- Temp **76 C**, Time **15 min**

Mash step by step

- Heat up **17.3 liter(s)** of strike water to **71.3C**
- Add grains
- Keep mash **30 min** at **64C**
- Keep mash **30 min** at **72C**
- Keep mash **15 min** at **76C**
- Sparge using **13.8 liter(s)** of **76C** water or to achieve **25.3 liter(s)** of wort

Fermentables

| Type | Name | Amount | Yield | EBC |
|-------|--|----------------|-------|------|
| Grain | Briess - Pale Ale Malt | 4 kg (69.6%) | 80 % | 7 |
| Grain | Monachijski typ II 20-25 EBC Weyermann | 1 kg (17.4%) | 80 % | 20 |
| Grain | Strzegom Karmel 300 | 0.25 kg (4.3%) | 70 % | 299 |
| Grain | Strzegom Karmel 600 | 0.25 kg (4.3%) | 68 % | 601 |
| Grain | Strzegom Czekoladowy 1200 | 0.25 kg (4.3%) | 68 % | 1202 |

Hops

| Use for | Name | Amount | Time | Alpha acid |
|---------------------|---------|--------|--------|------------|
| Boil | Chinook | 20 g | 60 min | 13 % |
| Aroma (end of boil) | Fuggles | 50 g | 5 min | 4.5 % |

Yeasts

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