

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