

czarny piotruś

- Gravity **13.6 BLG**
- ABV **5.6 %**
- IBU **24**
- SRM **26.2**
- Style **Munich Dunkel**

Batch size

- Expected quantity of finished beer **10 liter(s)**
- Trub loss **10 %**
- Size with trub loss **11 liter(s)**
- Boil time **60 min**
- Evaporation rate **10 %/h**
- Boil size **13.2 liter(s)**

Mash information

- Mash efficiency **70 %**
- Liquor-to-grist ratio **2.5 liter(s) / kg**
- Mash size **7.9 liter(s)**
- Total mash volume **11 liter(s)**

Steps

- Temp **64 C**, Time **30 min**
- Temp **72 C**, Time **45 min**

Mash step by step

- Heat up **7.9 liter(s)** of strike water to **72.8C**
- Add grains
- Keep mash **30 min** at **64C**
- Keep mash **45 min** at **72C**
- Sparge using **8.5 liter(s)** of **76C** water or to achieve **13.2 liter(s)** of wort

Fermentables

| Type | Name | Amount | Yield | EBC |
|-------|-----------------------------|----------------|-------|-----|
| Grain | Strzegom Monachijski typ II | 1.5 kg (47.6%) | 79 % | 22 |
| Grain | Strzegom Pilzneński | 1.3 kg (41.3%) | 80 % | 4 |
| Grain | Strzegom Karmel 600 | 0.1 kg (3.2%) | 68 % | 601 |
| Grain | Briess - Roasted Barley | 0.25 kg (7.9%) | 55 % | 591 |

Hops

| Use for | Name | Amount | Time | Alpha acid |
|---------|-------------------|--------|--------|------------|
| Boil | Marynka | 15 g | 60 min | 6.5 % |
| Boil | Lublin (Lubelski) | 15 g | 10 min | 4 % |

Yeasts

| Name | Type | Form | Amount | Laboratory |
|---------------------------------|------|------|--------|-----------------|
| Mangrove Jack's -M15 Empire Ale | Ale | Dry | 5.5 g | Mangrove Jack's |