

Żyto

- Gravity **13.1 BLG**
- ABV **5.3 %**
- IBU **14**
- SRM **6.9**
- Style **Roggenbier**

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 **80 %**
- Liquor-to-grist ratio **3.5 liter(s) / kg**
- Mash size **16.6 liter(s)**
- Total mash volume **21.4 liter(s)**

Steps

- Temp **44 C**, Time **20 min**
- Temp **64 C**, Time **40 min**
- Temp **72 C**, Time **20 min**
- Temp **79 C**, Time **2 min**

Mash step by step

- Heat up **16.6 liter(s)** of strike water to **47.4C**
- Add grains
- Keep mash **20 min** at **44C**
- Keep mash **40 min** at **64C**
- Keep mash **20 min** at **72C**
- Keep mash **2 min** at **79C**
- Sparge using **13.5 liter(s)** of **76C** water or to achieve **25.3 liter(s)** of wort

Fermentables

| Type | Name | Amount | Yield | EBC |
|-------|----------------------------|----------------|-------|-----|
| Grain | Żytni | 3 kg (63.2%) | 85 % | 8 |
| Grain | Strzegom Monachijski typ I | 1 kg (21.1%) | 79 % | 16 |
| Grain | Strzegom Pilzneński | 0.5 kg (10.5%) | 80 % | 4 |
| Grain | Caramunich® typ I | 0.25 kg (5.3%) | 73 % | 80 |

Hops

| Use for | Name | Amount | Time | Alpha acid |
|---------|---------|--------|--------|------------|
| Boil | Marynka | 10 g | 50 min | 8.7 % |
| Boil | Marynka | 10 g | 15 min | 8.7 % |

Yeasts

| Name | Type | Form | Amount | Laboratory |
|------------------------------------|-------|-------|--------|-----------------|
| Mangrove Jack's M20 Bavarian Wheat | Wheat | Slant | 200 ml | Mangrove Jack's |